Home Energy Labelling Requirement at Point of Sale: Pilot Program Design

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Prepared by

Tom-Pierre Frappé-Sénéclauze • Ellen Pond • Josha MacNab •
Claire Beckstead • Ben Thibault

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PEMBINA institute

Leading Canada's transition to a clean energy future.

The Pembina Institute is a national non-profit think tank that advances clean energy solutions through research, education, consulting and advocacy. It promotes environmental, social and economic sustainability in the public interest by developing practical solutions for communities, individuals, governments and businesses. The Pembina Institute provides policy research leadership and education on climate change, energy issues, green economics, energy efficiency and conservation, renewable energy, and environmental governance. For more information about the Pembina Institute, visit www.pembina.org.

The Pembina Institute
Box 7558
Drayton Valley, Alberta
Canada T7A 1S7
Phone: 780-542-6272
Email: info@pembina.org

Pembina's Sustainable Communities group helps communities advance sustainable energy solutions. Our staff's commitment and Pembina's mission create an innovative and unique approach to helping communities reduce greenhouse gas emissions, create energy plans that are sustainable and meet governance obligations. We strive to act as a bridge between a diverse set of stakeholders through identifying common solutions.

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Executive summary

Through better insulation and heating systems, we have the technology to build (or refurbish) homes so that they require very little energy to operate — yet buildings still account for 35 per cent of community greenhouse gas emissions in B.C. In order to meet our community and provincial climate targets (33 per cent below 2007 by 2020 and 80 per cent by 2050), we need to change expectations about home energy efficiency, and radically improve the performance of new and existing buildings in the next decade.

The 2012 building code offers modest improvements on energy efficiency, but not to the degree required to meet these targets. More stringent efficiency standards and/or market demand for better-than-code buildings will be required. And as most buildings currently existing will still be standing in 2050, we cannot solely count on progress in new construction standards; we must also upgrade existing buildings. Such widespread upgrades require the broad involvement of homeowners, who make decisions about energy efficiency upgrades as they purchase and renovate their homes.

Broad adoption of home energy assessments and labelling, while not sufficient in and of itself to drive these changes, is a necessary first step to address the energy efficiency gap. Home energy labelling provides customers and real estate stakeholders with the basic information they need to make informed decisions regarding home energy efficiency. The EnerGuide rating of a home provides a simple point of reference to compare buildings to each other, while the associated report allows homebuyers to factor energy costs and greenhouse gas emissions into their decisions when evaluating different properties. By providing tailored suggestions about cost-effective energy upgrades, an energy assessment can increase the likelihood that a homeowner will invest in energy efficiency upgrades, particularly when new owners move in or when other renovations are contemplated. The energy assessment also provides key information about the state of the building stock, enabling local sustainability planners to better assess the need for specific programs. Thus, home energy assessments facilitate the implementation of other supporting policies such as energy upgrade incentives, financing programs, feebates, minimum energy efficiency standards, and education campaigns.

This report outlines the policy design of a home energy labelling requirement at point of sale, for possible pilot implementation by local governments in B.C. The labelling program was designed through an iterative process including research and workshops with local real estate stakeholders and local government staff in Dawson Creek, Campbell River, and Fort St. John. At full implementation, this policy would require the seller of a new or existing single-family house to get an EnerGuide energy assessment before the homes are put up for sale. The energy rating would be posted on MLS or other listings and the detailed assessment report made available to prospective buyers. The data would also be shared with the local government, should the homeowner agree. While the ultimate goal is for the program to cover both new and existing homes, we suggest a phased implementation, starting first by requiring only the labelling of new construction. Once that program is established and financing tools (such as Pay-As-You-Save-BC) are in place to help homeowners finance energy upgrades, we suggest extending the labelling requirement to existing buildings. While detailed program implementation is beyond

the scope of this project and report, further engagement with the builder/developer and real estate industries are recommended prior to implementing any program.

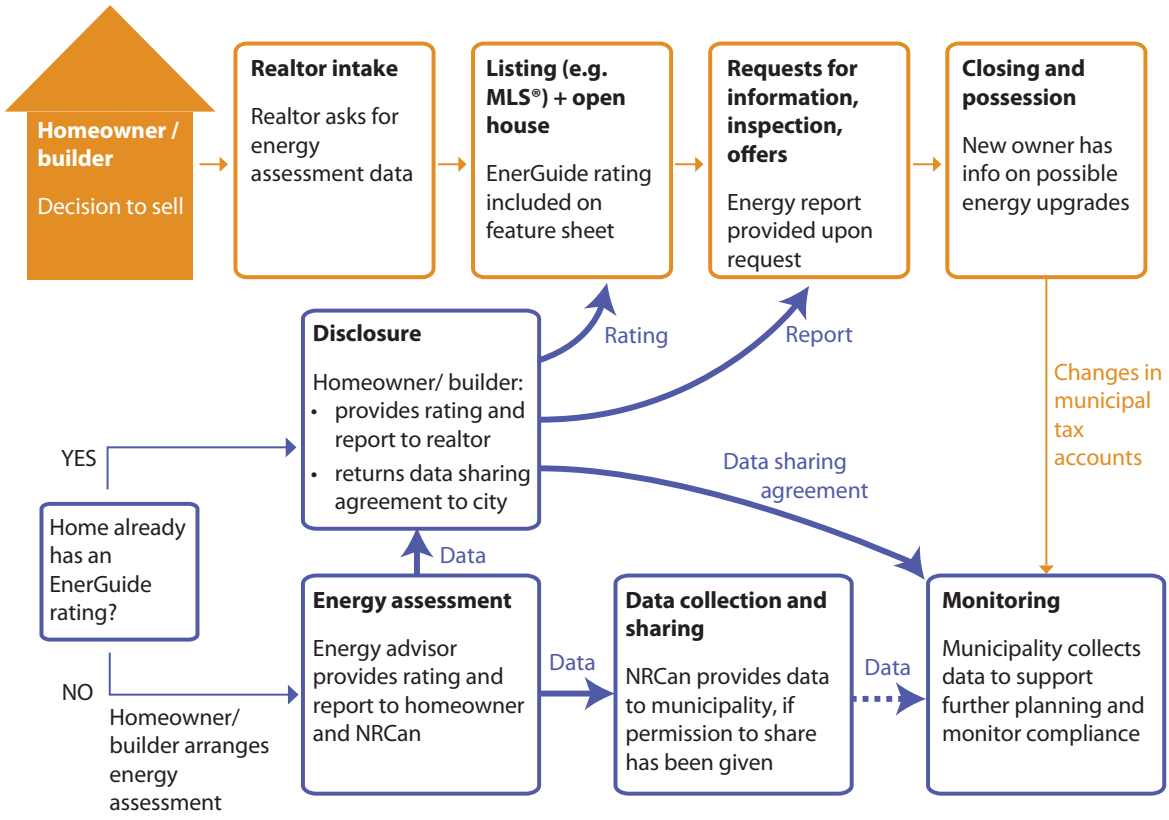

Figure 1. Home energy labelling requirement process.

See Section 2 for a seven-page overview of the proposed policy.

1. Introduction

1.1 Purpose

The purpose of this report is to describe the case for, structure of, and feedback on a potential home energy labelling requirement pilot project in selected municipalities of B.C.

Through a collaborative process involving local governments, real estate agents, builders/contractors, NGOs, and community members, this project aimed to accomplish the following objectives:

- Increase awareness of and support for building energy labelling among local government staff, realtors, and developers;
- Articulate how a energy labelling requirement for new and existing homes could be implemented, and test and improve this design with affected stakeholders;
- Understand key areas of concern from stakeholders, identify program components that might encounter stakeholder/community pushback or barriers to implementation, and look for solutions;
- Identify next steps for the implementation of a pilot program; and,
- Clarify the path forward for possible provincewide adoption.

To this end, this report is divided into the following sections:

- **1. Introduction** – provides a brief explanation of home energy labelling and the climate action and home energy efficiency context, and introduces best practices from leading jurisdictions worldwide.
- **2. Recommended program design** – provides an overview of how an energy labelling requirement program could work, including who would be responsible for the assessment, how data would be shared, monitoring and enforcement, and administration. The process for both new and existing homes is considered. Based on stakeholder feedback, a phased implementation (starting with new constructions) is suggested.
- **3. Key design questions** – provides more detail on each of the program elements, outlining options that were explored during the policy design process. This section shares learnings from the stakeholder input process, including areas where implementation could be challenging, as well as areas that were supported or not by the stakeholders who were consulted.
- **4. Next steps** – outlines what would be required in order to move forward with a local pilot and next steps to advance labelling provincewide, including partnerships, education, tie-in to other policy, legislative clarifications, and further engagement with realtors and developers.
- **Appendices**
    - **Appendix A. Design features of other labelling programs** – provide more details on labelling programs implemented elsewhere.

- **Appendix B. EnerGuide for Houses –** answers some frequently asked questions about the EnerGuide rating system for houses, and gives an overview of changes upcoming in the 'new generation' EnerGuide.
- **Appendix C. Jurisdictional analysis** – provides more legal analysis of the Community Charter to evaluate whether local governments currently have authority to implement a labelling requirement.
- **Appendix D. Workshop summaries –** presents an overview of the local government/stakeholder workshops.

1.2 What is the home energy labelling requirement?

A home energy labelling requirement would require the seller of a new or existing single-family house to obtain an EnerGuide label for the home (if they do not already have one) and disclose that information to prospective buyers. The energy rating would be included on the home's listing (Multiple Listing Service (MLS®) or other system), and the energy report would be made available to potential homebuyers, bringing energy performance into the housing market. The energy labelling program would also allow local governments to collect energy data (pending homeowner agreement) in order to support improved energy efficiency policy and program development (e.g., targeted financing programs or energy performance standards). The proposed labelling program is outlined in Section 2 of this report, while Section 3 provides more detail and looks at specific challenges to implementation.

1.3 Context

1.3.1 Climate action in B.C.

The provincial government has legislated a provincewide greenhouse gas reduction target of at least 33 per cent below 2007 levels by 2020 and 80 per cent by 2050. Considerable reductions are expected from efficiency and, indeed, the B.C. Government's 2010 *Clean Energy Act* commits to meeting 66 per cent of BC Hydro's future incremental power demand from conservation and efficiency improvements by 2020.[1] B.C. local governments have shown leadership and signified their support for the provincial targets by signing the Climate Action Charter.[2] Under this charter, local governments have committed to "implementing programs, policies, or legislative actions, within their respective jurisdictions, that facilitate reduced GHG emissions," as well as creating "more efficient rural and urban communities."[3]

[1] Government of British Columbia, "New Act Powers B.C. Forward with Clean Energy and Jobs," news release, April 28, 2010. http://www2.news.gov.bc.ca/news_releases_2009-2013/2010PREM0090-000483.htm

[2] Government of British Columbia, "Climate Action Charter," *LiveSmart BC*. http://www.livesmartbc.ca/community/charter.html.

[3] *British Columbia Climate Action Charter*, sections 4(d), 5(a)(iii). https://ubcm.civicweb.net/Documents/DocumentList.aspx?ID=1683

1.3.2 Home energy efficiency improvement benefits

B.C. governments, both provincial and local, have good reason to support home energy efficiency measures. With 35 per cent of local greenhouse gas emissions due to buildings, efficiency improvements comprise some of the smartest GHG reduction strategies available to communities. They also provide environmental, economic and social benefits for building owners and the larger community.

Environmental benefits

Reduction in energy demand reduces environmental impacts due to the production and use of energy (e.g., land impacts of dams, oil and gas mining, pipelines, etc.; climate and health impacts of upstream and downstream pollutant emissions; etc.). Although the energy savings from energy efficiency measures vary widely from home to home, data indicates considerable savings from efficiency investments, which adds up to significant overall GHG benefits. For example:

- On average, homeowners who participated in the federal ecoENERGY program between 2007 and 2008 reduced the GHG emissions of their homes by over 3 tonnes of CO_2e per year.[4]
- Research in the U.S. shows that GHG emissions in the buildings sector could be cut by up to 23 per cent through energy efficiency measures that are cost effective (i.e. with positive net-present value);[5] or up to 31 per cent if the cost of energy included a carbon price similar to that we currently have in B.C.[6]
- Assuming the economics are similar in the Canadian context, this 31 per cent decrease in emissions from buildings would provide GHG reductions of approximately 24 million tons of CO_2e per year, or over 3.5 per cent of Canada's overall emissions.[7]

Economic benefits

Energy upgrades in the residential sector provide economic benefits to individuals and communities through:

- Energy cost savings: Many residential energy efficiency investments have positive returns, paying for themselves in a reasonable period and then providing an ongoing return on the initial investment. Savings and costs vary for each home and by region, but estimates made for the Lower Mainland show simple payback in the range of one to six

[4] Collectively, the 94,819 grant recipients reduced emissions by 0.32 Mt GHG during the period of the program (2007-08 to 2008-09). Natural Resources Canada, "Evaluation of Energy Efficiency for Industry, Housing and Buildings" (2010), Table 8. http://www.nrcan.gc.ca/evaluation/reports/2010/2827?destination=node%2F2827

[5] H.C. Granade, J. Creyts, A. Derkach, P. Farese, S. Nyquist, K. Ostrowski, *Unlocking Energy Efficiency in the U.S. Economy* (McKinsey Global Energy and Materials, 2009), iv. http://www.mckinsey.com/clientservice/electricpowernaturalgas/ downloads/us_energy_efficiency_full_report.pdf

[6] i.e., a carbon price of $30 per tonne of CO_2 equivalent.; Ibid, vi.

[7] National GHG emissions from buildings, 2010: 79 Mt CO_2e; national total GHG emissions, 2010: 692 Mt CO_2e. Environment Canada, *Canada's Emissions Trends 2012* (2012). http://www.ec.gc.ca/Publications/253AE6E6-5E73-4AFC-81B7-9CF440D5D2C5/793-Canada's-Emissions-Trends-2012_e_01.pdf

years (one to three when considering available incentives) for a series of typical energy upgrades.[8]

- Increase in resale value: According to a survey of residential appraisal experts conducted by the Appraisal Institute of Canada in 2008, owners recover on average 61 per cent of the cost of energy efficiency upgrades in the increased resale price of their home, and energy upgrades were ranked at the top of the list of home improvements that add value to the resale price of a home.[9]
- Local economic development: Dollars invested in retrofitting stimulate the local and regional economy and reduce the leakage of energy dollars from the community. Energy retrofits are estimated to create between 13 and 23 jobs for every million dollars invested, five to ten times more than a comparable investment in the oil and gas sector.[10]

Social benefits for homeowners and communities

There are also social benefits derived from energy efficiency upgrades, including:

- Improved comfort and health: Better-insulated houses are more comfortable and less likely to develop mold. During the site visit, the energy advisor can also identify other risks to the home inhabitant's heath, and suggest avenues to address them. A survey of 895 homeowners who participated in the 2007–2008 ecoENERGY program showed that 73.5 per cent of respondents considered that their homes had become more comfortable as a result of the upgrades they conducted.[11]
- Protection from volatile energy prices: Energy efficiency helps homeowners become more resilient against unforeseen short-term changes in energy costs and long-term increases in future energy costs. This is particularly relevant for low-income homeowners, who typically spend a greater portion of their monthly income on energy bills.
- Reduced energy poverty: In 2005, 18 per cent of households in B.C. spent 10 per cent or more of their after-tax income on home energy.[12] Increasing the energy efficiency of low-

[8] For example (not considering incentives): hot water piping insulation: payback of 2-3 years (cost: ~$25; estimated savings: ~ $10 per year); increasing exterior wall insulation, 5-6 years (cost: ~$4,400; estimated savings: ~ $1,000 per year); increase crawl space wall insulation, payback of 1.5 year (cost: ~ $1,200; estimated savings: ~ $800 per year). These are rough estimates based on costs and modelling done for the lower mainland; upgrade costs are likely higher in regions, but energy savings are also likely higher in colder climates.

Alison Bailie and Paul Cobb, *Summary of Economic Costs and Benefits: Green Building Leaders Discussion Paper* (The Pembina Institute, 2010). http://www.greenbuildingleaders.ca/docs/gbl-estimated-costs-summary-may17.pdf

[9] Appraisal Institute of Canada, "RENOVA 2008: Green improvements lead the way in home renos", August 2008. http://web.archive.org/web/20101010111355/http://www.aicanada.ca/cmsPage.aspx?id=70

[10] The lower end of the range is based on B.C. economic multipliers for investments in construction, and upper end is based on the multipliers for repairs and maintenance. See: Marc Lee and Kenneth Carlaw, *Climate Justice, Green Jobs and Sustainable Production in B.C.* (Canadian Centre for Policy Alternatives, 2010) 31. http://www.policyalternatives.ca/sites/default/files/uploads/publications/BC Office/2010/09/CCPA_bc_climatejustice_green_jobs.pdf

[11] Heating, Refrigeration and Air Conditioning Institute of Canada, *ecoENERGY Retrofit - Homes: Quality Assurance Homeowner Verification*, 25. http://www.hrai.ca/PDFs/20072008NationalHomeownerQualityAssuranceVerification.pdf

[12] L. Kelly, Affordable Energy, Diversifying DSM Programs in B.C.: A discussion paper (Eaga Canada on behalf of the Ministry of Energy, Mines and Petroleum, 2007); cited in Marc Lee, Eugene Kung, and Jason Owen. *Fighting*

income homes will help address some of this disparity. However, low-income households are also facing the most barriers to upgrade their homes. To address this gap, financing tools and other programs targeted for low-income households are necessary. PAYS-BC ("Pay-As-You-Save") is a financing model currently being developed by the province. Once launched, it will help local residents access the capital to conduct energy upgrade as utility companies provide loans that will be reimbursed directly through savings made on the utility bills. Such financing program can help remove barriers to energy upgrade for low-income homeowners.[13]

1.4 The role of home energy labelling

As discussed above, a significant portion of community GHG emissions come from buildings, emissions we will need to reduce in order to meet community and provincial climate targets. More recent building codes call for higher efficiency standards, which is a step in the right direction. The government of B.C. will release its updated building code this year; while it will include minor improvements in energy efficiency, overall it does not address the scale of improvements to energy performance that are needed in order to put the B.C. building sector on track for meeting commitments to greenhouse gas reductions.[14] To compound the problem further, most buildings existing now will still be standing in 2050. Therefore we need strategies to both improve efficiency of new buildings and upgrade the existing building stock.

Building energy labelling alone will not be sufficient to drive the needed changes in construction and retrofit practices. Additional policy tools such as minimum energy efficiency standards, incentives, and market mechanisms will be required. However, building labelling is a key first step, facilitating further improvements in building performance in four ways:

1. By informing consumers, it can improve energy literacy and increasing awareness about energy and the benefits of energy efficiency measures.
2. By providing a point of reference to compare buildings to each other, it can promote energy efficiency as a factor in real estate decision-making. It, allows building purchasers to factor energy costs and greenhouse gas emissions into their decisions when evaluating different properties, if they choose to do so.
3. By providing tailored suggestions about cost-effective energy upgrades, it can increase the likelihood of the integration of energy efficiency considerations at key decision points when significant renovations may be undertaken.
4. By compiling data on the state of the housing stock, it can improve the design of policies and programs aiming to improve home energy efficiency, such as upgrades to the building codes, minimum prescriptive upgrades at time of major renovations, feebates and incentives.

Energy Poverty in the Transition to Zero-Emission Housing: A Framework for B.C. Development (Canadian Centre for Policy Alternative, 2011) 11.

[13] For more information, see the Pembina Institute's response to the Ministry of Energy and Mines' request for public feedback on the development of the PAYS-BC utility financing program, available at http://69.89.31.205/~refbccom/userfiles/Pembina_PAYS-BC_submission_%C2%ADFINAL.pdf

[14] Submission to public consultation undertaken by the B.C. Ministry of Energy and Mines: *Input to 2012 B.C. Building Code Changes and Policy Discussion* (Pembina Institute, 2011). http://www.pembina.org/pub/2311

Home energy labelling is an important first step in facilitating investment in home energy efficiency measures for new and existing buildings. When joined with other policy supports, such as financing programs and incentives, it empowers residents to make informed decisions about investing in energy upgrades to their homes, and helps us collectively meet our climate action targets.

1.5 Lessons learned from previous pilot programs in B.C.

B.C. has had experience with voluntary pilot programs that promote energy labelling for homes at point of sale. Two programs have subsidized the cost of the home energy assessment as long as the seller has arranged for their EnerGuide rating to be added on the MLS listing.

The first program ran in 2008 in Oak Bay, Salt Spring Island, Prince George and Tsawwassen, in cooperation with the B.C. Ministry of Energy and Mines and BC Hydro. For a period of six months, homeowners selling their homes were rebated from BC Hydro and the provincial government for three-quarters the cost of a home energy assessment (a $300 assessment cost homeowners only $75).[15] Participants were required to share the resulting EnerGuide rating by including it in their home listing.[16] This program was entirely voluntary, and had minimal uptake.[17]

More recently, from July to December 2011, the Ministry of Energy and Mines, BC Hydro, the Victoria Real Estate Board, the Capital Regional District, and participating municipalities brought a similar pilot program at a wider scale, in coordination with the LiveSmart BC Energy Incentive program. The program offered residents selling their homes a free energy assessment, as long as the rating was posted on their MLS listing.[18] This program, again voluntary, had 20 participants over a five-month period.[19] In a market that consistently saw over 200 single-family home sales per month over that period,[20] this amounts to an uptake rate of about two per cent.

[15] The program is explained in a news video: http://www.citygreen.ca/video-time-sale-pilot-project-oak-bay-salt-spring-island, accessed October 16, 2012.

[16] CRD Time of Sale Energy Labelling Pilot Project: Final Report, Ministry of Energy and Mines, 2012.; see also Haynes Zirnhelt and Matt Horne, *Energy Labelling and Efficiency Requirement for Existing Buildings* (Pembina Institute, 2010) 8. http://www.greenbuildingleaders.ca/docs/labellingee-existingbuildings-withcover.pdf

[17] Personal communication with Emily Eng, Program Coordinator, Ministry of Energy and Mines, Energy Efficiency Branch, December 15, 2011.

[18] Government of British Columbia, "Free Home Energy Assessments in the CRD when EnerGuide for Houses efficiency label posted on MLS," *LiveSmart BC*, August 8, 2011. http://www.livesmartbc.ca/blog/2011/free-home-energy-assessments-in-the-CRD-when-EnerGuide-for-houses-efficiency-label-posted-on-MLS.html ; Capital Regional District, "Energy Labelled Home Sales to Spur Green Economy in Capital Region," media release, August 8, 2011. http://crd.bc.ca/media/2011-08-08-home-energy.htm .

[19] Personal communication with Emily Eng, Program Coordinator, Ministry of Energy and Mines, Energy Efficiency Branch, Dec. 15, 2011.

[20] August–December 2011 month-by-month summaries, available at REALTORS of Greater Victoria, "Historical MLS® Statistics," *Victoria Real Estate Board*. http://www.vreb.org/mls_statistics/historical_statistics.html#a2011 .

The effectiveness of *voluntary* home energy labelling has been questioned by policy analysts.[21] B.C.'s experience with both these pilot programs show that while they may have increased awareness and initiated support for more effective policies, they were relatively ineffective in terms of actual program uptake. There is a suggestion that the programs lacked promotion.[22] Other program analysts observed that the EnerGuide rating was seen as a risk for realtors and home sellers: in the absence of other similar homes with posted ratings, sellers were concerned that buyers would have no benchmark to understand what the EnerGuide rating meant. They feared their EnerGuide rating, if interpreted as a percentage score, would reflect badly on the homes.[23] Some observers also noted that vendors and their agents were disinterested in anything that could delay the transaction process in 'hot' real-estate markets. [24]

The barriers to voluntary labelling programs are self-perpetuating: unfamiliarity with the rating system and shortage of comparator homes are both *cause* and *effect* of low program uptake and insufficient home labelling in the market. This is what we call the "first-on-the-dance-floor syndrome." These experiences suggest that without more widespread labelling, a cycle of ineffectiveness ensues. Faced with similar challenges, various jurisdictions have opted to adopt some form of mandatory labelling requirement.

1.6 Mandatory labelling programs in other jurisdictions: selected examples

Several jurisdictions have successfully implemented universal point-of-sale labelling requirements. They can offer innovative concepts for program design, as well as highlight best practices and pitfalls in the program's setup and administration.

Jurisdictions with some form of mandatory labelling or residential building rating include:

- Germany (1995)[25]
- Denmark (1997) (see below)
- Portugal (2007)[26]
- European Union (directive 2002; implementation 2009)[27]

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[21] *Energy Labelling and Efficiency Requirement for Existing Buildings*, 10-11; W.L. Lee and F.W.H. Yik, "Regulatory and Voluntary Approaches for Enhancing Building Energy Efficiency, *Progress in Energy and Combustion Science* 20 (2004).

[22] Personal communication with Jim Bennett, Government Relations Coordinator, Victoria Real Estate Board, July 5, 2011.

[23] Personal communication with Emily Eng, Program Coordinator, Ministry of Energy and Mines, Energy Efficiency Branch, Dec. 15, 2011.

[24] Personal communication with Jim Bennett, Government Relations Coordinator, Victoria Real Estate Board, July 5, 2011.

[25] *Energy Labelling and Efficiency Requirement for Existing Buildings*, 19.

[26] *Energy Labelling and Efficiency Requirement for Existing Buildings*, 16.

[27] As of January 2009, 17 of the member states had successfully implemented the requirements of the Energy Performance of Buildings Directive (EPBD), seven (Bulgaria, France, Latvia, Lithuania, Malta, Poland and Slovenia) are yet to meet all the requirements but have made significant progress in implementation, and three states (Hungary, Cyprus and Greece) are still struggling with the implementation of most or all elements of the directive.

- Austin, Texas (2009) (see below)
- Australian Capital Territory (1999)[28]
- Washington, D.C. (2006, disclosure begins 2012)[29]
- Berkeley, California (1987)[30]
- Vancouver B.C. (2009) (see below)

Existing programs represent a wide variety of policy designs. Some are applied specifically to particular types of buildings or sizes of buildings, such as Washington D.C.'s program for all buildings over 50,000 square feet in area.[31] Other programs can be triggered by various transactions — for example, when the building is put up for sale or for rent — such as the European Union's Directive on Energy Efficiency of Buildings[32] and the UK's mandatory energy certificate program.[33] Some programs combine the energy audit or assessment requirement with mandatory energy upgrades, either directing the retrofits to be undertaken (such as Berkeley's Residential Energy Conservation Ordinance in California) or requiring attainment of a certain performance standard (such as Nova Scotia's minimum EnerGuide 80 requirements for new and renovated buildings[34]).

Three existing programs in particular are most analogous to the programs that interested local governments in B.C. are considering. They illustrate some of the policy design questions that we look at in this report and suggest some best-policy or context-appropriate answers. They are:

- Denmark's Energy Labelling Scheme, which, having been initiated in 1997, was an early leader in labelling policy and therefore one of the most studied and evaluated of such policies;[35]
- the City of Austin's smaller-scale Energy Conservation Audit and Disclosure (ECAD) Ordinance, which took effect in June 2009;[36] and,
- the City of Vancouver's building bylaw which requires an energy assessment for new homes.[37]

Jo-anne Arbon and Eliza Hotchkiss, *Study on Energy Performance of Buildings* (Policy Department Economic and Scientific Policy, European Parliament, 2008), i.

[28] Australian Bureau of Statistics, *Energy Efficiency Rating and House Price in the ACT* (2008), 1.

[29] Partner Energy, "Washington, D.C. Energy Disclosure Law." http://energydisclosure.com/index.php/mandatory-energy-disclosure-washington-d-c/

[30] Berkeley's program, the Residential Energy Conservation Ordinance (RECO), goes further than a labelling program in that it requires homes to be compliant with specific energy and water efficiency measures prior to sale or at the time of major renovation. City of Berkeley, "Residential Energy Conservation Ordinance." http://www.ci.berkeley.ca.us/reco/

[31] "Washington, D.C. Energy Disclosure Law."

[32] *Study on Energy Performance of Buildings.*

[33] Department for Communities and Local Government (U.K.), "Energy performance: New measures to improve the energy performance of our buildings." http://www.communities.gov.uk/planningandbuilding/sustainability/energyperformance/

[34] Government of Nova Scotia, *Environmental Goals and Sustainable Prosperity Act Progress Report 2010*, 1. http://gov.ns.ca/nse/egspa/

[35] *Energy Labelling and Efficiency Requirement for Existing Buildings*, 12.

[36] Austin Energy, "Council approves amendments to energy audit/rating ordinance," media release, April 22, 2011. http://www.austinenergy.com/about%20us/environmental%20initiatives/ordinance/index.htm

The key design elements of each program are highlighted in Appendix A, with a brief discussion on each below.

Denmark: Mandatory labelling

Denmark introduced mandatory labelling in 1997,[38] with the objective of encouraging energy and water efficiency in the Danish building stock. The labelling program applies to residential, public, and commercial buildings. New buildings require labelling prior to occupation, while existing buildings under 1500 square metres require up-to-date (within five years) labelling prior to their sale. Building sellers are responsible for the labelling costs.

Denmark's labelling program includes a building rating, similar to the EnerGuide rating from Natural Resources Canada (NRCan), and an energy plan with recommendations for the anticipated costs and paybacks from improvements. The labelling program is not connected to other policy mechanisms, nor is it strictly enforced, and it is currently being reviewed in order to improve its performance. Although 45,000 to 50,000 homes are labelled in Denmark each year, only about 60 per cent of houses that should have labels actually do. Almost 50 per cent of homeowners did implement some energy savings measures after purchase, which can be partially attributed to the labelling program.

Austin, TX: Energy Conservation Audit and Disclosure Ordinance

The city of Austin, Texas, has a mandatory labelling program for customers of Austin Energy, the city-owned utility.[39] In effect since 2009, the Energy Conservation Audit and Disclosure Ordinance (ECAD) aims to reduce the city's GHG emissions, supporting Austin's Climate Protection Plan. The ordinance applies to existing single and multi-family residences and commercial buildings that are more than 10 years old. Home sellers are required to have an energy audit performed prior to the sale of their home, and provide the audit to potential buyers and to Austin Energy. Exemptions are provided for homes that have already participated in other energy programs, or are being sold for reasons such as foreclosure.

Austin Energy provides workshops to the local real estate industry so that they can provide guidance and information to their clients about the program, and the benefits of energy efficiency. Austin Energy also has rebate and low-cost loan programs for energy efficiency upgrades. It is estimated that the labelling program affects 3,000 homes each year.[40]

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[37] City of Vancouver, "Green building and renovating." https://vancouver.ca/home-property-development/green-building-and-renovating.aspx

[38] For more details on the Danish labelling program, see the description and references in *Energy Labelling and Efficiency Requirement for Existing Buildings*, 12-15.

[39] *Energy Labelling and Efficiency Requirement for Existing Buildings*, 17; and "Council approves amendments to energy audit/rating ordinance."

[40] For more details on Austin's program, see Austin Energy, "Energy Conservation Audit and Disclosure (ECAD) FAQs." www.austinenergy.com/about%20us/environmental%20initiatives/ordinance/faq.htm

Vancouver, B.C.: Mandatory rating program for new buildings

As part of its Green Homes Program, the City of Vancouver's building bylaw requires new single-family and duplex houses to undergo an energy assessment and obtain an energy rating using NRCan's EnerGuide system.[41] The EnerGuide rating and the assessment report must be provided to the city before the occupation permit is issued.[42] The data is intended for use by the city's planning teams and the ratings are not required to be shared with prospective homebuyers or shared publicly, unless the builder decides to do so (or the buyer requests the information). If the assessment stands in the way of a quick sale, the builder can sign off the obligation to do the final assessment to the homebuyer. Over 2,000 single-family and duplex homes have been labelled under this program since 2009, when the bylaw was introduced.[43]

1.7 Engagement process

The design and testing of the proposed home energy labelling program occurred through an iterative process. The initial program design elements were developed through research on existing programs. Pembina then held a series of three workshops in Dawson Creek, Campbell River and Fort St. John, in order to obtain feedback on what would work, where the barriers to implementation were, or where the program required changes. Program design evolved through this process. We also asked participants to share whether they would support a mandatory energy labelling program in their community.

Participants supported a mandatory labelling program for new and existing buildings in the City of Dawson Creek, with eight voting yes and six voting supportive but with concerns. Participants in Campbell River asked for a separate vote on new and existing homes, with the majority supporting a new home labelling program (10 yes, two supportive with concerns, two no), and the majority continuing to have concerns about how to implement an existing homes program (seven supportive with concerns, seven no). Participants in Fort St John were split evenly, three supporting the proposed labelling program, three not (and one abstention).

Appendix B summarizes the main conversation points from each workshop. The following section outlines the recommended program design that emerged from this process. It does not claim to represent a consensus, but our attempt to address concerns raised by participants and incorporated suggested solutions. Specific concerns are discussed in more details in Section 3, and next steps to address them presented in Section 4.

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[41] Information on Vancouver's Green Buildings programs can be found at City of Vancouver, "Green building and renovating." https://vancouver.ca/home-property-development/green-building-and-renovating.aspx; Vancouver's green building amendments to its Building Bylaw include a range of energy efficiency measures, from insulation to heat recovery ventilators, detailed in City of Vancouver, *By-law No. 9691: A Bylaw to amend Building By-law No. 9419 regarding green building strategy for one family homes, one family homes with secondary suites, and two family homes,* July 8, 2008. https://vancouver.ca/files/cov/green-homes-ammendments.PDF

[42] For the Council report with the adopted bylaw amendments, see City of Vancouver, *Policy Report: The Green Homes Program*, June 9, 2008. https://vancouver.ca/files/cov/green-homes-council-report.pdf

[43] Personal communication with Mark Hartman, City of Vancouver, May 9, 2012. Prior to the green building bylaw, new Vancouver buildings were estimated to have an average EnerGuide rating of 72; see *Policy Report: The Green Homes Program,* 4.

2. Recommended program design

This section concisely describes the recommended design for a pilot program for the labelling of homes at point of sale. It is intended as a quick reference guide. Section 3 dives deeper into the rationale for this design, pending issues for consideration, and questions raised during the community workshops, including barriers to implementation.

While the ultimate goal is for the program to cover both new and existing homes, we suggest a **phased implementation**, starting first by requiring only the labelling of new construction. Once that program is integrated and financing tools (such as PAYS-BC) are in place to help homeowners finance energy upgrades, the scope can be broaden to include existing constructions. See Section 3 for more details.

The rest of this section describes how the program could be implemented to cover both new and existing construction. The essentials of the first pilot implementation are the same, except that the initial scope would be limited to new construction.

2.1 Purpose and scope

At full implementation, this policy would require new and existing homes, whether detached houses, row houses, duplexes, or mobile homes with foundations, to get an EnerGuide energy assessment before they are put up for sale. The energy rating would be posted on MLS[44] and other listing services, and the detailed assessment report would be shared with prospective buyers. The data could also be shared with the local government if the homeowner signs an agreement to do so.

Exemptions:

- Commercial and industrial buildings would NOT be covered by this policy. Mixed-used buildings, i.e. buildings including both commercial and residential spaces, are exempt for the pilot project, but could be included at a later phase since they are eligible to get an EnerGuide rating.
- Large multi-unit residential buildings are exempt. Low-rise multi-unit residential buildings are also exempt for the pilot project, but could be included at a later phase since they are eligible to get an EnerGuide rating.
- Homes slated for demolition are exempt.
- Any other type of habitation not covered by the EnerGuide rating system for new and existing homes would be exempt.

[44] See following page for details on timing.

This policy aims to support four objectives:

- **Consumer information**: provide standardized information to homebuyers, allowing them to easily compare the energy efficiency of different homes when making purchase decisions.
- **Improve public energy literacy:** increase awareness about home energy efficiency by making it part of the discussion in the process of buying and selling a home.
- **Accelerate refurbishing of existing building stock:** provide homeowners timely information about cost-effective energy upgrades at a time when various renovations might be considered, either as the seller aims to improve the value and marketability of the home, or as new homeowners settle in.
- **Provide home energy data for planning purposes:** the energy assessment results provide unique information on the state of the building stock in the community; if that data is shared with the local government, it would help sustainability planners design specific programs to improve the energy efficiency of the local building stock.

Figure 2 outlines the proposed energy labelling process. The top row illustrates how the energy assessment information is integrated into the sales process. The lower rows illustrate how the EnerGuide rating and report are generated and disclosed. The next three subsections describe this process in more detail.

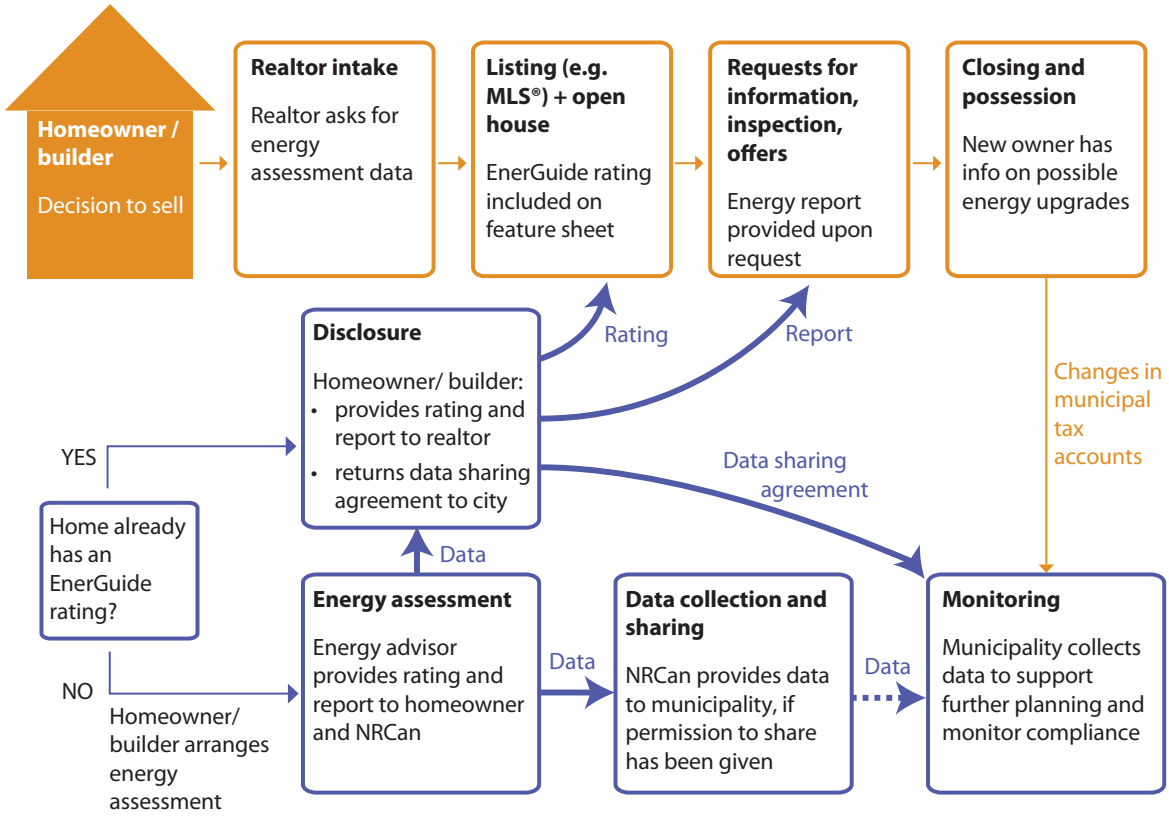

Figure 2. Home energy labelling requirement process

Note that the data sharing agreement, if signed by homeowners, will allow the municipality to access data directly from NRCan that can then be used in urban planning. If homeowners do not want to share the data with the municipality, they return the form to city hall, quoting only the assessment date and file number, to confirm that the home was rated.

2.2 The energy assessment

Before the house is advertised for sale (either on MLS or through other listings), the sellers would need to verify if the home has an up-to-date[45] EnerGuide label. If it does, they would provide that information to the realtor for disclosure. If not, they would need to contact a NRCan certified energy advisor to conduct a **home energy assessment**. For existing homes, the assessment requires a two-hour site visit and costs $325 plus taxes and travel (in most areas).[46] For new homes, a first assessment is done based on architectural plans, followed by a site visit once the construction is completed; the costs range from $450 to $700 per unit.[47] Local, provincial or federal incentives programs might cover some or all of this cost.[48]

After visiting the home, the energy advisor would provide the homeowner with a **EnerGuide rating**, and a detailed **home evaluation report** describing the current state of the energy systems of the home (envelope, insulation, windows, furnace, AC, etc.). The report also provides a list of possible energy upgrades and an estimate of the energy savings they could generate, along with the expected improvement in the home's EnerGuide rating.

To achieve the objectives of this program, this information would need to get into the hands of prospective homebuyers and the local government. The next section outlines when and how this data would be shared.

EnerGuide rating for new construction: While the overall process is similar, the energy assessment methodology used for new homes is slightly different than for existing homes. New construction is assessed in two steps: first, the energy advisor models the energy performance of the building using the home design from the blueprints, and generates an estimated EnerGuide rating. S/he also suggests measures to improve the efficiency of the building, estimating the associated gains in energy efficiency and EnerGuide rating. Once house construction is completed, the energy advisor verifies that the building was built as designed, checks whether energy upgrades were made, and conducts a blower door test to measure the home's rate of air leakage. Based on that information, s/he generates the final EnerGuide rating, label, and homeowners' report.

[45] See Section 3.2.1 for details on when a new assessment might be necessary.

[46] LiveSmart BC, "FAQ: the Energy Assessment." http://www.livesmartbc.ca/incentives/efficiency-home/faq.html#The_energy_assessment. Note that these costs may vary by region.

[47] Typical ranges: single family dwellings $450-$700; row houses $350-$600 (per unit); duplexes $325-$450 (per unit). Mike Young, City Green Solutions, personal communication, October 11, 2012.

[48] Currently, the LiveSmart BC Incentive Program covers $150 of the cost directly to the assessment providers, and assessment providers are contractually bound to charge no more than $175 to homeowners for the base service of the initial energy assessment. If the homeowner decides to do some energy upgrades, a follow-up assessment is needed to establish the new rating and give access to LiveSmart rebates. The follow-up (post-upgrade) assessment is paid for by the homeowner and costs about $150. The LiveSmart program has funding until March 31, 2013; its future beyond that is unknown at this point. LiveSmart BC, "FAQ: the Energy Assessment."

New homes with an EnerGuide rating of 80 or are also eligible for a $2000 incentive from BC Hydro, and a 10 per cent refund on their mortgage loan insurance premium from the Canada Mortgage and Housing Corporation (CMHC). BC Hydro, "PowerSmart New Homes Program," July 2012. http://www.bchydro.com/powersmart/builders_developers/new_home_program.html

B.C. residents with electrical heating in the Fortis BC service areas are also eligible for up to $500 in incentives for energy assessments. Fortis BC, "Power Sense Rebates." http://www.fortisbc.com/Electricity/PowerSense/IncentivesPrograms/Pages/EnerGuide-ratings-for-homes.aspx

2.3 Data disclosure

Two products are generated by an assessment: an EnerGuide rating score and a detailed home energy report; each is shared differently. The EnerGuide rating should be posted on MLS (or other listing service) and the detailed report should be made available to prospective buyers upon request. Pending agreement by homeowner, the detailed report might also be shared with the local government via the NRCan database. These options are explained below.

MLS: If the house is advertised on MLS (or other listing service), the EnerGuide rating should be included in the posting.[49] Since there might be delays in getting an energy assessment,[50] it would be the responsibility of the homeowner to schedule the assessment as early as possible, and of the realtor to advise them to do so. However, to ensure that the energy assessment does not slow down the sale process, a grace period could be granted to accommodate the delay. This would allow the house to be advertised as soon as it is ready for showing, and the EnerGuide rating to be added as soon as the assessment is completed.

Requests for information during offer/negotiation process: Secondly, the detailed energy report should be made available if requested by prospective homebuyers, their realtor, or the building inspector they contracted. Sharing this information is part of full disclosure. If a sales agreement were to be reached for an existing home before the EnerGuide assessment could be conducted, the seller would still be responsible for completing the assessment and providing the results to the homebuyer before the possession date.

Data disclosure to NRCan and local government: EnerGuide is administered by NRCan's Office of Energy Efficiency, a federal agency. All data collected by energy advisors for the generation of an EnerGuide rating are collected by NRCan in a national database. However, given that some of the information compiled is considered private information (e.g. name of the owner, contact information and address), privacy laws limit how NRCan can share and use this data.[51] As a result, local governments do not currently have access to the data for planning purposes. To enable the data to be shared with local government, the homeowner would need to sign a data release form at the time of the assessment. This release would not be mandatory (though it could be a requirement to access local incentives). If the homeowner chose not to release the data, they would instead mail the form to their municipal government, simply quoting the EnerGuide file number and the date of the assessment (both noted on the EnerGuide Label) to prove that the assessment was conducted.[52]

[49] Note that only a few regions of B.C. currently have an MLS field for EnerGuide rating. This field might need to be added for the areas where the pilot will be conducted, which can be done working in conjunction with the local real estate board.

[50] Maximum delays are often set contractually with service providers for participation in incentive programs. Under the LiveSmart program, the maximum delay to get an audit is two weeks.

[51] Currently, limited information is shared by NRCan with the province of B.C. and utility companies in order to administer LiveSmart and other incentives programs.

[52] Note that this process would apply the same way for homes that already have an EnerGuide label; the home seller can choose whether to allow NRCan to share the data with the city, or return the form with the file number and assessment date to show compliance.

2.4 Enforcement and administration

Program enforcement is one of the most challenging areas to deal with. Two aspects will require monitoring: whether the home seller gets the assessment done, and whether the information is properly disclosed on MLS. Channels for enforcement would be different for existing and new homes; a range of options available to municipalities for each is outlined below.

2.4.1 New homes

Who would be responsible for getting the assessment and disclosing the resulting rating?

The homebuilder or developer would be responsible for:

1. getting a pre-assessment before obtaining a construction permit;
2. getting a final on-site assessment before obtaining an occupancy permit; and
3. providing the associated rating[53] to realtor for posting on MLS and providing the detailed report to prospective homebuyers upon request.

What are the consequences for non-compliance?

- Building permit would be withheld until a pre-assessment is provided.
- Occupation permit would be withheld until the final assessment report is provided.
- Failure to disclose available EnerGuide rating and associated reports to prospective buyers when requested could lead to future legal action for non-disclosure by the new homeowner, and/or fine by the local government.

Table 1. Summary of enforcement procedure for energy labelling requirement for new houses

Program requirement	Process for verification	Consequence for non-compliance
Energy assessment	Pre-assessment report required for building permit Final assessment report required for occupancy permit	Withholding of the building or occupancy permit
EnerGuide rating must be posted on MLS and other listing services	Monitor listings	Home builder/developer could be fined.

[53] If the home is put up for sale before being built, the estimated EnerGuide rating generated from the blueprints during the pre-assessment would be disclosed on MLS (or other posting system), and the associated preliminary report shared with prospective homebuyers.

2.4.2 Existing homes

Who would be responsible for getting the assessment and disclosing the resulting rating?

The home seller would be responsible for booking an energy assessment before putting the home up for sale, and for providing the resulting rating to their realtor as soon as available for posting on MLS (or other listings). In "hot" real-estate markets, it is possible that the sale might be concluded before the energy assessment could be done. Even so, it is the responsibility of the seller to ensure the assessment is completed before the possession date, and that the homeowner's report be passed on to the new owners.

How would a local government monitor compliance?

There are two main ways local government is informed of a change in home ownership. The first is the change in property tax account, which is triggered by a notice of land title change from BC Assessment. The second, for municipalities with metered water, is the change in water account information for that address. From either of these, the municipality can generate a list of new owners, which could then be cross-referenced with the list of completed energy assessments to ensure that all homes sold did get an EnerGuide rating. The list of completed energy assessments is constituted from the data provided by NRCan (if the data sharing agreement was signed) plus the data sharing agreement forms returned by the home seller.

Disclosure on MLS can be generally monitored through statistics offered by the local real estate board (e.g. per cent of postings with rating included) or through direct monitoring by the local government.

What are the consequences for non-compliance?

- Home sellers could be fined if a property transfer has occurred and no evidence of the energy assessment completion was provided.
- The home seller could be fined if MLS or other listings did not include the rating when an EnerGuide rating was available (the date of the assessment acting as reference point).
- Failure to disclose available EnerGuide rating and associated reports to prospective buyers when requested could lead to future legal action for non-disclosure by the homebuyer, and/or fines by the local government.

Table 2. Summary of enforcement procedure for energy labelling requirement for existing homes

Program requirement	Process for verification	Consequence for non-compliance
Energy assessment	City cross-references new property tax accounts with list of completed assessments	Home seller can be fined
EnerGuide rating must be posted on MLS and other listing services	Monitor listings	Home seller can be fined if they do not disclose available rating on private advertisement or MLS

2.4.3 EnerGuide program administration

The administration of the EnerGuide program, along with the certification and quality control of energy advisors, is the responsibility of NRCan. The local governments would work in collaboration with NRCan to ensure smooth running of the home energy labelling requirement program, but otherwise would not be involved with the administration of the EnerGuide program.

3. Key design questions

In this section, we present the rationale for the proposed design, offer additional information, and flag issues for consideration based on our research and feedback from workshops. The reader should also refer to Appendix B for more information on the EnerGuide system.

3.1 Purpose and scope

3.1.1 What types of buildings are eligible for an EnerGuide energy assessment?

Because it relies on the EnerGuide program to establish the home rating, the scope of the home energy labelling requirement is limited by the scope of the EnerGuide program. To be eligible for an EnerGuide energy assessment, a house must be covered under Part 9 (low-rise, detached, semi-detached and row houses) or under Part 2 (for mobile homes on a permanent foundation only) of the National Building Code of Canada. More specifically, it must be one of the following:[54]

- detached and side-by-side attached homes (e.g. single-family homes and row housing)
- mobile homes on a permanent foundation[55]
- permanently-moored floating homes
- small multi-unit residential buildings (MURBs) and mixed-used buildings (MUBs) that have:
  - two to three stories excluding the basement,
  - a footprint less than 600 square metres,
  - a maximum of 20 residential units,
  - at least 50 per cent of the floor space, including the basement, used for residential purposes, and
  - no heavy-duty specialized commercial equipment or usage of chemicals (e.g., as found in restaurants, autobody shops, dry cleaners, medical offices, etc.) as determined by an NRCan licensed energy advisor.

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[54] Natural Resources Canada, Office of Energy Efficiency, "Frequently-Asked Questions (FAQ) about ecoENERGY Retrofit – Homes." http://oee.nrcan.gc.ca/residential/personal/retrofit/1750#ehp2

See also Natural Resources Canada, *Energy Advisor Procedures Manual* (March 2010), 7.

[55] "A mobile home can be considered permanently fixed if it sits on a foundation of concrete, wood or steel (e.g., a mobile home on wood cribbing with a plywood or vinyl apron would qualify though regional requirements may negate use of aprons); it is structurally complete with entire plumbing, heating and electrical services installed and permanently connected to the appropriate electrical utility service, fuel service, sewer or septic service and water delivery system/service; and its towing apparatus and axle has been removed as per regional requirements." "Frequently-Asked Questions (FAQ) about ecoENERGY Retrofit – Homes."

3.1.2 Should mixed-use and low-rise multi-unit residential buildings be included in the program?

The energy assessment of a mixed-used buildings (MUBs) or multi-unit residential buildings (MURBs) can be more complex than that of a single family home. Particularly, in the case of condominiums, the sale of one unit does not generally involve the other units; yet, assigning an EnerGuide rating for a multi-unit building requires the energy advisor to have access to all units in the building. The extra step of getting strata councils to agree on energy assessment could be a significant burden on a condominium seller. Similar complications can happen with mixed-use building with commercial tenants. For this reason, it might be better to initially exempt MURBs and MUBs from the home energy labelling requirement, even though some jurisdictions, such as Austin, Texas, include them.

On the other hand, the program will be more effective at meeting its objectives if the scope is as wide as it can be. Furthermore, changing the scope at a later date will require further education and announcements; thus, it could be simpler to implement the program fully all at once.

After discussing these two arguments, workshop participants were generally in agreement that exempting MURBs and MUBs in the initial phases of the program would be advisable.

3.1.3 What other exemptions should be made?

Workshop participants pointed out that there is no value in doing an energy assessment for tear-down houses. This, however, does create some complications for enforcement since the decision to demolish is made by the buyer, not the seller. Our suggestion is for the requirement to stand, unless exemption is sought by the seller with the city. It is up to the local government staff following up with the seller to make a judgment call whether the house needs a rating before being posted, or whether it is clearly going to be torn down.

Aside from tear-downs, workshop participants were generally of the opinion that there should be no other exemptions.

3.2 The energy assessment

3.2.1 If a house already has an EnerGuide label, can that information be used to meet the home energy labelling requirement?

Yes, as long as no major changes have been made to the home since the label was produced. If renovations were made that might affect the energy efficiency of the home, we advise a new energy assessment be conducted. The energy upgrades will likely lead to a better rating, which increases the marketability of the home.

If changes were made that might decrease the energy efficiency of the home (for example, removal of attic insulation), the homeowner should also conduct a new home energy assessment. Providing prospective homebuyers with an old energy report with inaccurate information could be considered a failure to disclose, and the seller could be liable for the misrepresentation.

Denmark has dealt with this issue by requiring labels at point of sale be no more than five years old.

3.2.2 Who should be required to do the energy assessment, the seller or the homebuyer?

The site visit by the energy advisor, while relatively short, is often a great learning moment for homeowners. They get an introduction to home energy issues and a guided tour of their own home's energy system all at once. Thus, some workshop participants proposed that there might be more value in asking the homebuyer to conduct the energy assessment instead of the seller (as recommended here). In that way, the person moving into the house would get the full benefit of the energy advisor's visit, and get the recommendations for home energy upgrade presented in person rather than through a report.

On the other hand, such a program would mean that the home energy information collected by the energy advisor would not be available for review before the sale. Legally, only the current homeowner can get an energy assessment, and therefore the homebuyer would have to wait until taking possession of the house to get it assessed. Since consumer information and market transformation are some of the key goals of this policy, and these would be lost in this scenario, we recommend that the seller do the energy assessment. We recognize that there is a lost opportunity for the new homeowner to benefit from the energy advisor's visit, but consider it more important to have the data available to inform the sale process and to provide the information on possible energy upgrades at a decision-making moment in the life of a home.

3.2.3 Who should bear the cost of the assessment?

Several workshop participants expressed concern about the impact of the added cost of the energy assessment on homeowners. It is expensive to sell a house: between realtor fees, mortgage penalties, lawyer fees, and other associated costs, it is not atypical for a home sale to cost 7–12 per cent of the original value of the mortgage.[56] If the market value of the home has not increased sufficiently to cover these costs and the remaining mortgage payment, homeowners might not be able to sell their home. Additional costs can also place an unfair burden on lower-income or fixed-income homeowners, including seniors. So while the cost of the energy assessment is small compared to the total cost of selling a home ($350–$500 versus approximately $11,000–$14,000 for a $200,000 home[57]), it might not be well received by homeowners who are already facing high fees, particularly for homeowners in deflated markets. On the other hand, homeowners often spend significant money prior to a sale prepping the house (paint, kitchens, etc); in these cases, the energy assessment is only a minor cost.

[56] *y* Waiting for an estimate from Erika on that one

[57] Realtor's fees (typical: 7% of first $100,000, 2.5-3.5% after that + HST) ~$10,000; lawyer's fees ~$500-$1000; mortgage penalty (varies), etc. Sutton Group, West Coast Realty "Additional Costs and Fees when Buying and Selling Property." http://www.darmanin.ca/TypicalExpenses.php; and RE/MAX Crest realty, "Commission Rates Charged by RE/MAX Crest Realty (Westside)." http://www.6717000.com/commission.php

To address the challenge of assessment affordability, we suggest that incentives be made available during the initial phases of this program to cover part or all of the cost of the assessment.[58] These incentives could be distributed as vouchers given by realtors to their clients.

3.2.4 Are there enough energy advisors to meet the needs of the program?

Availability of energy advisors varies across the province. Elemental Energy Advisor is the main company serving Campbell River, Courtenay, and the Comox Valley; at this point, they would not have the capacity to assess the approximately 40 houses per month sold in Campbell River.[59] There is only one energy advisor working in Dawson Creek, and similarly we can expect that it would be difficult for that person to accommodate the approximately 30 homes per month sold in town and rural areas.[60] The situation was similar in Fort St John. Therefore, more energy advisors will be needed before rolling out such a program. However, it is worth noting that the required increase in capacity is not huge, and that one or two additional energy advisors in these areas should be able to meet the demand. Given that the demand will be guaranteed, and with sufficient lead time for organizations to train new staff, it is reasonable to expect that this capacity gap could be filled. Notably, the Northern Environmental Action Team (NEAT) has expressed interest in playing that role in the Peace Region.[61]

3.3 Data disclosure

3.3.1 Privacy issues

As mentioned is section 2.3, the data collected by energy advisors would be of great use to city planners, because it provides information, available nowhere else, on the community building stock. This information can be used to create more effective programs, responding to the specific needs of a community. For example, if it was known that most houses in a given neighborhood did not have attic insulation, a program could be designed to offer specific incentives, possibly even negotiating group rates with a contractor for providing attic insulation to a number of houses in the area. Or if it was determined that most furnaces were old and inefficient, focused incentives for furnace replacement might be a good way to effectively reduce energy use and carbon emissions. In short, the more a local government knows about its building stock, the smarter it can be about facilitating and supporting its refurbishment.

Currently, privacy laws preclude NRCan from sharing private data (such as the homeowner's name, address, and contact information) for a purpose other than what the data was originally collected for. Thus, local government cannot currently access locally relevant energy assessment

[58] As noted in Section 2.1, the LiveSmart BC Incentive currently covers about half of the cost of the assessment; however, its future beyond 2013 is unknown at this point. Incentives for new homes with an EnerGuide rating of 80 or more are also available from BC Hydro ($2000) and Fortis BC ($500). The program administrators should work with these partners to ensure these incentives are maintained even if the labelling was to be made mandatory.

[59] Cristi Sacht, Elemental Energy Advisors, workshop feedback, July 5, 2012.

[60] Estimate proposed by Dawson Creek workshop participants, June 21, 2012.

[61] Dzengo Mzengeza, Executive Director, NEAT, workshop feedback, July 5, 2012.

data from NRCan under the existing federal program. However, the data could be shared with local government if the homeowner were to sign a data release form.

Once the homeowner, the owner of the data, allows NRCan to share the required information with the local government, it is technically easy for NRCan to do so. Their database can be queried dynamically, with a report sent to the appropriate jurisdiction on a regular basis. This is currently how the provincial LiveSmart incentive program is administered: the homeowner signs a data release to participate in the program, and NRCan sends monthly information to the program administrators.

The home energy labelling requirement would function similarly, by requesting that home sellers sign a data release. We suggest this initially be a voluntary disclosure, for two reasons. First, a formal privacy impact assessment would be required before implementing a bylaw requiring homeowners to release private information; such an assessment is potentially a lengthy process. Second, we believe that small incentives would be sufficient to support a reasonable disclosure rate. As discussed in section 2.4, signing the disclosure form would be the simplest way to show compliance with the program. If financial incentives were available from the local government to support the program, access to incentives could be made conditional to the release of the data (similar to the LiveSmart program). However, the local government should seek additional advice on whether this condition is compatible with provincial and federal privacy laws.

3.4 Enforcement and administration

3.4.1 Who is responsible for enforcement, and how can it be streamlined?

How to enforce a mandatory program was the subject of discussion and several revisions as the workshop process progressed. In general, concerns were raised about realtors acting as enforcers (discussed below), and if and how municipalities could enforce a mandatory labelling bylaw. Some workshop participants were opposed to any additional regulatory regimes in principle, while others felt that a mandatory program could be straightforward to administer. Participants in general agreed that enforcement for new homes, where the energy assessment is required for occupancy permit, would be simple. This was one of the reasons for the higher level of support for a new homes program than the level of support for an across the board for an existing homes program. Enforcement for existing home sales would require additional municipal systems.

3.4.2 Will enforcement be different for private sales than for sales facilitated by a realtor?

The process to verify whether the assessment was completed is exactly the same in both cases: the city compares the list of addresses having changed ownership to the list of address having received an assessment. This process can be automated for simplicity, and is independent of how the sale was conducted.

The only difference between private sales and realtor sales regards the enforcement of the disclosure of the rating. Arguably, it will be easier to ensure that the EnerGuide rating was properly disclosed on MLS than it would be on private listings. However, as the disclosure of the

rating is a requirement for full disclosure, the rating will have to be shared with prospective homebuyers before the deal is closed in either cases.

It should be noted that during the workshops, participants expressed concern over realtors becoming enforcers. The program does not intend for realtors to enforce energy assessments; this is the role of the local government. Selling realtors can advise the home sellers about the requirement, but ultimately it is the seller's decision and responsibility. Buying realtors should advise buyers to request the detailed EnerGuide report to ensure they have access to the information it contains about the state of the house. If energy assessments that are available for a home were not disclosed to the buyer, this would be treated like any other failure to disclose and dealt with through the appropriate professional association/legal systems.

3.4.3 What are the synergies/conflicts with the current home sale process? What is the potential role of realtors?

This questions was the focus of much conversation during the three workshops. Here we recap the main concerns that were flagged by participants, and how these could be mitigated.

3.4.3.1 Risk of putting realtors at a disadvantage when competing with private sales

One of the concerns expressed in the workshops was the risk that the home energy labelling requirement could put realtors at a disadvantage when competing with private home sales. The risk was identified as twofold: (1) that homeowners might proceed to a private sale to avoid complying with the requirement; and (2), that realtors might be perceived as responsible for the added procedure, or as being in charge of enforcing it.

To address the first risk, the program must ensure that enforcement is the same for private sales and for realtor sales. Section 3.4.2 addresses this issue.[62] To mitigate the second risk, the public outreach accompanying the program must make it clear that this is a municipal requirement. Furthermore, it was suggested that if incentives were to be given to cover the cost of the assessment, they could be distributed as vouchers by realtors. Thus, realtors would be put in a position to offer another benefit to their customers, rather than being the bearer of bad news.

3.4.3.2 Risk of complicating the sale of homes with low EnerGuide ratings

Another concern raised during the workshops was that a low energy rating might reduce the market value of a home, slow its sale, and/or be used as a negotiating chip by homebuyers to argue for a lower price.

How additional information on the energy efficiency of a home might affect the market price and negotiation process is a complex issue, depending fundamentally on what homebuyers perceive as valuable. While several workshop participants voiced concerns about lower prices, it was also pointed out that energy efficiency was not currently a significant factor in home purchase

[62] It is worth noting that the path for enforcement suggested here was not developed yet at the time of the workshops. The suggestion that monitoring MLS could be use as the main channel to ascertain whether the assessment was conducted was flagged as a unfair burden on realtors. This feedback has lead to the current approach based on the monitoring of property tax accounts.

decisions. Although more homebuyers now enquire about the energy efficiency of homes, location and interior design seem to dominate sales decisions. The goal of this policy is to enable energy performance to become part of the conversation in a more systematic way, by providing information and increasing energy literacy. In the longer term, this policy does hope to increase the importance attributed to energy efficiency, thus improving the business case for home energy upgrades and for more efficient new construction. While this is the long-term goal, it seems unlikely in the short term that the attribution of an EnerGuide rating would significantly affect the price of a home.

Yet, as long as homebuyers lack comparator data, the concern that a low EnerGuide rating be perceived as a liability remains valid. At the core of the problem is a lack of familiarity with the system. What rating is average? What rating is so low that a consumer should be concerned? We believe that having access to a larger sample of homes in a similar price range will help homebuyers and realtors put these scores in perspective. If the rating still seems to be of concern to the homebuyer, the realtor can add value by explaining the measures that could be taken to improve the energy efficiency of the home (as outlined in the EnerGuide report) and the incentives and financing programs available to the homebuyers to do so. Houses with a very low EnerGuide rating are likely to be perceived as needed renovations for more than just energy efficiency reasons (e.g. as a "fixer-upper").

Critically, homebuyers and sellers will need to be able to make sense of the labelling information: workshop participants stressed that educational campaigns will be necessary.

3.4.3.3 Risk of creating unnecessary delays in the sales process

Another concern raised was the possibility that delays in obtaining an energy assessment could impede the sales process. To avoid this, the first step is to properly communicate the assessment requirement so that homeowners can book an assessment — if they don't already have one — as soon as they decide to sell. This is the responsibility of the city, though realtors can play a role by advising their clients to book an assessment early in the uptake process. Note that this issue will decline over time, as more homes will have energy assessments already and re-sales will not need new ones.

If the home is ready to be advertised before the assessment can be conducted, we suggest that the EnerGuide rating be added as soon as available to the listing. This flexibility in the requirement should ensure that the sales process is not slowed down, while still providing the information to homebuyers within a reasonable time.

In very 'hot' markets, it is possible that the sale could be concluded before the assessment is done. However, even after offer acceptance, there is still generally a delay before the closing date, during which time the assessment can be conducted. Thus it would still remain the responsibility of the home seller to complete the assessment and provide the report to the new homeowners so they can consider the energy upgrades for renovation plans.

3.4.4 Should the program be rolled out for new and existing buildings at once, or phased?

As discussed in Section 2, we suggest that the program be implemented in phases by starting with new buildings, and, once that is established, broadening the scope to include existing buildings. This will allow consumers and real estate stakeholders to become more familiar with the EnerGuide data and how it can be integrated into the sales process.

The program for new buildings is simpler than that for existing homes. Enforcement is straightforward, as the labelling is tied to existing permitting processes already administered by local governments. Implementation would be easier given the smaller number of developers and homebuilders, and their existing experience dealing with permitting requirements. The added cost of the energy assessments can be rolled in with other costs with minimal impact on the final price of the home — indeed, a current incentive program from BC Hydro provides a net financial gain to a builder if the home rates EGH80 or over.[63]

During one of the workshops, a participant observed: given that most new homes are already energy efficient, what net gains in the quality of our building stock can be made by requiring their labelling? In our view, the opportunity is threefold:

1. As articulated above, this is a useful way to prime the market and get real estate stakeholders and the public up the learning curve ahead of a program for the labelling of existing houses.
2. While most new homes built to code should have relatively high EnerGuide ratings, there is still enough variability in the energy efficiency of new constructions that a rating would provide valuable information to a concerned homebuyer. For example, data collected in the City of Vancouver shows that new homes built in 2010 and 2011 have EnerGuide ratings ranging from 61 to 87[64] — despite the fact that the City's building code is more stringent regarding energy efficiency than the provincial building code.
3. Taking into consideration the lower end of that spectrum, it is possible that new homeowners, given the information, might decide to invest in energy upgrade before moving in. Or if the home is sold on plans, they could request some of the upgrades suggested in the EnerGuide report be incorporated in the construction. Thus, even for new homes, access to information could lead to a net improvement in energy efficiency.

For these reasons, we believe there is value in a first implementation focused only on new construction, as a lead-in to a wider adoption. Each phase of implementation of the program will require an outreach strategy to inform the public and an educational component for realtors, and potentially homebuilders and developer as well. This is discussed in more detail in Section 4.2.

[63] BC Hydro, "PowerSmart New Homes Program," July 2012. http://www.bchydro.com/powersmart/builders_developers/new_home_program.html

[64] Based on data collected in 1381 single detached and double semi-detached homes built in Vancouver between 2010 and 2011; Spreadsheet data from the City of Vancouver, provided by Mark Hartman, May 9, 2012.

3.4.5 Do local governments have jurisdiction to implement this program?

It is not clear at this point whether local governments in British Columbia already have the authority to implement this type of point-of-sale home energy labelling requirement (see Appendix C for a legal analysis). Municipalities in B.C. have broad statutory authority to "regulate, prohibit and impose requirements in relation to … (l) buildings and other structures".[65] Where a bylaw under this authority would "establish […] standards that are or could be dealt with by the Provincial building regulations,"[66] the municipality might require the Ministry of Energy and Mines (MEM) to grant them permission (as concurrent authority, or other) to implement the bylaw.[67] However, as Appendix C explains, there is a lack of clarity around whether municipalities might have unilateral authority, without a grant of concurrent authority, to undertake the type of program pursued here.

Given this lack of clarity, we suggest it would be prudent for municipalities wanting to implement such a labelling program to consult with the province.

[65] Government of British Columbia, *Community Charter,* S.B.C. 2003, s. 8(3)(l) (emphasis added).

[66] *Community Charter*, s. 9(1)(d).

[67] *Community Charter*, s. 9(1)(d); Government of British Columbia, "Summary of Ministry Responsibilities," http://www.gov.bc.ca/premier/responsibilities/index.html . The relevant office is the Office of Housing and Construction Standards, which now resides in MEM.

4. Next steps

This section outlines what we consider to be the key next steps to advance energy labelling provincewide, and to prepare for a possible pilot in leading communities. We believe progress at the provincial and local levels are intimately linked: support by the province is required for a successful local program, while local leadership and a willingness to pilot programs are key enabler to the development and adoption of provincewide policies. The sections below articulate, in no particular order, the suggested next steps to advance energy labelling at the provincial and local levels.

4.1 Legislative clarity

It is difficult for local governments to act on good policy without certainty around their authority to act. Given this uncertainty, local governments require the B.C. government to provide greater clarity on their jurisdiction in respect of this policy opportunity. One option is for the B.C. government to issue a legal opinion indicating that municipalities, or all local governments, already have the jurisdictional authority to implement this type of program. Alternatively, the Ministry of Energy and Mines could bring clarity to these circumstances by granting concurrent authority to either the signatory municipalities or all local governments to implement the type of program described above. However, as discussed in Section C.2, there is a lack of clarity regarding the process to obtain concurrent authority. Our attempts to get clarification from the province were unsuccessful; from what we can see, there seems to be no established process. Another alternative would be for the province to lead the implementation of this type of program, working with interested local governments to pilot programs in their communities. Irrespective of the path forward, the province has a role to play.

Thus we suggest as next step:

1. for interested communities to send a joint letter to the Minister of Energy and Mines, outlining their interest in such a program and requesting that the Ministry either (1) lead the charge on the implementation of such a program, or (2) confirm or grant local government the authority to pilot such a program, and support its implementation through financial means.

4.2 Realtor engagement and education

As discussed in Section 3.4.3, realtors could play a crucial role in facilitating conversation about energy efficiency at the time of sale. They are also in a unique position to help homebuyers and sellers make the most of the information provided in the EnerGuide reports and of the opportunities offered by incentives or financing programs. However, as their livelihood depends on the sales process, they also have the most to lose from a poorly implemented program. Engaging realtors and realtor associations more broadly before implementing a labelling program would help address concerns and ensure the proposed program benefit from their knowledge of the sales process and local market.

We suggest a two-pronged approach:

1. Scope avenues for provincewide realtor education on home energy efficiency, considering both formal and informal pathways. Investigate the best avenues and models to deliver educational materials provincewide to increase the energy literacy of realtors and their familiarity with the EnerGuide system.
2. Convene a realtor 'coalition of the willing' to address challenges posed by a home energy labelling requirement and further improve the policy design. This process could start by taking local realtors on a tour following an energy advisor's visit to an older home. Debriefing with realtors, we could consider strategies that could be used to facilitate the sale of the home and add value for both homebuyer and sellers, and measures the local government or the province could take to support the program.

4.3 Public outreach in pilot communities

Public education was flagged in all workshops as an important tool to improve the energy efficiency of the building stock and meet the goals of this program. Before the implementation of a pilot labelling requirement program, it would be beneficial to create more awareness in the community about the EnerGuide for Houses program, and about other programs to incentivize energy upgrades. Local governments interested in implementing a labelling requirement program should work in partnership with organizations already engaged in public education on energy, either provincially (e.g., PowerSmart, PowerSense, LiveSmart) or locally (e.g. NEAT, Cool North Shore, Transition Towns), to raise the profile of home energy labelling and energy upgrades. Some of the ideas suggested during workshops include: education programs in local schools; guided energy assessment tours, possibly joined with block parties or BBQs; local media coverage of families undergoing energy upgrades; and labelling challenges between neighborhoods. An online video with several homeowners who have undergone assessments and upgrades would be a valuable resource that personalizes energy efficiency.

4.4 Incentive and financing programs

To be effective in terms of upgrade action, labelling at point of sale must be part of a suite of policies, including incentives and/or financing programs. This will ensure that even low-income homeowners can act on the information they are provided. It also provides avenues for home sellers and realtors to address how a home with a lower EnerGuide rating could be improved, at low or no cost.

Appropriate financing tools should therefore be in place before implementing a pilot for the labelling existing homes. This can be supported by:

1. Advocating for the renewal of the LiveSmart BC grant program;
2. Encouraging the re-activation of the EcoEnergy federal grant program;[68]
3. Supporting the province in the development and roll out of the Pay-As-You-Save (PAYS-BC) financing program; and

[68] On this topic, see the work of the Save EcoEnergy coalition: http://saveecoenergy.ca/save-energy-first

4. Working with utility companies to ensure that existing incentives are maintained for the duration of the pilot, and that incentives are provided in all jurisdictions.[69]

4.5 Administrative issues

This report has outlined the design of a possible program for the labelling of new and existing homes, suggesting a phased approach to their implementation. For each of these phases, several administrative procedures will need to be put in place to ensure to correct functioning of the program. A detailed plan will be required to enable interested municipalities to be ready for implementation. Some of the administrative issues still to be resolved include:

- **Public outreach**: How will the parties responsible for obtaining the assessment be informed of the requirement?
- **Energy advisor capacity**: Work with local companies or community groups to ensure sufficient capacity to deal with upcoming demand.
- **MLS integration**: Working with local real estate boards, ensure EnerGuide fields are available on MLS.
- **Data sharing forms and protocol**: Working with NRCan and legal departments, design (or adapt) data sharing agreement forms, establish the process for data transfer by NRCan, and ensure privacy issues are properly addressed.
- **Procedures for monitoring and enforcement**: How will compliance rates be monitored, who will follow up with non-compliant sellers, etc.?
- **Performance metrics**: How will the effectiveness of the program be measured?

4.6 Building multi-stakeholder support for labelling in B.C.

As pointed out in the opening of this section, successful implementation of a labelling requirement program will require political support from the province. To this end, it would be useful to build a list of organizations and individuals supporting in principle the broader adoption of home energy labelling in B.C. This effort has already been initiated by City Green, in partnership with the B.C. Sustainable Energy Association, who launched the Support Home Energy Labelling BC website[70] in 2010, dedicated to the support of home energy labelling at time of sale. Currently, 65 businesses and organizations and 120 individuals are listed as supporters.[71]

In addition to this strategy to build broader support, two other approaches could help at the provincial level:

1. Labelling Thought Leader Forum: convening a dialogue on next steps for building labelling in B.C. with key stakeholders: B.C. Real Estate Association, Land Titles and Survey Authority, B.C. Assessment, Canadian Home Builder Association of B.C., local

[69] For example, it was noted that Pacific Northern Gas does not offer incentives equivalent to those of Fortis BC, putting their customers at a relative disadvantage. ,

[70] Support Home Energy Labelling BC, http://homeenergylabellingbc.com

[71] Support Home Energy Labelling BC, "List of Supporters." http://www.homeenergylabellingbc.com/p/current-list-of-supporters.html (accessed October 18, 2012)

real estate boards, NRCan, the Urban Development Institute, the Ministry of Energy and Mines, the Climate Action Secretariat, etc.

2. Developer forum: Convene a dialogue on energy efficiency with major development companies: what would it take to significantly improve the energy efficiency of new homes? What role does labelling play in this process?

4.7 Conclusion

Building labelling provides a first step on the path to energy efficiency upgrades for existing housing stock and improved energy performance for new residential buildings. For the homeowner, energy labelling can improve energy literacy, providing key information about building performance at the key decision-making time of purchase and/or renovation. For local government, building energy labelling data supports development and delivery of residential energy efficiency programs.

This report has outlined the benefits, as well as the key design elements, of a building energy labelling program for the residential sector. Such a program could be implemented, following more detailed program design, as a pilot within a local community in British Columbia. The program has been designed with the overall goal of requiring labelling for all single-family and duplex residences, as required in many other jurisdictions. However, based on participant feedback from three local communities, we recommend a phased implementation beginning with new residential buildings. We also recommend roll-out of a labelling program alongside other supportive policies, such as Pay-As-You-Save financing. Lastly, ongoing education about energy efficiency for the real estate and development industries will be beneficial to support energy labelling and to move energy efficiency forward.

Appendix A. Design features of other labelling programs

Table 3. Design features and lessons from other building energy labelling programs

Design question	Denmark[72]	Austin, Texas[73]	Vancouver, B.C.
What building types are covered?	Residential, public, and commercial buildings	Residential, multi-residential, and commercial (with different requirements) that are more than 10 years old	New buildings only
Are there special exceptions?	Factory buildings are not included and buildings identified by the Danish government to have cultural and historical significance are exempted	Mobile homes and homes that: 1) have received certain energy retrofits under "energy star"-like program by the city; or 2) Is changing ownership under 'hardship' (e.g. foreclosure)	N/A
What triggers the labelling requirement?	Small buildings (less than 1,500 m^2): sale or rental of property requires up-to-date energy label. Large buildings need to update their energy labels every five years	Sale of property	New building
Is it an asset-based rating or bill-disclosure	Asset-based rating	Asset-based energy audit	Asset-based

[72] Haynes Zirnhelt and Matt Horne, *Energy Labelling and Efficiency Requirement for Existing Buildings* (Pembina Institute, 2010), 12-16; Government of Denmark, *Act to Promote Energy Savings in Buildings (Unofficial translation)*, Danish Act no. 585, June 24, 2005. Available at http://soeg.ekn.dk/Afgorelser/L_585_Act_to_promote_energy_savings.pdf

[73] Austin Energy, "About the Energy Conservation Audit and Disclosure (ECAD) Ordinance." http://www.austinenergy.com/about%20us/environmental%20initiatives/ordinance/index.htm

requirement?			
What rating system is used? Relative or absolute?	The rating is calculated using standard conditions for occupant consumption and weather, a similar approach to the EnerGuide rating	Audit by a Building Performance Institute (BPI) Building Analyst Professional or a certified Residential Energy Services Network (RESNET) rater	EnerGuide
How is data shared?	Seller must provide label to homebuyer, landlord must provide label to tenant, before agreement is concluded	Audit must be provided to homebuyer three days before the end of the "option period" that closes the sale	Data shared with the city. No requirement to disclose to potential buyers.
How is labelling enforced?	Fines are available, but have not been used, though compliance is low (25%-50%)	Bylaw violation to be addressed by city legal department, with fines of up to $500 (residential) and $2,000 (commercial); citizens report infractions to city.	Energy assessment required once constructed to obtain occupation permit[74]
Are there incentives/ regulations for upgrades?	Varied over the long time-frame of the program — originally had no strong connections to other policies, but this is under review because it is considered a key weakness	Linked to program for 20% rebate on energy efficiency improvements;[75] multi-residential buildings need to improve performance if energy consumption per square foot is at least 50% higher than average	Upcoming (see footnote below)

[74] A revised municipal building code will be presented to council in early 2013. Under consideration is the requirement for builders to provide an energy assessment (based on plans) to obtain a building permit. This would be joined with a feebate program, by which the city would collect an upfront fee and give builders about $3000 back per additional EGH points (amount to be confirmed) up to $20,000. The city would also provide builders with training via an "energy advocate" in the permit office who would help them improve their score. Personal communication from Mark Hartman, City of Vancouver Green Building Program Manager, October 25, 2012.

[75] Austin Energy, "Home Performance with Energy Star® Rebate." http://www.austinenergy.com/Energy%20Efficiency/Programs/Rebates/Residential/Home%20Performance%20with%20Energy%20Star/index.htm

Appendix B. EnerGuide for Houses

This appendix provides additional information on the current EnerGuide rating system for new and existing houses, and on the upcoming "new generation" EnerGuide.

What does the EnerGuide rating mean?

Using the current EnerGuide system, a home's energy efficiency level is rated on a scale of 0 to 100. A rating of 0 represents a home with major air leakage, no insulation and extremely high-energy consumption. A rating of 100 represents a house that is airtight, well insulated and sufficiently ventilated and requires no purchased energy (sometimes referred to as a passive house, or a net zero house).

Table 4. A guide to EnerGuide for Houses ratings

House characteristics	Typical rating
Older house not upgraded	0 to 50
Upgraded older house	51 to 65
Energy-efficient upgraded older house or typical new house	66 to 74
Energy-efficient new house	75 to 79
Highly energy-efficient new house	80 to 90
House requiring little or no purchased energy	91 to 100

Source: NRCan [76]

What happens during an energy assessment? How is the house energy efficiency evaluated?

During the site visit, the energy advisor collects data on home energy systems (heating and cooling systems), house construction materials and the building envelope (the walls and roof of the home) to model the building's energy consumption. The advisor also performs a blower door test, creating a negative pressure inside the house. This allows the homeowner to see where the main air leaks in the home are, and allows the energy advisor to calculate the air tightness of the home (measured in 'air changes per hour', i.e., how many time the volume of air contained in the house seeps out of the house).

[76] Natural Resources Canada, "EnerGuide Rating System (Existing Homes)." http://oee.nrcan.gc.ca/residential/personal/16352

The advisor then uses an energy analysis software called HOT2000 to compare the home with a reference house of a similar size in a similar climatic region. This is the basis for the rating. In order to compare one house to another, the energy rating is based on standard operating conditions (SOC) rather than the actual operating conditions of a house. The rating is based on:[77]

- Four occupants (two adults and two children) who are present 50 per cent of the time;
- A temperature set-point of 21°C for the main and upper floors and 19°C for the basement;
- A consumption of 225 litres of domestic hot water per day;
- An electricity consumption for lighting and appliances of 24 kilowatt hours (kWh) per day; and
- A total minimum monthly average ventilation rate of 0.30 air change per hour during the heating season, including natural air infiltration and mechanical ventilation.

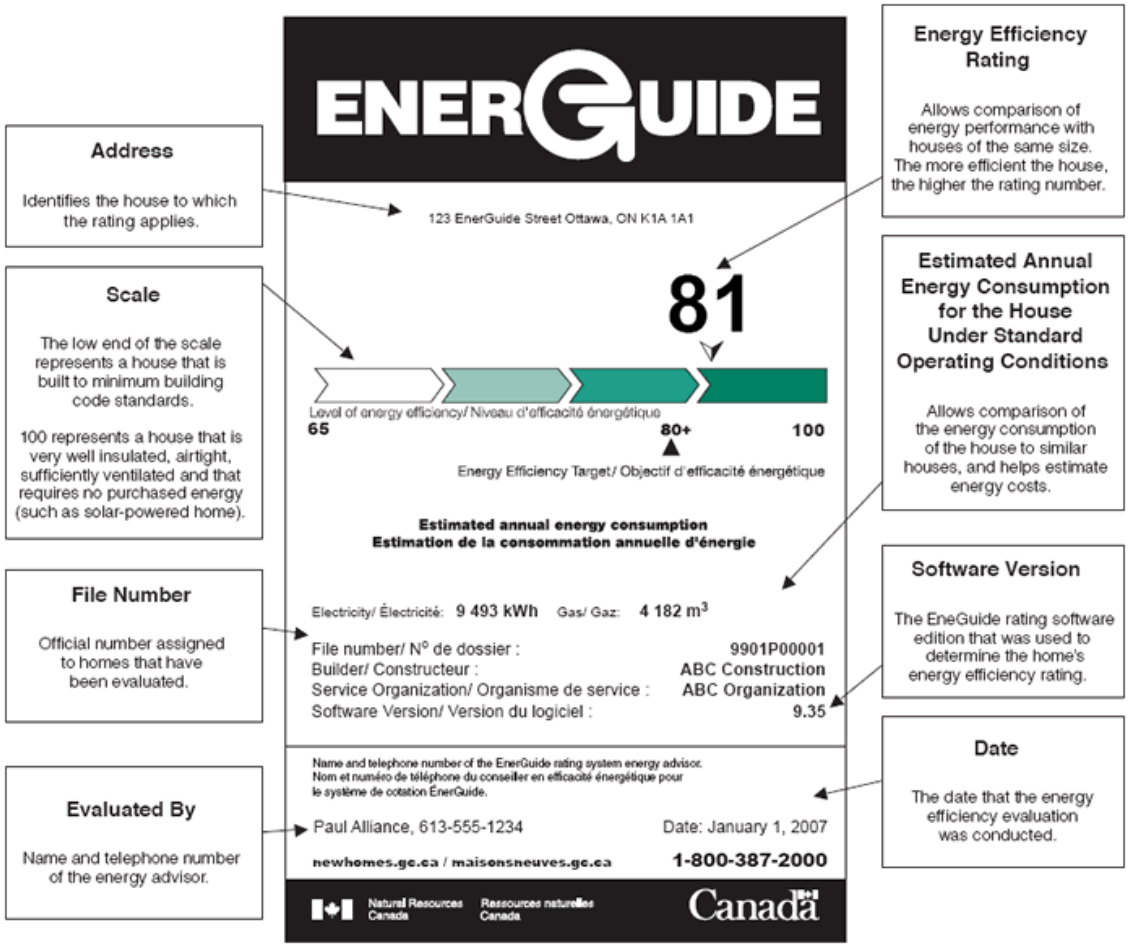

Figure 3. Key to an EnerGuide label for home
Source: NRCan[78]

[77] Natural Resources Canada, *Energy Advisor Procedures Manual* (March 2010), 6.

[78] NRCan, "EnerGuide Rating Label." http://oee.nrcan.gc.ca/residential/personal/new-homes/15197

What if actual operating conditions differ from these standard operating conditions?

As explained above, the energy use is modeled using standard operating conditions (SOCs), rather than actual operating conditions. That is to say, even if only two people live in the house, and they keep their thermostat at 19°C, the energy advisor will run the HOT2000 model assuming that four people inhabit the house and the thermostat is set at 22°C. This ensures the EnerGuide rating and estimated energy use can be compared apple-to-apple with those of other houses, independently of the behavioural habits of its inhabitants. These SOCs directly impact the estimated annual energy consumption, and therefore also the energy savings estimates associated with suggested energy upgrades.

For houses where operations conditions are generally more energy efficient that the SOC (for example, houses with fewer than four occupants, or with lower temperature set points during the day and/or the night, or with lower hot water use, etc.), the energy saving associated with energy upgrades will be overestimated. Conversely, for houses with more energy-intensive operating conditions (high occupancy, high temperature settings, high water use, etc.), the energy savings will be underestimated.

Compared to the average practice of homeowners in B.C., the current SOC used by energy advisors tend to overestimate energy use. Table 5 below presents the current SOC compared to average conditions, as estimated by various utilities company surveys. Analysis using Hot2000 shows that revising the SOC to match these survey results for average operation conditions could lead to a decrease of estimated energy use (and energy savings) of up to 30 per cent.[79] Recommendations to reduce the gap between SOC and average practice was made to a national working group revising EnerGuide SOCs; revised SOCs are expected with the next generation EnerGuide.

Table 5. Standard Operating Conditions (SOC) used in HOT2000 simulations for EnerGuide labels compared to average operating conditions

	HOT2000 SOC	Average
Occupancy		
Single Family	4	2.5–2.8[a]
Row	4	2.2–2.6[a]
Temperature		
Main floor	21°C	18.4°C–18.8°C[b]
Basement	19°C	17.4°C–17.8°C[b]
Base electric load		
Single family	8,760 kWhr/yr	9,738 kWhr/yr[c]

[79] Innes Hood, Sheltair Group, presentation to Residential Energy Modeling Forum, April 24, 2012.

Row home	8,760 kWhr/yr	8,251 kWhr/yr[c]
Domestic hot water		
Single family	250 L/day	160 L/day[d]
Row home	250 L/day	140 L/day[d]

Source: Hood[80]. Original data sources as indicated.

How is the reliability of energy assessments ensured?

Quality control of energy assessments happens at two levels. First, the energy service provider, (i.e. the company sending the energy advisor), is responsible for monitoring the quality of the work of its staff and to report on this internal quality control to NRCan every three months. This includes a requirement for the quality control on the work of new and established energy advisors (review of the first seven evaluations, 20 per cent of the first 20, and 5 per cent thereafter), a summary of client satisfaction surveys, and a review of data collected and file management.[81] Second, NRCan conducts its own review, by contracting independent quality assurance auditors to assess all service organizations and their energy advisors. These auditors evaluate both client satisfaction and the accuracy of files generated by energy advisors by ensuring the forms are properly filled and conducting on site-evaluation. Discrepancy in the results could require a repeat of the assessment and/or remedial actions to ensure appropriate procedures are followed in the future, and could lead to the de-certification of the energy advisor.[82]

What changes are expected in the new generation EnerGuide?

A revised EnerGuide system for home is currently under development. No roll-out dates have been announced officially; informal target date is spring 2014.[83] Some of the key expected changes include[84]:

[80] Innes Hood, Sheltair Group, presentation to Residential Energy Modeling Forum, April 24, 2012.

[a] Range of values based on 2006 Canadian census, 2007 BC Hydro residential end-use survey, and 2008 Terasen gas end-use survey

[b] BC Hydro Behaviour Survey; the lower number corresponds average value for house with electrical heating, higher number corresponds to value for houses with natural gas heating

[c] Customer billing extracts from 2007 BC Hydro Conservation Potential Review

[d] 2008 Terasen Gas residential end-use survey

[81] NRCan, "EnerGuide for New Houses: Administrative and Technical Procedures," January 2005, revised March 2011. http://oee.nrcan.gc.ca/residential/builders-renovators-trades/6638#protocol (accessed October 17, 2012)

[82] Ibid.

[83] Martin Gaudet, Office of Energy Efficiency, personal communication.

[84] Natural Resources Canada, *Overview of the Development of the Next Generation EnerGuide Rating System for Houses* (2012).

- Consumption-based scale: instead of the 0 to 100 relative scale, the new system will feature an absolute scale giving the house's estimated annual energy consumption, in GJ per year. The scale will begin at zero, for a net-zero house, and have no upper ceiling. This is aligned with EnerGuide labels for appliances, where a lower number indicates a more efficient appliance. This will also allow to easily translate the increase or decrease in EnerGuide rating to energy savings (a 10 per cent decrease in the rating implying a 10 per cent saving in energy).
- Greenhouse gas reporting: the label will incorporate estimate of greenhouse gas emissions from energy use.
- Including air conditioning/electric base loads: the scope of the rating system will be broadened to account for additional energy uses, like AC and plug-loads.
- Code compatibility: the system will be compare the energy efficiency of the house to the current building code, thus allowing an standard-based comparison.
- Accounting for renewables: the scope of the rating system will be broaden to account for on-site renewable energy production.
- Increasing energy literacy: the label will provide more information to help educate homeowners and industry to lead them to action. A guide to the label will also be provided.
- Efficient living assessment report: in addition to the label, detailed report, and suggested energy upgrades, the homeowner can request an additional report focused on how their behavior and use of the house affects their energy consumption. This report would include a revised energy model based on as-operated conditions, information on how to operate and maintain the home more efficiently, recommendations on lifestyle changes and potential savings associated with atypical loads.
- Different products to meet costumer needs: the new system will offer a scale of products, with different pricing: a basic EnerGuide rating and labelling, the retrofit recommendation report, the efficient living assessment report, etc. Thus, a home seller could meet a mandatory labelling requirement more cheaply by only getting the basic EnerGuide rating. The homebuyer might be interested in recommendations for energy upgrades, and could order this additional product for an additional cost (without having to go through another energy assessment).
- Updated standard operating conditions: as discussed above, the SOC currently used tend to overestimate energy use based on average operating conditions. These SOC are under review, and updated ones are expected with the new EnerGuide.
- Online access: energy assessment information will be stored online and made accessible to homeowners for future reference via a web portal.

These are important changes that will significantly improve the EnerGuide system. Yet, the current system remains a very useful tool to improve the building stock and increase energy literacy. We do not, however, advise waiting for the new EnerGuide before implementing an home energy labelling requirement. Significant gains can be achieved with the system as it stands, and time is of the essence. While the transition between the two systems will need to be managed carefully, NRCan has committed to working with partners using the current EnerGuide system as part of their programs to ensure a smooth transition. In addition, "NRCan is committed to maintaining the current [EnerGuide Rating System (ERS)] calculation and providing the

current rating in a report for as long as is required to transition the program over to the new ERS."[85]

Will homes that have been labelled using the old EnerGuide require another energy assessment when the new EnerGuide rating comes in?

No. While converting the current rating into the new rating will require more than just a simple equation, it can be done using a new simulation algorithm with the old house data. NRCan maintains a database of all house files ever submitted under the current system, and their systems can be set up to re-run existing files with the next generation rules. Notably, NRCan is also planning to allow homeowner to access their energy assessment data via a web portal. As this online tool evolves, it could be made possible to allow homeowners with an old label to check their 'unofficial' rating under the new system as well. In addition, were it to be of interest, it should be possible to provide homeowners under the new rating system with an old rating as well for comparison purposes.[86]

[85] Ibid., 8.

[86] Ibid.,7-8.

Appendix C. Jurisdictional analysis

C.1 The concurrent authority restriction to the municipal power to regulate "buildings"

Municipalities[87] have a broad grant of power under s. 8(3)(l) of the Community Charter to "regulate, prohibit and impose requirements *in relation to* … (l) buildings and other structures…".[88] The phrase "in relation to" suggests a large scope of power around the subject matter and is informed by s. 4's broad instruction to interpret "[t]he powers conferred on municipalities and their councils under this Act or the *Local Government Act* … broadly in accordance with the [Acts' purposes] … and municipal purposes."

However, the Province has created some limitations to this "buildings" power. Section 9 of the Community Charter requires B.C. government approval for "concurrent authority" for municipalities to use their buildings power to establish "standards that are or could be dealt with by the Provincial building regulations."[89] Unfortunately, it is not made clear within the Community Charter what can be "dealt with" by B.C. government building regulations. But by specifying building *regulations*, it points to the existing power, as granted by existing statute, of the relevant ministry of the B.C. government to regulate building — not to the broad plenary constitutional jurisdiction that provinces have over buildings.

The B.C. government's statutory authority to regulate building seems to be narrower in scope than the broad municipal power to regulate in relation to buildings. The only apparent grant of authority to regulate buildings that s. 9(1)(d) must be referencing is s. 692 of the Local Government Act, falling under "Part 21 – Building Regulations".[90] It authorizes the Ministry of Energy and Mines (MEM) to "make regulations" "(a) establishing a Provincial building code for British Columbia governing standards for the construction, alteration, repair or demolition of buildings" and "(d) regulating building generally for matters not included in the building code".[91]

According to a plain-language reading of both authorities, the provincial authority to regulate is specific to "building" practices and not "buildings" more broadly. The powers necessary to implement a mandatory building labelling program — requiring a home energy assessment of buildings and requiring disclosure of that assessment — do not fit neatly within MEM regulatory authority over "building" and the "construction, alteration, repair or demolition of buildings", a

[87] This analysis focuses on the power of municipalities under the *Community Charter*, S.B.C. 2003, Ch. 26, and does not apply neatly to regional districts.

[88] *Community Charter*, s. 8(3)(l) (emphasis added).

[89] *Community Charter*, s. 9(1)(d).

[90] Government of British Columbia, *Local Government Act,* R.S.B.C. 1996, c. 323.

[91] *Local Government Act*, ss. 692(1)(a), (d). The other subsections of s. 692 grant only ancillary regulatory authority to the core Building Code authority.

sub-circle of the broader municipal authority over "buildings". This is a sub-class of the municipal authority over "buildings", which is a broader authority that relates not only to the building process, but also other regulatory action respecting buildings.[92]

However, this analysis is not conclusive and requires either B.C. Government or judicial clarification. It is not so clear that building construction and alteration as subject matters are distinct from requirements for assessing and requiring disclosure of a building's condition with respect to energy usage — a condition that is related to its construction. Given this uncertainty, and the risk to municipalities of implementing a policy with uncertain authority, municipalities may want to ask for clear guidance from the province whether they need a grant of concurrent authority for this type of program.

C.2 Concurrent authority request process

The process for requesting concurrent authority is not clearly defined. While this allows for a lot of flexibility to tailor the request for persuasiveness, it also makes it difficult to determine exactly how to format and structure an effective request.

The Community Charter specifies only that there are three ways to obtain concurrent authority from the "minister responsible", who is the Minister of Energy and Mines (and responsible for Housing) for the s. 8(3)(l) buildings power[93]:

1. "in accordance with a regulation", in which the Minister can specify matters in relation to which municipalities can exercise authority subject to any restrictions and conditions in the regulation. The regulation would be applicable to all municipalities.[94]
2. "in accordance with an agreement with one or more municipalities", through which the Minister can set the same authorities, matters, and conditions as through regulation. The agreement to concurrent authority would apply only to municipalities party to the agreement.[95]
3. simply by having the bylaw "approved by the minister responsible", with no further explanation of the process or form of that approval.[96]

However, the Community Charter is silent on the proper process for municipalities to seek concurrent authority from the province through any of these three routes. There are also no regulations pursuant to the statute to elucidate the process and there is no controlling MEM regulation under s. 9 of the charter that deals with this particular matter of regulation of

[92] Indeed, in its *Buildings and Other Structures Bylaws Regulation*, the MEM has provided for some concurrent authority for bylaws that "establish[] standards for the construction, alteration, repair or demolition of buildings or structures". It is silent on bylaws with other regulatory impacts on buildings. Yet municipal bylaws regulate buildings in many ways outside of this grant of concurrent authority, suggesting that these non-building-process regulatory powers do not require concurrent authority.

[93] Government of British Columbia, "Summary of Ministry Responsibilities." http://www.gov.bc.ca/premier/responsibilities/index.html . The relevant office is the Office of Housing and Construction Standards, which now resides in MEM.

[94] *Community Charter*, ss. 9(3)(a), (4).

[95] *Community Charter*, ss. 9(3)(b), (5).

[96] *Community Charter*, ss. 9(3)(c).

buildings, as opposed to construction issues, as noted above.[97] MEM has little information on its website as to what a municipality must do to pursue concurrent authority with respect to the buildings power, aside from bylaws that would "alter the technical standards or application of the B.C. Building Code", which the type of program discussed here would not do.[98]

It seems that no formal process has ever been established for municipalities to request concurrent authority, either within MEM or across provincial ministries with matters that overlap with municipal spheres of power.[99] When the Community Charter was first introduced in 2004, municipalities initially sent formal letters to the Building and Safety Standards Branch for direct and formal approval by the Minister. However, more recently, municipalities have been more informally approaching branch staff to ask questions about the need for approval and initiate the process of discussing possibilities of obtaining approval.[100] There are no publicly available examples of formal letters to the Minister, and MEM staff was not forthcoming with templates or prior models of effective concurrent authority requests, at this point.

This lack of guidance leaves latitude in how municipalities approach the Ministry and fashion a document requesting concurrent authority. We see three basic options, each perhaps with more particular derivations:

1. To express publicly the desire of municipalities to act on this policy area and detail the benefits and policy rationales of mandatory building labelling, we can draft a formal letter, with supporting documentation and policy appendices, to the Minister, with varying degrees of publicity.
2. On the other hand, if we want to navigate more prudently MEM's informal process for vetting bylaw ideas and get the MEM's input on the legal uncertainty noted above, we could lead with informal questions and discussions with MEM staff.
3. Finally, we could find an ambitious municipal partner to begin measures to implement the policy and express its interpretation that it has this unilateral authority under its buildings power sphere, outside of the need for concurrent authority, as discussed in the prior section.

In any of these cases, it makes sense to have the basic structure of the bylaw, and how it would be implemented, detailed in advance, as this is necessary for either concurrent authority approval or for better supporting the position that the policy comes under municipalities' unilateral authority.

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[97] See *supra* note **Error! Bookmark not defined.** and accompanying text.

[98] MEM indicates that "bylaws that alter the technical standards or application of the BC Building Code", "must be submitted to the Building and Safety Standards Branch, for approval by the Minister" and local governments are "responsible for determining if they need bylaw approvals and for ensuring that they receive them." MEM, "The Community Charter and Local Government Bylaws that Include Building Standards." http://www.housing.gov.bc.ca/building/code/charter.htm .

[99] Conversation with Christine Webb, December 19, 2011. Ms Webb was not certain that this is the case, but was not aware of any established process and did not know anybody that might provide a more definitive answer. See also B.C. Ministry of Community, Sport & Cultural Development, "Concurrent Regulatory Authority." http://www.cscd.gov.bc.ca/lgd/gov_structure/community_charter/services_regulatory/concurrent_regulation.htm , which purports to explain concurrent authority for municipalities but shines no light on the proper process for requesting concurrent authority.

[100] Conversation with Christine Webb, December 19, 2011.

Appendix D. Workshop summaries

Here we summarize the discussions and outcomes of the three municipal engagement sessions.

D.1 City of Dawson Creek

The labelling workshop in the City of Dawson Creek included city councillors, city staff, realtors, the local environmental NGO, and builders/contractors from the local development industry. Key themes included the benefits of energy upgrades, how much energy ratings would play into real estate decisions, the need for additional education for realtors in order to provide information to homeowners, and the need for education and awareness about energy efficiency in general. Concerns included how to run a program in a hot real estate market, that more energy assessment capacity would be needed, and that good builders might lose their competitive advantage if standards increase. Participants supported a mandatory labelling program for new and existing buildings in the City of Dawson Creek, with eight voting yes, and six voting supportive but with concerns. There were zero "no" votes.

D.2 City of Campbell River

The labelling workshop in Campbell River included city staff, local builder/contractors, realtors and real estate board representatives, and energy advisors. A key theme that emerged was the difference between a program for new homes — seen as relatively easy to implement and enforce — and a program for existing homes. How energy labels might play into home sales was discussed in depth: participants noted that some homebuyers are looking for energy efficiency and lower ongoing operating costs, that home-buying decisions are often made rapidly based on emotional responses, and that energy efficiency can mean getting into an overwhelming array of information.

Concerns raised included making the program mandatory rather than voluntary, with some direct opposition to a mandatory program; ensuring that the currently available energy assessment rebates for builders would not be lost; and overcoming challenges for lower-income households. Participants asked for a separate vote on new and existing homes, with the majority supporting a new home labelling program (10 yes, two supportive with concerns, two no), and the majority continuing to have concerns about how to implement an existing homes program (seven supportive with concerns, seven no). Campbell River participants also recommended that home energy labelling policies should be implemented provincewide rather than in select municipalities.

It should be noted that some of the concerns raised were that a labelling program does not go far enough to ensure community reductions of greenhouse gases. Without supporting programs such

as the LiveSmart incentives for energy upgrades, labelling by itself would not enable communities to reach their climate change goals.

D.3 The City of Fort St. John

The final workshop with the City of Fort St. John included city staff, realtors, property managers and appraisers, and the local environmental organization. Key themes that emerged included specific challenges to obtaining audits locally (no local energy advisor), the impact of a mandatory program on realtors and the real estate industry (including challenges to enforcement), and how to deal with MURBs. The relatively young age of much of Fort St. John's housing stock (hence fewer benefits from upgrades) was noted, as well as the current waiting times for any renovation work (approximately 18 months). There were strong concerns about local pushback, as well as workshop participant opposition, to the city making the program mandatory, and concerns about realtors acting as enforcers. Workshop participants supported a comprehensive voluntary program; suggested initiatives included an awareness program in the schools, realtor lunches and realtor education on energy efficiency, lawn signs, an extreme energy assessment make-over on the local cable television channel, and free audit coupons for realtors to provide to their clients. Participants were evenly split on supporting and not supporting mandatory building energy labelling.