

**THE CANADIAN  
HOUSING INDUSTRY'S  
VIEW OF THE  
NATIONAL ACTION PROGRAM  
ON CLIMATE CHANGE**

Submitted to

**The Climate Change Task Group**

by

**The Canadian Home Builders' Association**

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## EXECUTIVE SUMMARY

### Introduction

In recent years, Canada has made commitments to reduce greenhouse gas emissions. In response to those commitments, the Canadian Council of Ministers of the Environment and the Canadian Energy Ministers have established a National Air Issues Coordinating Mechanism (NAICM) to develop measures which will reduce Canada's greenhouse gas emissions. Groups have been established within NAICM to develop measures to meet Canada's commitments. Draft measures have been developed and issued in the form of a draft National Action Plan on Climate Change (NAPCC) for review by representatives of groups in all sectors affected by the draft measures. The target of the draft measures is to stabilize greenhouse gas emissions at 1990 levels by the year 2000, and to achieve further progress in reducing emissions by 2005.

Many of the proposed measures affect the residential sector. The Canadian Home Builders' Association (CHBA) has reviewed the draft measures and has prepared this paper which documents CHBA's response to the draft NAPCC.

### Context

The NAPCC is being planned, not only at a time when other "clean air" initiatives are being planned, but also at a time when a myriad of other environmentally sensitive initiatives are being planned and implemented. They are also being planned at a time of pressure on resources in both the public and private sector to deal with environmentally sensitive development. At the same time, measures contemplated to reduce greenhouse gas emissions and achieve other environmental objectives must be considered from the perspective of sustainable development - development which is environmentally sensitive and economically viable.

### The Housing Industry's Position and Approach

The housing industry supports sustainable development. It supports housing which is environmentally friendly and economically viable. Environmentally friendly housing refers to housing which will have minimal adverse impact on the environment. It means housing which is energy efficient (and therefore minimizes greenhouse gas emissions), is built with minimum construction waste, makes maximum use of existing infrastructure and takes maximum advantage of environmentally benign materials. Clearly, the scope of the housing industry's view is broader than that of the NAPCC. The housing industry regards the broad scope of its position as a strength. It recognizes that environmentally sensitive development is more than energy conservation, and that specific actions have complex impacts because elements of the environment are linked.

The housing industry's actions in the field of environmentally sensitive housing are based on the following principles and criteria which have worked well in the housing sector to

solve a wide range of housing issues. In fact, Canada's housing system and product are acknowledged by many as the best in the world.

- Adopt a pro-active, market-driven approach.
- Strive for a self-regulatory approach.
- Strive to establish partnerships, particularly public-private sector partnerships.
- Work with regulatory authorities to develop consensus-based standards.
- Carry out and encourage research and development, technology transfer, training and education.
- Encourage a national approach.

The housing industry also applies two key criteria in assessing measures which affect the industry:

- Cost-effectiveness must be considered.
- The effectiveness of existing codes, and the roles and responsibilities of responsible organizations must be respected.

By working with key players in accordance with the above principles and criteria, the housing industry is able to mobilize a critical mass of talent and resources, and lever the activities of individual organizations to achieve housing solutions that are much more significant and successful than individual organizations could achieve by themselves.

### **Housing Sector Actions and Achievements**

The housing industry's actions have been consistent with its position on environmentally sensitive housing and the above-noted criteria. On behalf of the industry, CHBA has developed a pro-active paper on the environment and a strategic plan. Both identified a comprehensive range of possible actions and the industry has made progress on all of the key items.

A major feature of CHBA's initiatives is its partnership approach. CHBA has been very successful in developing strong partnerships with federal government organizations including Canada Mortgage and Housing Corporation (CMHC), Natural Resources Canada (NRCan), the National Research Council (NRC), and Human Resources Development. It has also established successful partnerships with financial institutions, warranty programs, manufacturers, utilities and others. These partnerships have resulted in an impressive array of achievements in the housing sector in terms of making housing more environmentally friendly. CMHC maintains an active program of research on issues identified jointly by the industry and CMHC. It has sponsored numerous demonstration projects and has worked with CHBA to transfer the lessons learned on environmentally sensitive housing to the market. NRCan has continued to support the R2000 Program and work with CHBA to improve it. NRCan has launched the Advanced Houses Program and also works with CHBA to develop further and assist in the commercialization of new technologies learned from the test houses built under the Program. NRC continues to

carry out research and evaluation services useful to the housing industry. Human Resources Development has worked with CHBA to develop courses which focus on environmentally sensitive design and construction techniques. CHBA has also developed a Canada-wide initiative with Canada Trust to show consumers, through a series of demonstration projects, that energy efficient, healthy and environmentally sensitive houses are available and affordable. Other initiatives include the provision of reduced interest rate mortgages from some financial institutions for R2000 houses.

The housing industry has and continues to carry out a significant amount of work to make housing more environmentally friendly. Furthermore, this work has produced results. A recent study concluded that the **housing sector made more gains in energy efficiency than the commercial sector, industrial sector, and all forms of transportation between 1971 and 1988.** Details of the findings are summarized in the table below:

**Canadian Energy Efficiency Gains Achieved Between 1971 and 1988**

| Sector               | Energy Efficiency Gains |
|----------------------|-------------------------|
| Housing              | 32%                     |
| Commercial buildings | 13%                     |
| Industry             | 14%                     |
| Transportation       | .                       |
| Personal vehicles    | 23%                     |
| Truck transport      | 9%                      |
| Other transport      | 9%                      |

**Comments on the Measures of the NAPCC**

Clearly, a lot of work must be done before decisions on the measures in the draft NAPCC can be made. The measures have been developed without an understanding of the state of Canada's housing or of Canada's housing industry. Some of the measures do not reflect key federal policy directions, the extensive work which the housing industry has done toward achieving the goals of NAPCC or the most effective way to reach those goals in the housing sector. Furthermore, the measures for the residential sector were developed without consulting CMHC, Canada's national housing agency, or CHBA, the national association of the housing industry.

CHBA's main observations, conclusions and recommendations about the measures are summarized below. Additional and more specific conclusions and recommendations are contained in the full report.

- The measures do not reflect the extent of reduction to be achieved to meet Canada's target or the sectors from which most greenhouse gas reductions should come.
- CHBA would support an emphasis on voluntary action programs. However, as demonstrated in this paper, **such programs must be developed in partnership with CHBA and CMHC.**

- CHBA recommends that the Pilot Joint Implementation Initiative be used as a vehicle to export Canadian housing products, technologies and services.
- CHBA recommends an approach to increasing energy conservation in new housing which is based on the principles demonstrated in the R2000 program. The R2000 Program produces leading edge performance housing and is founded on voluntarism, government-industry partnership, ongoing research and development, technology transfer to the housing industry, education and training, and various marketing support efforts. While the number of houses registered under the R2000 Program has been limited, the Program has had enormous impact. The estimated number of "R2000-like" houses that have been built is well over 20,000. Even more important, however, is that it has induced the whole housing industry to increase the quality of housing, particularly in terms of energy efficiency. Today's housing product is vastly superior to the housing of the past.
- CHBA supports the intent of the proposed training programs. However, in light of the extensive work that has been and is being done by CHBA in this field, such plans should be discussed with CHBA and coordinated with other education and training activities for the housing industry.
- CHBA supports the promotion of increased densities in urban areas. CHBA is aware of the complexity of this area and has supported actions to achieve more land use intensification, including efforts to establish reasonable land remediation measures and to implement the Affordability and Choice Today (ACT) Program (a regulatory reform program). CHBA must be included in a partnership role in future work on this issue.
- CHBA notes that measures considered for non-residential sectors include developmental measures which focus on the development and implementation of new ideas, innovative techniques and leading edge practices. Such measures are not included among those offered for the residential sector. The housing industry is heavily committed to research and development and has demonstrated the benefits of such investment. CHBA strongly urges that measures for the residential sector include research and development and technology transfer measures, as they are included for other sectors.

## **INTRODUCTION**

### **Background**

In recent years, Canada has made commitments to reduce greenhouse gas emissions. In response to those commitments, the Canadian Council of Ministers of the Environment and the Canadian Energy Ministers have established a National Air Issues Coordinating Mechanism (NAICM) to develop measures which will reduce Canada's greenhouse gas emissions. Groups have been established within NAICM to develop measures to meet Canada's commitments. Draft measures have been developed and issued in the form a draft National Action Plan on Climate Change (NAPCC) for review by representatives of groups in all sectors affected by the draft measures. The target of the draft measures is to stabilize greenhouse gas emissions at 1990 levels by the year 2000, and to achieve further progress in reducing emissions by 2005.

Many of the proposed measures affect the residential sector. As one of the largest sectors of the Canadian economy, the housing sector must play a significant role in minimizing greenhouse gas emissions. This paper will show that the housing sector has been, is being and will continue to be responsible and progressive in minimizing adverse impacts on the environment in general and in minimizing greenhouse gas emissions in particular. Its positive role stems from the recognized fact that Canada's housing and Canada's housing system are the best in the world. Not only does this mean that Canadians are among the best housed people in the world but that the housing is energy efficient. Among the reasons for this are the resources which contribute to housing excellence. One is Canada Mortgage and Housing Corporation (CMHC), Canada's national housing agency and another is the Canadian Home Builders' Association (CHBA), an organization whose mission is to be the voice of the residential construction industry in Canada. This paper will also show the major contributions that these organizations have made to making Canada's housing sensitive to the environment.

### **Purpose**

This report outlines the CHBA's position on the proposed NAPCC. More specifically, it reviews CHBA's approach to and activities in this field, and comments on the measures presented in the Draft Outline of NAPCC.

### **Context**

Concern about the effects of emissions into the atmosphere has been increasing significantly over the past ten years. This concern has resulted in a wide range of international and national commitments and actions to reduce the levels and address their negative impacts.

Canada has taken a constructive position in this field. At the international level, Canada has made commitments to limit sulphur dioxide emissions, reduce nitrogen oxide

emissions, reduce the use of chlorofluorocarbons and halons, and limit greenhouse gas emissions. The Canadian international commitment with respect to greenhouse gas emissions is to stabilize them at 1990 levels by the year 2000.

These international commitments have been reinforced by Canadian national initiatives to limit or reduce the emissions of the same substances. The Eastern Canadian Sulphur Dioxide Control Program will reduce the base level of sulphur dioxide emissions. The Canadian Council of Ministers of the Environment has agreed in principle on a national plan to prevent or reduce ground-level ozone. As noted above, Canada is also working to reduce greenhouse gas emissions, and has set targets. Other targets on greenhouse gas emission reductions have been recommended, primarily through energy conservation and improved efficiency programs (which reduce fossil fuel combustion and, as a consequence, greenhouse gas emissions). The most ambitious was a 20% reduction. However, estimated impacts of this level of reduction vary. Some estimates conclude that such a reduction would result in huge savings in energy consumption but others predict that it would cause significant economic dislocation.

The NAPCC which addresses greenhouse gas emissions should be viewed in a context, part of which is outlined above. The Program is being planned, not only at a time when other "clean air" initiatives are being planned, but it is also at a time when a myriad of other initiatives which are environmentally sensitive are being planned and implemented. These include efforts to conserve resources such as water and wood, remediate contaminated lands and improve the indoor air quality of buildings. Another significant element of the context is the pressure on resources to deal with environmentally sensitive development. This is true for both the public and private sector, particularly in the field of housing, as discussed later. At the same time, measures contemplated to reduce greenhouse gas emissions and achieve other environmental objectives must be considered from the perspective of **sustainable development - development which is environmentally sensitive and economically viable.**

### **Organization of the Report**

The report is organized as follows:

- The next section states the housing industry's position on environmentally sensitive development, and identifies the principles and criteria which it applies to recommend and carry out actions.
- The third section highlights some actions and achievements by the residential sector that are relevant to the planned program.
- The last major section of this report comments on the measures currently under consideration in NAPCC which affect the residential sector. These comments are based on the principles and criteria which the housing industry has found to be successful.

## **THE HOUSING INDUSTRY'S POSITION AND APPROACH**

### **Policy**

**The housing industry supports sustainable development.** It supports housing which is environmentally sensitive and economically viable. This position is in accordance with fundamental principles of CHBA which are to support the right of all Canadians to decent, safe and appropriate housing and to promote housing affordability. However, CHBA's position in this field is much more specific, well developed and well established, as explained below.

### **Key Principles and Criteria for Action**

The housing industry's actions in the field of environmentally sensitive housing are based on a series of proven principles and criteria which have worked well in the housing sector to solve a wide range of housing issues and have resulted in housing acknowledged by many as the best in the world. Many of these derive from the characteristics of the housing industry and the context in which it operates.

The housing industry is comprised of a complex network of diverse players, mostly from the private sector, which include builders, manufacturers, suppliers, trades, lenders, and allied professionals. Most of the companies in the industry are small and highly competitive. The structure of the industry and strong competition have resulted in tight margins and a limited ability of the housing industry to fund research and development. Limited resources among the senior levels of government have resulted in substantial down-loading of costs on municipal governments which have passed on many of the costs of growth to the housing industry through a variety of fees and charges. These costs have imposed further financial pressures on the housing industry and its consumers. The ever-changing nature of the housing market, the highly interactive elements of the housing industry and consumers' questioning and discerning approach toward innovation in housing means that change in housing is evolutionary and incremental.

These characteristics and circumstances of the housing industry have led it to embrace the following principles for action:

- **Adopt a pro-active, market-driven approach** The market system fosters an environment within which professional builders, renovators, manufacturers and others can create new products and approaches. It is a system which values innovation and entrepreneurialism. It establishes a competitive environment in which the industry can strive to meet consumer expectations as well as new public policy requirements in the most responsive and cost-effective way.

A competitive housing industry plays an important part in improving Canada's prosperity. A competitive housing sector keeps the cost of doing business in Canada down and thereby helps keep Canadian industry competitive. The industry's competitiveness means ongoing improvement of Canada's housing which improves the prospect of exporting Canada's housing technology, products and services. Both benefits are in the national interest.

- **Strive for a self-regulatory approach** Canada's housing industry maintains an awareness of emerging issues and deals pro-actively with them. This has often resulted in voluntary controls and self regulation which allow the industry to promote and develop the most cost-effective and viable techniques to solve problems.
- **Strive to establish partnerships, particularly public-private sector partnerships** CHBA believes that governments have specific and important responsibilities in the field of housing, including the provision of assistance to house the needy and a stable environment in which the housing industry can operate effectively. However, actions in the field of housing, particularly those affecting the environment, are complex, and require discussion among all affected parties to develop optimum solutions. Furthermore, actions developed through consensus among players who have responsibilities and opportunities to act on them are much more effective. CHBA has established a number of very successful partnerships with federal government organizations which have responsibilities in the field of housing. These include CMHC, Natural Resources Canada (NRCan), National Research Council (NRC), Environment Canada and Human Resources Development. In addition, CHBA has established a broad range of cooperative partnerships with financial institutions, warranty programs, utilities, manufacturers and others.
- **Work with regulatory authorities to develop consensus-based standards** Laws and regulations are designed to regulate the public interest. Public interest can be hard to define. Governments, consumers and industry all have valid views on the public interest. Ill-conceived regulations developed from only one perspective can impose unnecessary costs and discourage innovation. Consensus-based regulations incorporate the views on all responsible groups. They are harder to develop but will be superior because they do reflect more viewpoints and, because of this, they will be more effective.
- **Carry out and encourage research and development, technology transfer, training and education** CHBA has successfully worked with the above-noted organizations and others to establish housing research, development, technology transfer, education and training priorities. These organizations have funded and managed this work in accordance with the partnership arrangements referred to above. Upon its completion, the housing industry has worked with the organizations to implement the results.

- **Encourage a national approach** Although housing is a provincial responsibility in Canada, national leadership by organizations with influence in housing can yield benefits such as a consistent and reliable operating environment, a national financing system, improved labour mobility, more effective technology transfer and economies of scale for product manufacturers.

The housing industry also applies two key criteria in assessing measures which affect the industry:

- **Cost-effectiveness must be considered** This means that measures must be efficient, have the desired impacts and not have unintended impacts. It means that proposed measures must fall within the means of control and influence of those responsible for implementing them, and that they are supported by the players on whose behalf they are proposed.
- **The effectiveness of existing codes, and the roles and responsibilities of responsible organizations must be respected** Proponents of change often advocate measures which breach traditional mandates of codes or organizations. Such measures can have long term negative effects by setting precedents which allow special interest groups the opportunity to incorporate their agenda in regulations intended for other purposes.

**By working with key players in accordance with the above principles and criteria, the housing industry is able to mobilize a critical mass of talent and resources, and lever the activities of individual organizations to achieve housing solutions that are much more significant and successful than individual organizations could achieve by themselves.**

## **HOUSING SECTOR ACTIONS AND ACHIEVEMENTS**

In response to emerging consumer interests in the environment and increasing understanding of the importance of environmentally sensitive development, the housing industry has taken a number of actions in line with the above principles and criteria to provide housing which will have the minimal adverse impact on the environment. Some examples of key actions are outlined below:

### **CHBA Position Paper on the Canadian Housing Industry and the Environment**

In 1990, CHBA carried out a study to establish a comprehensive position with respect to environmentally sensitive housing. The housing industry's position was published in 1991 and it identified a wide range of options for action. These options have two main thrusts: one focuses on further energy conservation opportunities in housing structures; the second focuses on other issues related to environmentally sensitive development in community

planning, land use, and construction practices (e.g., waste management and material selection).

Clearly, the scope of the housing industry's view is broader than that of NAPCC. The first focus, energy conservation, is directly related to the NAPCC because it deals with reducing the combustion of fossil fuels which would reduce greenhouse gas emissions, the prime objective of NAPCC. The second focus includes some energy conservation issues, but it also includes issues such as resource conservation, preservation of wetlands, transportation, land use intensification and toxic materials. **The housing industry regards the broad scope of its position as a strength. It recognizes that environmentally sensitive development is more than energy conservation, and that specific actions have complex impacts because elements of the environment are linked.**

A selection of the options for action identified in CHBA's position paper which deal with energy conservation in housing structures are listed below. They apply to one or more of the following components: building envelope, heating, cooling and ventilating systems, windows, appliances, lighting, hot water heaters and water conservation.

- Increase the number of houses built to R-2000 standards.
- Increase education and training of builders.
- Increase R-2000 standards to achieve higher levels of energy efficiency.
- Improve the energy efficiency of heating, cooling and ventilating systems.
- Provide consumer education to assist home owners in making wise choices.
- Promote energy-efficient systems to builders and renovators through CHBA.
- Establish an energy labelling program for additional products.
- Update Energuide
- Provide incentives to consumers and builders to encourage use of some products.

Action has been taken and progress has been made on all of these items.

Specific options for action on community planning, land use intensification and transportation, resource conservation and toxic materials are more difficult to formulate. They are inter-related and often involve players with competing interests and conflicting views. CHBA supports land use intensification because it reduces transportation and saves substantial amounts of energy. It represents an approach to good urban development which provides more choice to residents and utilizes existing infrastructure more fully. This, in turn, avoids the need to install more infrastructure with attendant energy use reduction and preserves farm land which provides other environmental benefits. However, consumer preferences which result in phenomena such as NIMBYism have frequently constituted barriers to these environmentally sound practices. CHBA supports efforts to increase consumer awareness of their actions and forums to encourage discussion in order to achieve environmentally sound solutions.

Growing concerns about contaminated lands and trends in requirements on how to deal with them demonstrate the inter-relationship between this environmental issue and the

desire for more intensive development for environmental reasons. The increasing threat of significant liability of clean-up requirements is stopping the redevelopment of existing areas. This is preventing land use intensification and, often, reducing housing affordability (because of the high price of "clean" land). As a result, CHBA has asked for a number of actions including more research on the effects of contaminants on human health and the environment, and establishment of a land remediation process based on reasonable criteria and accountability of the key players, so that contaminated lands can be remediated to a sufficient extent without imposing costs so punitive that redevelopment is precluded.

CHBA has also advocated a number of measures to reduce waste and reduce the use of toxic materials.

### **CHBA Strategic Plan for the '90s**

Following the preparation of its position paper on the environment, CHBA stated in its Strategic Plan for the 1990's (published in 1991) that the environment was one of the biggest challenges facing the building industry in the 1990s. The Plan notes that the housing industry should provide Canadians with homes that have the least adverse impact on the environment, and contains the following objective:

"To provide pro-active and responsible leadership in implementing Canada's environmental agenda as it relates to the residential construction industry."

In accordance with that objective, CHBA identified 15 priority activities for itself, including the following:

- On behalf of builders and renovators, CHBA should:
  - set and promote national guidelines,
  - educate builders to become environmentally sensitive,
  - encourage more efficient waste management practices, and
  - expand the R-2000 program for other environmental housing initiatives.
- On behalf of consumers, CHBA should help to educate consumers about environmental choices and options available to address those choices, in partnership with government.
- At the community level, CHBA should:
  - liaise with municipalities on existing and upcoming programs designed to address environmental issues and concerns pertaining to housing, and
  - help foster waste collection systems.
- In addition, CHBA should work with manufacturers on reduced packaging and other waste management issues.

## **Follow-up Actions**

Action has been taken and progress has been made on all of these items.

- Material recycling and reuse are becoming a common feature of industry activity.
- Through its Manufacturers' Council, CHBA has been active in the area of environmentally sound products, and better and reduced packaging.
- CHBA disseminates a substantial amount of information to keep members of the industry and consumers informed of new developments and emerging issues. For example, CHBA contributes articles to Solplan, a journal of energy conservation, building science and construction practice, and to Home Builder Magazine. These publications are distributed to interested members of the industry. Another major information dissemination initiative by CHBA was assistance in the establishment of technical libraries, referred to as **Quality Plus Centres**, in local and provincial home builder associations. These centres contain important reference documents on a range of subjects, including energy conservation and good construction practices.
- Home builder associations at the local, provincial and national levels sponsor conferences which showcase the latest technological developments, including those which contribute to energy conservation and other environmental objectives.
- Home builder associations at the local, provincial and national levels sponsor housing competitions. In recent years, these competitions have included awards for R2000, other technical accomplishments and "green" developments.

As is apparent from the above examples, much of the leadership in environmental and energy issues is exercised by local and provincial associations across Canada. One additional example is the Greater Toronto Home Builders' Association's initiative some years ago to examine construction waste. More recently, it joined with Ortech to establish a new company called Build Green Inc. which will promote materials with recycled content and renewable materials.

To ensure that the housing industry's strategic actions are timely and appropriate, CHBA maintains an awareness of emerging trends and issues through surveys. For example, with the support of CMHC and NRCan, CHBA conducts a semi-annual survey of builders and renovators across Canada. In addition, with the support of CMHC, CHBA has recently completed a major survey of consumer preferences. These surveys probe issues about energy conservation and environmental issues.

## **Partnership Actions**

CHBA has worked with many federal organizations to identify and act on priority issues to reduce energy consumption and carry out other environmentally benign initiatives. Many

of these are identified and discussed in CHBA's Technical Research Committee (TRC) and CMHC's National Housing Research Committee. The TRC is regarded as the most important and productive vehicle for government and private sector housing representatives to work together on technical housing issues in Canada. Key efforts are summarized below:

- **Activities with CMHC** As Canada's national housing agency, CMHC carries out a significant and wide-ranging program of housing research and development, technology transfer, and education and training (and publishes compendiums of ongoing research regularly). As the environmental agenda has grown in importance, CMHC has focussed more of its attention on this field. One of its major efforts in the field of environmentally sensitive design has been its **Healthy Housing Initiative**. In CMHC's terms, healthy housing means housing that is energy efficient, has good indoor air quality, is built with minimum construction waste, makes optimum use of existing infrastructure, takes maximum advantage of environmentally benign materials, can be adapted to changing lifestyles and is affordable. CMHC's efforts in the field of energy conservation include considerations of the embodied energy used in manufacturing products and the energy used in home operations. As with CHBA, CMHC's perspective is broader than that of the NAPCC, and CHBA supports this view. It recognizes that environmentally sensitive development is more than energy conservation, and that specific actions have complex impacts because elements of the environment are linked.

CMHC's Healthy Housing Initiative has many elements. One is research on healthy housing which has been underway for some years. In 1991, following consultations with the housing industry, CMHC sponsored the Healthy Housing Design Competition. The objectives of the Competition were to develop housing designs which met requirements related to each of the areas of healthy housing defined above. The scope of the competition included a suburban detached house, a retrofit and an urban infill house. The competition has generated a number of ideas on sustainable development and has developed new expertise in the housing industry. CMHC has produced and is continuing to produce guidelines, displays and other reference material on healthy housing to assist the housing industry in commercializing these ideas.

CMHC, NRCan, Hydro-Quebec, the Ontario Natural Gas Association and the Ontario New Home Warranty Program have jointly funded another design competition in cooperation with CHBA called **Ideas Challenge**. The objective of this competition is to develop designs for energy-efficient, environmentally responsible, and accessible high rise buildings.

CMHC has also supported demonstration projects to support related ideas. One is referred to as the **Charlie House** which was developed by CHBA a few years ago to demonstrate energy efficiency and adaptability.

More recently, in 1993, CMHC, in cooperation with CHBA and NRCan, initiated a demonstration project, referred to as the **Reno-Demo** to promote environmental responsibility in housing renovation. Project objectives specifically include energy efficiency to further reduce greenhouse gas production. The project is now being carried out.

In 1993, CHBA, CMHC and the Ontario New Home Warranty Program supported the preparation of a reference document on environmentally sensitive construction for both builders and renovators called **Environmental Choices for Home Builders and Renovators**. The scope of the information is broad. It contains extensive practical guidelines on selecting environmentally sensitive products and technologies for all the main elements of the building as well as suggestions on site design. The environmental implications of alternate choices are discussed. The document also offers information on marketing environmental benefits to customers. This document was published in 1994.

In the field of regulatory reform, CMHC, in cooperation with CHBA, the Federation of Canadian Municipalities, and the Canadian Housing and Renewal Association, provides support to implement a regulatory reform program called **Affordability and Choice Today (ACT)**. This Program supports projects designed to remove barriers to innovative housing which should improve community planning and lead to energy savings.

In response to CHBA concerns about excessive requirements and procedures to remediate **contaminated lands** which have forced redevelopment to grind to a halt, CMHC has taken a number of actions to ameliorate this serious problem. CMHC prepared a paper identifying key issues and presented it to the Federal / Provincial / Territorial Committee of Housing Ministers. This Committee has prepared a supportive report to the Canadian Council of Ministers of the Environment which contains important recommendations to make the remediation process more reasonable. If these recommendations are approved, objectives such as land use intensification, would be easier to achieve.

CMHC has assisted local home builder associations to carry out **waste management projects** to develop ways to reduce construction waste.

In addition to the above-noted activities, CMHC maintains an active program of research under which over 40 projects which relate to environmentally sensitive development and their implications are currently underway.

- **Activities with NRCan** NRCan supports the **R2000 Program** and the **Advanced Houses Program**. Key features and achievements of each program are outlined below.

The **R-2000 Program** was established in the early 1980s as a joint effort between Energy, Mines and Resources Canada (now NRCan) and CHBA to reduce energy consumption in new housing. The Program covers a broad stream of activities including builder training, consumer education, quality assurance, and research and development. As a leading edge technology, it has been a major influence in increasing the energy efficiency of new homes in Canada, and has helped establish Canada's international reputation for leadership in energy efficient construction.

**A significant development occurred this year with an increase in the R-2000 standards. The energy targets have been increased by about 15%, and technical requirements have been broadened to include requirements for improved indoor air quality, limited emissions from building products, use of recycled materials, and plumbing fixtures that reduce water consumption.**

Other R-2000 support activities include updating computer software for estimating energy consumption like HOT-2000, updating monitoring techniques, and evaluating residential air tightness standards. The new software helps to place Canada at the leading edge, enabling the industry to design and build state-of-the-art energy efficient housing. Other software programs applicable to housing have been developed and are increasingly used by the industry. This enables builders and renovators to explore more design and construction options and their consequences, and, as a result produce housing that is more energy efficient and environmentally sensitive.

It is important to note that R2000 is supported by CMHC and by a broad range of others, including utilities, manufacturers and financial institutions. In particular, new social housing projects built in New Brunswick are built to R2000 standards. This broad support for R2000 has sustained it as a voluntary, relevant and market-driven initiative.

The **Advanced Houses Program** was launched by NRCan in cooperation with CHBA about three years ago to be a catalyst for developing new technologies for the next generation of energy efficient and environmentally sensitive houses. The Program builds on the R-2000 Program but sets more stringent targets in three areas: energy consumption, indoor comfort and health, and environmental features. Ten houses were built under the Program and they were held open for public viewing in 1992 and 1993. As in the case of the R-2000 Program, the Advanced House Program includes extensive support activities. The houses are being monitored, and the experience is being documented and disseminated to facilitate technology transfer and promote further technical development.

NRCan was also a major sponsor, along with CMHC, of **Innovative Housing '93**, an international housing technology conference. This conference highlighted the best housing technology from around the world and focused international attention on Canada's leadership in this area. The conference was a big success, and served to confirm Canada's leadership position in housing technology.

NRCan also carries out and encourages an extensive series of projects and other activities related to these major housing initiatives which support the objectives of NAPCC.

- **Activities by/with NRC** The Institute for Research in Construction (IRC) of the NRC offers a wide range of information, research and evaluation services useful to the housing industry. IRC is carrying out the following work relevant to environmentally sensitive development:
  - **Window performance:** IRC is investigating air leakage of windows under pressure, the effect of different types of spacer bars on windows' insulating ability and the thermal performance of sloped glazing. This work is co-sponsored by NRCan.
  - **Basement performance:** IRC is investigating the energy implications of different basement insulation systems and depths. The results will help update HOT-2000. NRCan is paying for part of this work.
  - **Material emissions:** IRC has initiated a major project on emissions from building materials and furnishings which will be used to predict the concentrations of various pollutants. This work is being supported by CMHC, NRCan and CHBA.
  - **Canadian Construction Materials Centre (CCMC):** CCMC provides an evaluation service for manufacturers of building products. These evaluations are important to the successful commercialization of new products. Many of the products evaluated are highly energy efficient and environmentally sensitive in other ways
  - **Codes:** The Canadian Code Centre at IRC is responsible for the development of a national system of model building codes which may be adopted by provinces and territories, who are responsible for implementing building codes. Over the past few years, the Canadian Code Centre has developed the Energy Code for Houses. This Code is based on life cycle costing analysis and is regionally sensitive. It was developed with substantial input from the provinces and territories, and also from CHBA. CHBA's position on this Code is discussed in the following section.

CHBA has also made arrangements with NRC to obtain technical services for CHBA members through NRC's **Industrial Research Assistance Program (IRAP)**. The Program allows CHBA to hire an Industrial Technology Advisor (ITA) who provides CHBA and its members with access to a wide range of technical services through IRAP.

- **Activities with Human Resources Development Canada** Some years ago, CHBA initiated discussions with Employment and Immigration Canada (now Human Resources Development Canada) to carry out a wide range of actions to support

training and education in the residential construction industry. Human Resources Development has launched several initiatives, including the development of a residential construction labour component for its labour demand model, and work on standardized programs. In addition, an agreement between CHBA and Human Resources Development was reached to develop courses for new home builders and residential renovation contractors. As a result of this agreement, two courses were developed in 1992 with input from and analysis by representatives of the new home building industry and home renovation contractors from all regions of Canada. Functional guidance and funding were provided by Human Resources Development.

**It is significant to note that builder input in the development of these courses resulted in heavy weight being given to environmentally sensitive housing in the development of course material.** The material acknowledges that builders must respond to consumers' demand that houses be more environmentally sensitive. This includes houses that use fewer resources to build, and less energy to operate and maintain. The course materials refer to efforts to reduce waste through the use of recycled materials and alternate products, and to measures to reduce energy consumption through a variety of measures.

Since these courses have been completed, CHBA has been involved with Human Resources Canada and with CMHC on the development of other courses for the housing industry.

- **Activities with Financial Institutions** In early 1994, Canada Trust agreed to sponsor a Canada-wide initiative developed by CHBA called **EnviroHome** which has the following purposes:
  - to show consumers how cost-effective advances in housing can protect the environment and also provide a healthy environment for occupants,
  - to show consumers that energy efficient, healthy, and environmentally sensitive housing is affordable and available now, and
  - to assist home builders in marketing environmentally sensitive housing to consumers.

The EnviroHome initiative will be implemented in two phases over a two year period and consist of a series of events. The first phase which started in 1994 focuses on the planning, design, construction and documentation of two pilot demonstration projects, a single family home in a subdivision called "The Ponds of Castlewood" in Edmonton, Alberta and a 44 unit town-house project called "Village Estates" in Saint John, New Brunswick. The objectives of these demonstration projects support the overall EnviroHome initiative and are as follows:

- to promote the use of environmentally friendly materials and techniques,

- to promote the use of materials and techniques that help provide a healthy environment for the occupants, and
- to document the process carried out in the demonstration projects in a manner which will enable CHBA and Canada Trust to enhance and enlarge the EnviroHome initiative in 1995.

Both of these projects were completed in September 1994.

The second phase will consist of a number of EnviroHome events in the form of demonstration projects across Canada in 1995.

CHBA has also worked with some financial institutions to develop **discounted mortgage rates** for buyers of R2000 homes.

- **Activities with New Home Warranty Programs**

Many provincial new home warranty programs assist home builders associations in developing and delivering builder education and training programs; others offer them directly. Some also provide significant support to carry out research and development. Energy conservation is an important element in these activities.

- **Partnership Marketing Initiatives**

CHBA has arranged significant partnerships to promote the value of more environmentally sensitive new and renovated housing. One example is **New Home Month**, an initiative to highlight new trends in housing to consumers. This initiative is sponsored by the Bank of Montreal and is proclaimed by the Minister Responsible for Housing. Another example is **Renovation Month** which highlights the value of professional home renovation to consumers. This initiative is sponsored by the Bank of Montreal, Westroc and American Standard, and is also supported by CMHC and NRCan. Both of these initiatives contribute to energy conservation because of the emphasis given to energy efficient techniques and products, and environmentally sound approaches.

### **Observations and Conclusions**

- The above brief review of selected activities demonstrates that a **significant amount of work has been done in the residential sector to make housing more environmentally sensitive.**
- A study carried out in 1990 by Torrie Smith Associates concluded that the **housing sector made more gains in energy efficiency than the commercial**

**sector, industrial sector, and all forms of transportation** between 1971 and 1988. Details of the findings are summarized in the table below:

**Canadian Energy Efficiency Gains Achieved Between 1971 and 1988**

| <b>Sector</b>        | <b>Energy Efficiency Gains</b> |
|----------------------|--------------------------------|
| Housing              | 32%                            |
| Commercial buildings | 13%                            |
| Industry             | 14%                            |
| Transportation       |                                |
| Personal vehicles    | 23%                            |
| Truck transport      | 9%                             |
| Other transport      | 9%                             |

- **The activities and achievements demonstrate the principles and criteria for action advocated by the housing industry.** The activities and achievements
  - stem from a pro-active industry,
  - reflect voluntary actions as opposed to regulatory controls,
  - are based on a market-driven approach,
  - involve strong and cooperative partnerships,
  - utilize research and development, technology transfer, education and training,
  - constitute a consistent national approach,
  - are cost-effective, and
  - leverage the best results.

**COMMENTS ON MEASURES OF THE NAPCC**

**Scope and Perspective of the Comments**

The comments in this section pertain to the **Draft Outline of the National Action Program on Climate Change** (referred to as the Draft Outline) and the **Summary of Potential Measures for Canada's National Action Program on Climate Change** (referred to as the Summary), both dated June 1994. Where appropriate, they also refer to the report, **Measures for Canada's National Action Program, Final Report** (referred to as the Final Report), also dated June 1994. Most of the comments focus on the measures which refer to the residential sector; however, some of the comments refer to measures addressed to other sectors where they have a housing impact. The comments are referenced to the sections to which they pertain for clarity.

**Overview of the NAPCC**

**Description:** The Draft Outline provides an overview of the objectives, strategic directions, guiding principles and approach to be taken in the NAPCC. Some details of these elements of the program are contained in the Final Report. Of particular interest are the following issues.

- The measures referred to and described in the Summary and the Final Report are a catalogue of possible measures which do not necessarily reflect the position of participants in the process (who are not identified).
- No indication is given of the extent of emission reduction required to meet Program objectives (i.e., to stabilize greenhouse gas emissions at 1990 levels by 2000, and to achieve further progress in reducing emissions by 2005).
- About 60% of the measures being considered to date are voluntary, about 30% use economic instruments and the remainder are regulatory.

**Comment:** Clearly, a lot of work must be done before final measures to reduce greenhouse gas emissions can be decided. While the Draft Outline acknowledges some of the criteria that must be applied and some approaches that must be used, it omits other critical ones. In particular, decisions must be made by informed participants. CHBA notes that the participants included in the process to date are not identified but is aware that members of the CHBA were not included, even in discussing measures which affect the residential sector. This is a serious omission and has already resulted in a lot of wasted work and time. Including informed participants in the process could have resulted in a quicker focus on and elimination of ineffective and unworkable measures. From the activities and achievements noted previously in this report, it is clear that **CHBA must be included in the process of deciding on measures to reduce greenhouse gas emissions which affect the residential sector.**

In addition, **decisions must be based on the extent of greenhouse gas reductions required to reach to 1990 levels.** This is a critical issue since it affects the number and severity of the measures which should be implemented. These decisions must be based on opportunities for greatest benefit. This criterion should be developed in respect of the amount of energy consumed and greenhouse gas emitted by sector, and the extent of energy savings already achieved. As is documented in the Final Report and summarized below, the residential sector consumes less energy and contributes less greenhouse gas emissions than either the transportation or industrial sectors.

**Proportion of Energy Consumption and Greenhouse Gas Emissions by Sector**

Source: Final Report

| <b>Sector</b>  | <b>Energy Consumption<br/>(% of Total)</b> | <b>Greenhouse Gas Contribution<br/>(% of Total)</b> |
|----------------|--|---|
| Residential    | 20   | 15  |
| Commercial     | 16   | 10  |
| Industrial     | 40   | 25  |
| Transportation | 27   | 30  |

As reported previously, the residential sector has already achieved far more energy savings (and therefore made more contributions to greenhouse gas emission reductions) than the

commercial, industrial or transportation sectors. **For reasons of equity and effectiveness, these factors must be taken into account when deciding on measures to reduce greenhouse gas emissions by sector.**

CHBA supports the plan to stress voluntary measures. As is evident from the outline of achievements of the residential sector, voluntary actions and self regulation by a pro-active, professional industry are very effective principles.

### **Foundation Measures**

**Description:** Foundation measures refer to measures which cut across all sectors and play an important role in emission reductions at all levels. Eight measures are considered. The following four voluntary foundation measures are contemplated:

- **Voluntary Climate Challenge Program:** This Program would encourage, facilitate and manage voluntary commitments by industry and governments to develop plans and take actions to reduce greenhouse gas emissions across a broad range of sectors.
- **National Registry of Voluntary Mitigation Actions:** This measure would establish a record of voluntary actions to reduce net emissions.
- **National Program of Communication and Motivation:** This program would develop a comprehensive and action-oriented public education program.
- **Pilot Joint Implementation Initiative:** This measure would allow a country or industry to invest in greenhouse gas emissions in one country and receive emission reduction credits against its own commitments.

The following four economic foundation measures are contemplated:

- **Redirect or Remove Subsidies:** A review would be carried out to examine the role of a broad range of subsidies which encourage greenhouse gas emissions and to assess the opportunities for reducing, redirecting or removing them.
- **Design an Assessment Process for a Carbon Charge:** This task would examine the potential for a harmonized carbon charge in Canada, United States and Mexico which would address the major concerns of stakeholders.
- **Design a Tradeable Permits System:** This system would set total allowable emissions of particular pollutants and give permits to sources of the emissions which would specify their emission limits. The sources would be allowed to trade their permits.

- Create a Fund to Support Measures: This fund would be used to support projects to reduce greenhouse gas emissions.

No regulatory foundations measures are contemplated.

**Comment: CHBA generally supports the voluntary foundation measures contemplated** for reasons stated earlier but has the following concerns and suggestions:

- Comments on the Voluntary Climate Challenge Program in the Final Report do not refer to input from industry. CHBA believes this is a serious shortcoming in general and a specific shortcoming as it applies the housing industry. Voluntary Challenge Programs must be developed with input from industry. Furthermore, the housing industry has unique attributes with respect to its structure and operating modes which affect how voluntarism is encouraged and made effective. **The development of a Voluntary Climate Challenge Program addressed to the housing industry must include full participation with CHBA and CMHC.**
- A registry can be a useful element of voluntary programs. However, it can also be a hindrance if the reporting requirements are too onerous. This is a particularly significant issue for the housing industry because of its structure. While the housing sector in Canada is huge, contributing more than \$40 billion to the economy annually, it is comprised of some 20,000 companies, most of which are very small with annual revenues less than \$250,000. A separate registry of individual companies for the housing industry would likely not be feasible. However, developing a registry as part of an existing system like the R2000 Program may be feasible. **If this idea is implemented, reporting requirements must be kept to a minimum. They should be primarily geared to enable tracking and evaluation of emission reduction achievements by sector.** Unless this objective can be achieved, CHBA does not support the development of a National Registry of Voluntary Mitigation Actions.
- CHBA generally supports a National Program of Communication and Motivation to educate and encourage individual Canadians and various groups to take actions which would reduce greenhouse gas emissions. In view of the value of building such programs on expert knowledge, **CHBA and CMHC must be involved in developing any planned communication programs targeted toward housing and the housing industry.**
- CHBA believes that the Pilot Joint Implementation Initiative could be usefully applied to the housing industry. Canadian housing is the best in the world. In particular, Canada's housing industry has recognized expertise in building energy efficient housing for cold climates. **CHBA recommends that the Pilot Joint Implementation Initiative be used as vehicle to export Canadian housing products, technologies and services.** This application would not only contribute

to a reduction in greenhouse gas emissions in many places throughout the world because of the greater energy efficiency of Canadian housing, but it would increase Canada's exports with the attendant economic benefits.

- While housing is not mentioned as a sector within which subsidies are being reviewed, CHBA offers the following comments. CHBA supports a market-driven approach. Further, CHBA believes that products should be priced to recognize the full cost of goods, including the costs of pollution prevention and control. However, conclusions about who should pay for such costs are often misconceived and allocated to only a small portion of the beneficiaries, as in the case of remediating contaminated lands, as discussed earlier. Therefore, CHBA agrees with the commentary in the Final Report that **subsidies are a complex issue and the impacts of reducing, redirecting or removing them must be thoroughly examined before any decisions can be made.**
  
- **CHBA reserves judgement on the creation of a fund to support projects to reduce greenhouse gas emissions.** It supports the criteria proposed in the Final Report for selecting projects, particularly the criterion to select projects on the basis of the lowest cost per unit of emission reduction. This measure appears to be in line with principles advocated by CHBA: competitiveness, innovation and market sensitivity. However, there is insufficient information available. If this measure is pursued, the housing industry must have the opportunity to participate.

## **Residential Energy Consumption Measures**

- **Overview**

**Description:** The overview of the measures applicable to the residential sector under consideration in the NAPCC discusses the scope of the measures to reduce greenhouse gas emissions (new dwellings, existing dwellings and equipment), the barriers to implementing reduction measures and types of possible market interventions. Ten measures are listed for consideration; four apply to new housing and six apply to existing housing.

**Comment:** The following comments pertain only to the overview. Each of the ten measures offered for consideration are described and discussed below in separate sections.

- One of the proposed strategies is that the lead role in developing these measures be taken by institutional stakeholders. The term is not defined but appears to refer to government departments, particularly NRCan. **CHBA opposes this approach. As noted previously, CHBA advocates partnership approaches.** Actions in the field of housing, particularly those affecting the environment, are complex, and require discussion among affected parties to develop optimum solutions. Furthermore, actions developed through consensus among players who

have responsibilities and opportunities to act on them are much more effective. In addition, actions which are developed with the private sector are more sensitive to "real-world" barriers and to the most cost-effective techniques.

- Three of six barriers to the implementation of greenhouse gas reduction measures cited in the overview are economic. CHBA recognizes that economic considerations are important and, to make environmental measures as economical as possible, advocates a market-driven approach in developing measures. However, the list of barriers is incomplete and outdated. Recent research has demonstrated that consumers are becoming more sophisticated and are including other factors in their decision-making process. More specifically, many consumers now apply the following criteria which are listed in rank order in making decisions: perceived health benefits, perceived lifestyle benefits, perceived value for money, recognition for socially responsible actions and perceived economic benefit. Further, the importance of health benefits increases for those with children and tends to increase with age, education and income. In view of these trends, **CHBA advocates a sophisticated, current and market-driven basis for selecting measures to reduce climate change.**
  - **CHBA recognizes that special attention must be given to developing measures to reduce greenhouse emissions in rental housing.** CHBA has done considerable work to address a number of issues and must be involved in future work to deal with the rental housing sector.
- **Measure 1: Facilitate Adoption of a National Energy Efficiency Code for New Housing**

**Description:** The proposal is for NRCan to facilitate the accelerated adoption of the National Energy Code for Houses by provinces and territories as a mandatory standard, and to promote construction which exceeds code levels on a voluntary basis. The proposals also advocate community or municipal interventions to promote construction which exceeds the Energy Code and training programs that explain to the housing industry the need for energy efficient construction. Some measures are predicated on a strategy which relies on the "hammer" of codes.

**Comment:** CHBA is dismayed by some of the measures and has the following comments:

- In Canada, responsibility for code adoption lies with the provinces and territories. Except for a few anomalies, **municipalities do not have jurisdictional authority to introduce codes.** Further, having separate municipal codes would have serious negative consequences. Building practices would not be standard with consequent higher costs. This measure is completely contrary to current thinking and trends toward harmonization and uniformity of codes in Canada.

- **CHBA disagrees with the heavy reliance on a regulatory approach.** This approach can interfere with market dynamics and consumer demand. It can stymie research and development and innovative responses to new challenges. A regulatory approach can also be expensive because of the cost of ensuring code compliance. Market demand and the other principles advocated by CHBA are already producing housing in parts of the country which exceed levels of energy efficiency called for in the proposed Code. The possible consequence of adopting the Code in these parts of Canada is that builders will build to the mandatory standards and, as a result, produce housing which is **less** energy efficient than the housing which is currently being built.
- **CHBA does not support adopting the National Energy Code for Houses as part of the National Building Code (NBC).** The authorized and traditional scope of the National Building Code is health, safety and structural sufficiency. Many groups have tried to use the NBC to introduce their agenda. This is another attempt. It does not deal with a health or safety problem and should therefore not be part of a model code, i.e., the NBC. However, existing provincial energy efficient construction requirements need to be rationalized on a technically sound and consistent basis. The best way to do this is through a separate model energy code, such as the National Energy Code for Houses. However, CHBA has identified some inconsistency in the underlying rationales of the Code as they apply to some provinces. CHBA recommends amending those parts of the National Energy Code for Houses to achieve a consistent underlying rationale.
- The call for training programs to explain to builders the need for energy conservation is an inappropriate suggestion, implying a lack of experience and concern by the housing industry which is not the case. As demonstrated earlier in this report, the housing industry has been a leader in calling for and assisting in the development of leading edge training courses which highlight current and emerging trends, including energy efficient and environmentally sensitive construction.
- CHBA notes other misconceptions in the underpinning for the proposed measures. Active solar applications have long been shown to be non-cost - effective measures for energy conservation. Also, the reference to the Advanced Houses Program appears to presume that the techniques used in the houses built under that Program are ready for commercialization. This is not the case. The Advanced Houses Program offers manufacturers and builders the opportunity to field test new ideas and technologies.
- **CHBA recommends an approach to increasing energy conservation in new housing which is based on the principles discussed earlier and demonstrated in the R2000 program.** The R2000 Program produces leading edge performance housing and is founded on voluntarism, government-industry

partnership, ongoing research and development, technology transfer to the housing industry, education and training, and various marketing support efforts. While the number of houses registered under the R2000 Program has been limited, the Program has had enormous impact. The estimated number of "R2000-like" houses that have been built is well over 20,000. Even more important, however, is that it has induced the whole housing industry to increase the quality of housing, particularly in terms of energy efficiency. Today's housing product is vastly superior to the housing of the past.

- **Measure 2: Promote Energy Efficient Mortgages for New Residential Buildings**

**Description:** The proposal is for NRCan, other federal departments and lending institutions to facilitate the development of financing instruments (primarily mortgage instruments) to lever investment in energy efficient new residential construction.

**Comment:** CHBA could support this proposal but has the following provisos:

- **A proposal of this kind must involve CMHC.** CMHC is the national housing agency and has more experience than any other organization in Canada with mortgages. Further, mortgages such as those proposed may require mortgage insurance which CMHC can advise on and deliver.
- **Similarly, a proposal such as this must involve CHBA.** CHBA is the best repository of knowledge on builder financing concerns and can provide much useful information. With respect to this measure, CHBA has long encouraged CMHC to consider reduced energy costs in energy efficient housing in the allowable gross debt service ratio for consumers.
- It is likely that lenders will provide preferential financing only to those houses whose future performance (reduced energy consumption) can be assured. This means that houses built and certified to a recognized standard like R2000 may be accepted, but that houses built to an unrecognized "best practice" standard may not.

- **Measure 3: Develop a National Home Energy Rating System (HERS) for New Homes**

**Description:** Under this proposal, NRCan, in association with the provinces, utilities, lending institutions and the real estate industry, would facilitate the development of a home energy rating system for implementation as either a mandatory or voluntary system. As a mandatory system, a HERS application would be required to sell a new home.

**Comment:**

- A mandatory HERS (other than what is contained about energy conservation in provincial building codes) does not appear to have a legal basis, particularly a HERS mandated by municipalities. This is particularly true for the requirement for a HERS application as a condition for selling a home.
- The proposal seems to conflict or, at least, overlap with both provincial building codes (whether or not the National Energy Code for Houses is adopted) and the R2000 Program. Both of these have standards on energy efficiency (with the building codes being mandatory and the R2000 standards being voluntary). Their existence, along with the existence of national administrative systems seem to dilute the value of a HERS.
- The cost of developing and maintaining a HERS would be significant.
- **Based on the comments above, this proposal is not feasible or acceptable.**

- **Measure 4: Establish a National Training Program for New Home Builders**

**Description:** This proposal calls for NRCan, in association with the provinces, builders and other trade allies, to develop a national program to train new home builders and related trades in the design and construction of energy efficient new homes.

**Comment:** This proposal shows lack of awareness of the extent of builder education and training that has been and is being carried out by responsible agencies in partnership with CHBA, including CMHC and Human Resources Development. **However, CHBA supports the intent of the proposal. To make it most useful, it should be discussed with CHBA and coordinated with other education and training activities for the housing industry.**

- **Measure 5: Create a National Low Income Energy Efficient Retrofit Program**

**Description:** The proposal is for CMHC to enhance its Residential Rehabilitation Assistance Program (RRAP) to create a national low income retrofit program. One part of the rationale for the proposed program is to take advantage of planned renovations by "piggy-backing" energy retrofits onto them.

**Comment:** Funding is a key issue. Since January 1994, CMHC has been restricted in the amount of funding it has available. Although RRAP has been re-activated, CMHC may not be able to fund this initiative. **This proposal should be reviewed in the context of the social housing review and consultation process now underway.**

- **Measure 6: Establish Retrofit Building Standards**

**Description:** This proposal is for NRCan, in cooperation with the provinces, territories, utilities and other stakeholders to facilitate the adoption of energy codes which will apply to home renovations. The proposal includes the possibility of municipal jurisdiction over the codes, and compliance with the codes as a condition of selling an existing home.

**Comment:** This proposal has a number of non-traditional attributes and is contentious, as explained below:

- The application of new mandatory codes to existing housing is contrary to Canadian practice. The most extensive requirement that has traditionally been imposed is that renovated portions of dwellings must be renovated to comply with code requirements applicable to new construction.
- Requiring compliance of an existing house to new energy codes as a condition of its sale does not have a legal basis. Such a requirement or a requirement to force certain energy retrofits could also impose housing affordability problems on individual households and force renovations contrary to consumers' preferences.
- As noted previously, except for a few anomalies, municipalities in Canada do not have the authority to adopt building codes; this authority falls within provincial jurisdiction.
- **Based on the comments above, this proposal is not feasible or acceptable.**

- **Measure 7: Enhance Financing Mechanisms for Home Energy Retrofit**

**Description:** The proposal is for NRCan to facilitate the development of financing mechanisms to lever investment in energy efficient renovations of existing dwellings. The intent of this measure is similar to that of Measure 2, Energy Efficient Mortgages for New Residential Buildings.

**Comment:** CHBA is generally supportive of this proposal but has the following concerns and suggestions:

- CHBA does not regard NRCan as the agency to lead an examination of this proposal. As with the proposal to develop Energy Efficient Mortgages for New Residential Buildings, CHBA believes that a **partnership approach must be used, and that CMHC and CHBA are essential partners.**
- It is likely that lenders will provide preferential financing only to those houses whose future performance (reduced energy consumption) can be assured. This

means that a tool must be developed which will provide a reliable assessment of the energy consumption of the renovated dwelling.

- **Measure 8: Develop a National Home Energy Rating System (HERS) for Existing Homes**

**Description:** Under this proposal, NRCan, in association with the provinces, utilities, lending institutions and the real estate industry, would facilitate the development of a home energy rating system for existing homes to be applied as either a mandatory or voluntary system.

**Comment:**

- A mandatory HERS (other than what is contained about energy conservation in provincial building codes) does not appear to have a legal basis, particularly a HERS mandated by municipalities.
- As a voluntary system, HERS for existing houses could provide information which consumers would like to have, and programs like this have been administered in Canada before. The value of the program has to be balanced against the cost of administering it and against its possible discrimination against older, more affordable housing.
- **Based on the comments above, a voluntary HERS may be a useful instrument to encourage actions to make existing housing more energy efficient.** However, success would be dependent on a partnership approach among all responsible participants.

- **Measure 9: Establish a National Green Communities Program**

**Description:** This proposal is for NRCan, in association with provinces and other stakeholders, to help implement green community concepts on a voluntary basis. Such concepts offer an integrated approach to increase energy and water efficiency, reduce waste and prevent pollution.

**Comment:** CHBA has reservations about this measure. The objectives and parameters of any such program must be developed further in consultation with CMHC and CHBA. Furthermore, if implemented, it should be carried out in collaboration with CMHC and the housing industry. CMHC is carrying out work related to this field. One study currently underway is to develop alternate site plans for sustainable development and assess the constraints to such development at the subdivision level.

- **Measure 10: Develop a Renovation/Retrofit Training Program**

**Description:** This proposal calls for the federal government, in association with the provinces, contractors and other trade allies, to develop a national program to train the renovation/retrofit industry in the application of energy efficient retrofit techniques.

**Comment:** This proposal shows lack of awareness of the extent of builder education and training that has been and is being carried out by responsible agencies in partnership with CHBA, including CMHC and Human Resources Canada. **However, CHBA supports the intent of the proposal. To make it most useful, it should be discussed with CHBA and CMHC, and coordinated with other education and training activities for the housing industry.**

The following sections of the report discuss measures which have been developed for application to sectors other than the residential sector, but would have impacts on the residential sector.

- **Transportation Measure 13: Promote Increased Density in Urban Areas**

**Description:** This is a proposal to take the following actions to increase urban densities:

- develop a national urban growth management strategy,
- develop a national model for transit-friendly zoning by-laws and ordinances, and
- preserve existing rail corridor rights-of-way for future rapid transit rail use.

The rationale for this measure and the proposed actions are that increased densities and more mixed land use lead to less auto-based urban transportation and less greenhouse gas emissions. The case for higher densities and mixed land use patterns is reinforced by arguments that such development can bring other benefits. These include a higher quality of urban environment (more convenient services and more interesting urban spaces), reduced cost of services and less loss of farm land.

**Comment:** CHBA supports the goal of more compact urban environments and agrees with the rationale. However, this issue is complex and the goals are hard to achieve. The rationales discussed in the proposal do not acknowledge the range of factors which conflict with the goal of more compact development. For example, as noted earlier, extreme requirements for the remediation of contaminated lands are having the effect of halting redevelopment of urban lands, which forces more development on the fringes of urban areas. To promote increased density in urban areas, CHBA proposes the following actions:

- Parties with vested interests in this issue should work toward the establishment of reasonable land remediation requirements to allow the redevelopment of inner city lands, as outlined in CHBA's discussion paper on contaminated lands and in the report submitted by the Federal/Provincial/Territorial Housing Ministers to the Canadian Council of Ministers of the Environment.
  - The Affordability and Choice Today (ACT) Program, a regulatory reform program sponsored by CMHC, CHBA, the Canadian Federation of Municipalities, and the Canadian Housing and Renewal Association, should be continued. This Program can sponsor research and other projects to develop strategies and techniques to encourage increased urban densities.
  - Attention should be given to work that CMHC is doing with CHBA to explore public-private partnership arrangements for financing infrastructure.
  - Information programs should be developed to inform the general public about the negative consequences of current forms of low density urban development and the benefits of a more intense and diverse urban development pattern.
- **Apply Developmental Measures to the Residential Sector as well**

**Description:** Many of the measures developed for sectors other than the residential sector can be characterized as developmental. This refers to measures which focus on the development and implementation of new ideas, innovative techniques and leading edge practices. The key developmental measures included for consideration in non-residential sectors are summarized below:

| <b>Sector</b> | <b>Measure</b>  |
|---------------|---|
| Commercial    | <p><b>Measure 9: Expand the Energy Innovators Initiative</b><br/>           This is a voluntary technology transfer initiative in which national associations plan for and implement cost-effective energy efficiency projects.</p>   |
| Industrial    | <p><b>Measure 2: Promote Benchmarking/ Best Practices</b><br/>           This proposed program will sponsor research and analysis on the use of energy in industrial buildings. The results will allow companies to perform a self-assessment of their strengths and weaknesses of their processes.</p> <p><b>Measure 3: Implement an Industrial Energy Innovators Program</b><br/>           This is a voluntary program to assist in the development and implementation of plant-level, five year energy efficiency programs.</p> |

Measure 6: Provide a Tax Incentive for Energy Efficient Industrial Process Investments

This measure would provide a tax incentive to encourage the accelerated investment in new industrial process and equipment that meet specified levels of energy efficiency.

Appliance and Equipment

Measure 3: Implement a Golden Carrot Program

Under this program, the federal government would provide incentives to manufacturers of energy-using equipment to develop and commercialize products that are advanced in terms of energy performance.

Transportation

Measure 12: Implement R&D Programs for Advanced Vehicle Technologies

This measure would provide incentives such as investment tax credits and research funding to stimulate R&D in advanced vehicle technologies.

Energy Supply and Production

Measure 1: Electric Utility Climate Change Challenge Program

This measure would provide utilities with a voluntary opportunity to develop a portfolio of cost-effective measures to achieve greenhouse gas emission reductions.

Measure 18: Revitalize R&D to Accelerate the Development of Canadian Renewable Energy Technologies

Under this measure, NRCan would expand its R&D commitments to the Canadian renewable energy industry to fund research on renewable energy projects because the industry is small, fragmented and fragile.

**Comment:** Of the ten measures considered for the residential sector, none includes any research and development, technology transfer or other developmental initiatives. To an industry so heavily committed to research and development and which has demonstrated the benefits of such investment, this is disappointing and frustrating. The disappointment is exacerbated in light of the substantial recommended commitment of developmental assistance to other sectors expected to contribute to greenhouse gas emission reductions. **CHBA strongly urges that measures for the residential sector include research and development and technology transfer measures, as they are included for other sectors.**

## Conclusion

Clearly, a lot of work must be done before decisions on the measures in the draft NAPCC can be made. The measures have been developed without an understanding of the state of Canada's housing or of Canada's housing industry. Some of the measures do not reflect

key federal policy directions, the extensive work which the housing industry has done toward achieving the goals of NAPCC or the most effective way to reach those goals in the housing sector. Furthermore, the measures for the residential sector were developed without consulting CMHC, Canada's national housing agency, or CHBA, the national association of the housing industry.