

## FOR THE LOVE OF ENERGY

by Peter Love



# Growing Calls for Zero-Energy Homes

**U**p until only a few years ago, the idea of zero-energy homes was known, but was generally limited to situations where grid connections were not feasible. This has changed, and a number of leading international, national, and local organizations are paving the way.

Reducing the energy requirements to operate our buildings is critical; the Intergovernmental Panel on Climate Change (IPCC) highlighted in its recent report that buildings are the largest users of energy and raw materials, as well as the largest generators of greenhouse gas emissions. They estimate that buildings account for about 40 per cent of global greenhouse gas emissions, and direct and indirect emissions from the buildings sector increased 75 per cent between 1975 and 2004.

At the international level, The Group of Eight (G8) international forum commissioned the International Energy Agency (IEA) to develop a set of policy recommendations. At their 2007 meeting, all eight members adopted the 12 energy-efficiency policies recommended by the IEA, which included "Governments should set objectives for Passive Energy Homes and Zero-Energy Homes' market share of all new construction by 2020." That means they want to see more passive and zero-energy homes.

On the international scene, Canada offered to chair a collaborative international partnership focused on net-zero housing shortly after joining the Asia-Pacific Partnership on Clean Development and Climate. This project was endorsed by the other members, and Canada is now leading this initiative, which will accelerate the identification of optimal solutions, improve conditions for innovation, and transform the market. One of this group's first public initiatives has been the creation of a Zero-Energy Housing Map that gives the location, construction details, and a score on 245 zero-energy homes in the seven member countries of the partnership. Included in this map are 47 zero-energy homes in Canada. Visit [www.zeroenergyhousing.org](http://www.zeroenergyhousing.org) to see the map.

At the national level, one of the boldest initiatives is being taken in the United Kingdom, where the building code will require all new homes to be zero-energy buildings by 2016. While the weather is certainly less extreme than in most of Canada, this is a major step forward and is being closely watched around the world.

In the United States, one of the more interesting initiatives gaining broad support is Architecture 2030. The 2030 Challenge asked the global architecture and building community to adopt a number of targets, with the foremost being all new buildings and major renovations shall be carbon-neutral by 2030.

To date, the 2030 Challenge has been adopted by the U.S. Green

Building Council and The American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE), as well as the US Conference of Mayors and various city councils. In Canada, the Royal Architectural Institute of Canada, the Ontario Association of Architects, and the City of Vancouver have all signed onto the challenge.

Not surprisingly, California is the clear leader among American states. The California Public Utilities Commission (CPUC) has set a goal of all-new residential construction to be zero net energy by 2020 and all-new commercial buildings zero net energy by 2030. CPUC Commissioner Dian Grueneich recently commented that "Zero net energy isn't just a big, bold goal – it's a reality today."

In Canada, CMHC launched its EQuilibrium Program nationwide to support housing that ultimately achieves zero environmental impact. Fifteen teams were selected in 2008 to build these homes across Canada; one was even a renovation of an older home in Toronto. Four of these homes (which are located in Kamloops, B.C., Calgary, Winnipeg, and Manotick, Ont.) and are still open to the public.

Although no provincial building code has set a time when zero-energy homes would be a requirement, it is noteworthy that Ontario's Green Energy and Green Economy Act of 2009 did create a Building Code Energy Advisory Council. This council is to review the building code with reference to standards for energy conservation every five years. Ontario's Long-Term Energy Plan, which sets very aggressive conservation targets, notes that these targets will be met through a combination of programs and initiatives, including "next generation building code updates."

One of the most useful sources of information on zero-energy homes for both builders and homeowners is the Net-Zero Energy Home Coalition. Its website ([www.netzeroenergyhome.ca](http://www.netzeroenergyhome.ca)) includes links to zero-energy homes initiatives around the world, as well as links to recent projects from across Canada.

If you've been part of a team that has built zero-energy homes, congratulations on your leadership! The next step is to offer such homes to more of your customers. If you have yet to build one, this is a great time to find out how- it's done and get yourself on the zero-energy map.

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