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# **OPPORTUNITIES AND CHALLENGES FOR NET-ZERO ENERGY HOUSING**

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Presentation to Telfer School of Management Workshop



# Coalition Membership



## Supporting Members

Thomasfield Homes, Canadian Energy Efficiency Alliance

## Advisory Team

Howell Mayhew Engineering Inc.  
Solar Buildings Research Network



**All new home construction meeting  
a Net-Zero Energy Home (NZEH) standard  
by 2030**



# NZEH Coalition Goals

Increasing the network of knowledge and industry participation

Through community scale demonstrations, develop a new approach to design and construction that will transform the marketplace

A new culture of conservation and consumer participation

Change conventional energy and environment policy paradigms and programs

A new definition on the green building continuum



## A Glass Half Full or Half Empty

- A lot of goodwill, knowledge and eagerness to approach or build to a net-zero energy level but not enough coordinated support yet to accelerate/expand deployment
- One-off demonstrations but no plan of action on community scale-deployment to help address economies of scale
- Near and NZEHs are being built without a harmonized definition
- Canada is catching up but should be leading



## Barriers and Support Requirements for NZEH Deployment Identified by Canadian Industry

### Architects/Designers

- Government (management) support
- Design/materials approval process
- Available consultants and analysis tools
- Cost and convincing builders to change from traditional methods
- Need clients to directly ask for NZEH building
- Types of incentives
- Accessible information
- Education to general public
- Staff must be knowledgeable in the technology to sell the concept

### Homebuilder

- Finding products and integrating them into a realistic house package
- Education about NZEH methods and products, for example so 'exotic' but high performing techs like SIPs and ICFs become more mainstream
- Home buyer knowledge and education of benefits (i.e. marketing energy efficiency as opposed to granite countertops)
- Cost, and transferring costs to homebuyer
- Marketability of product
- Liability and warranties
- Architectural challenges, buy-back
- Trades training and performance
- More components means more services for the homeowner
- Attracting skilled labour
- Dealing with local building codes and expediting appraisals
- No recognition for green benefits in mortgage loans or in property tax schemes
- No recognition for green benefits in MLS or similar realtor outlets with direct connections to the consumer

### Utilities

- Need to understand the impacts on business and revenue
- Need to understand impact on peak load and how to capitalize on CDM opportunities
- Understanding how to support NZEH Builders to create the market pressures to see a significant increase in consumer demand

### Banks and Finance

- Study of resale market
- Expedite favourable mortgage Programs
- Develop appraisal tools

### Product/Knowledge Suppliers

- Maintaining product quality while increasing energy (thermal) requirements
- Customer education and awareness
- Addressing upfront cost of PV
- Potential focus on expensive technologies problematic i.e. PV as opposed to lower cost retrofits
- Market transformation in face of cost-sensitive consumers
- Financing - long payback period of renewable energy equipment requires a new paradigm
- Energy storage
- Expediting 'solar rights' or similar encumbrances
- Dealing with cold weather challenges
- No incentives that can help reduce capital costs of equipment
- Project deployment challenges, as in transmission constraints, OPA budgetary priorities, utilities adapting differently and with varying levels of support, MPAC property assessments, and/or zoning constraints
- Training challenges: the ESA enforcement of regulation regarding installation of renewable energy systems limiting to master electricians, and does not recognize other training/experience of RE installers

### Homebuyers

- Need for a label or a home energy consumption gauge for homeowner to monitor and modify lifestyle
- Displays in public buildings
- Ensure that schools, colleges, and universities offer programs and courses in this area
- Make the connection between environmental health, human health, and NZEH
- Enable NZEH to add to property value and convey these benefits in 'plain language' (simplify labels and make benefits compelling)

### Government

- Delineate roles of different departments and different levels of government
- Need for a better dialogue and to have utilities on board
- Identifying potential markets and opportunities and the relationship between technology suppliers and homebuilders
- Coming up with the right combination of incentives and mechanisms to make this happen
- Building integration into sustainability in community planning
- Developing new standards and codes
- Capacity building and market transformation
- Education, training, and knowledge
- Dealing with NIMBY issues
- Orientation is critical to energy conservation
- Increase emphasis on reliability of existing stock
- Lack of leadership shown by local municipalities in regards to the promotion of sustainable communities  
\*unwillingness to challenge standard practice

# A Coordinated Strategy

## Community scale demonstrations

- Adopt a 1,500 NZEH target to be completed over the next five years in each Canadian province.
- Incremental approach involving net-zero ready and NZEHs

## Education and training

- Develop a strategy whereby customer and builder expectations can be managed in the short, and in the longer term

## Consumer engagement

- Correlate the value of a NZEH to improved knowledge of the product, and quantify energy savings and appraisal benefits of NZEHs to drive demand.

## Financing and market stimulation

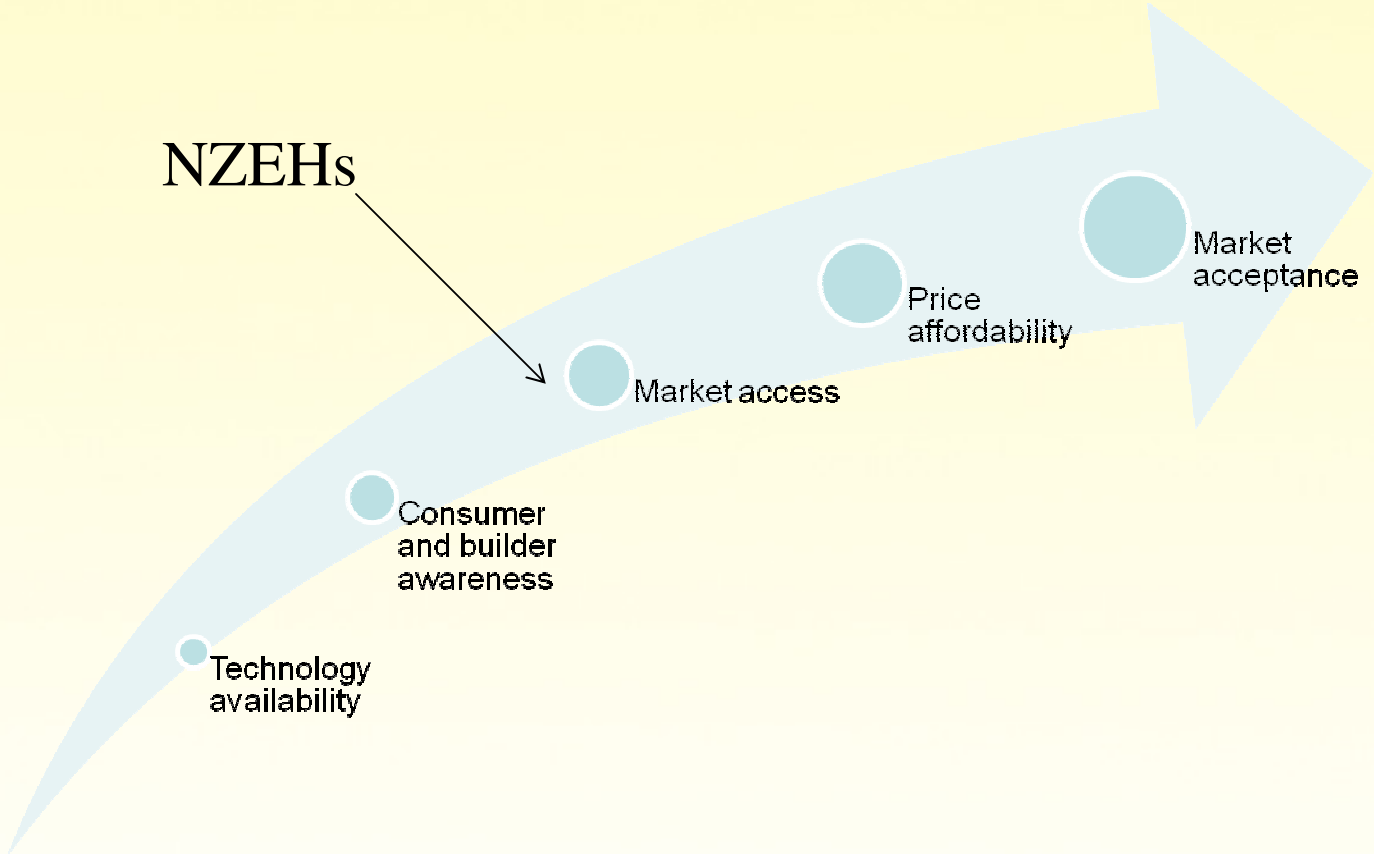
- Peak load shaving incentives; CDM program; green mortgage financing; early adopter incentives; tax shifting
- NZEH Impact Study

## A new standard on the continuum of EE in Canada

- Integrate NZEH with current programs and help drive the energy efficiency (EE) continuum in Canada. Capitalize on current opportunity with turnover of new housing stock to implement NZEH on a wider scale.



# Priming the market





# Industry Recognition

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**Honouring Excellence and Vision in Canada's  
Residential Construction Industry**

**June 8<sup>th</sup>, Montreal**



THANK YOU

[www.netzeroenergyhome.ca](http://www.netzeroenergyhome.ca)

Gordon Shields, Executive Director

