



NET ZERO READY OR ULTRA-EFFICIENT COMMUNITY SCALE DEVELOPMENTS



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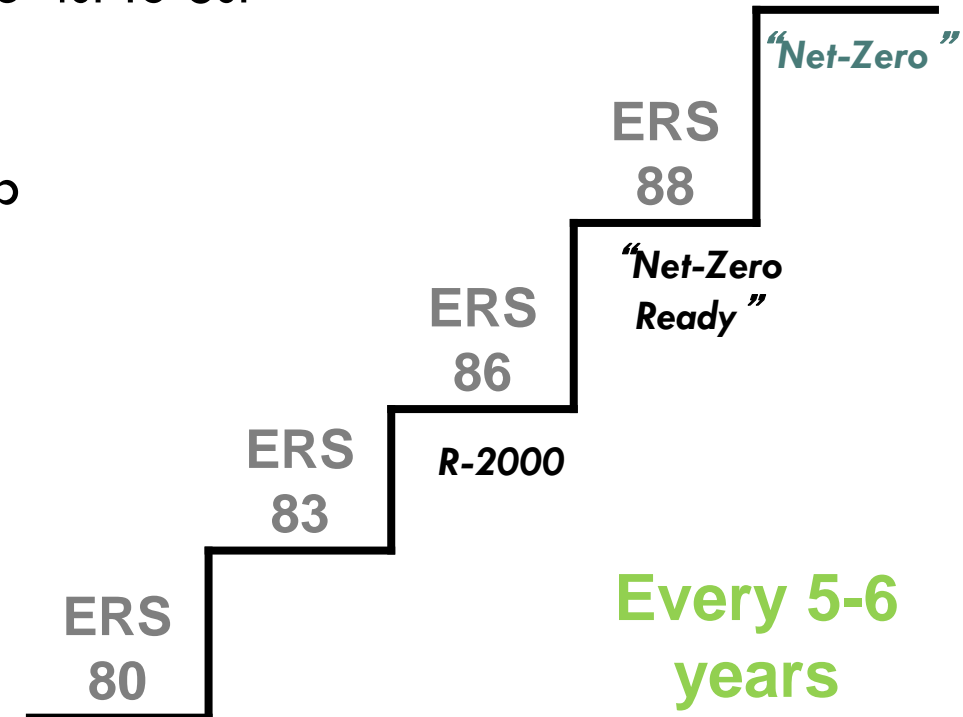
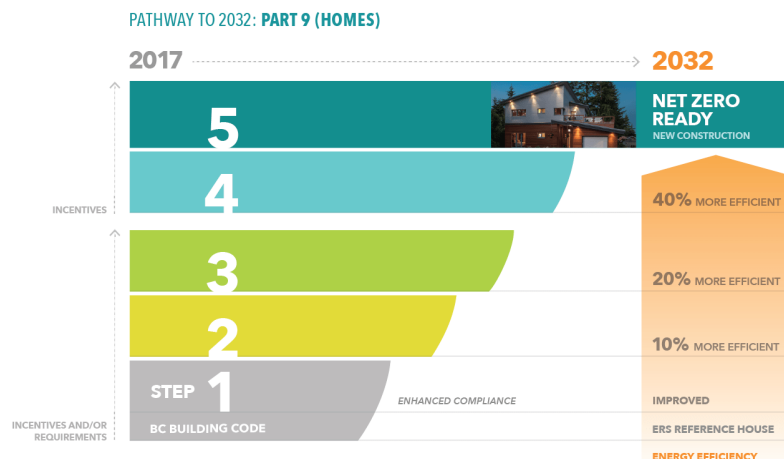
WHERE WE ARE TODAY.....

LOCATION: Sites through out Ontario

NUMBER OF RESIDENCES: Increasing Densities – infill, brownfield and master planned

PRODUCT TYPE: Single Family, stacked, multi-family, midrise 4st to 6st

British Columbia – Step program – increased efficiency step



OBC with SB 10 improvements, increased energy efficiency coming along, seeing change progressing

Unintended Consequences – poor quality of construction / unskilled trades / water penetrations / grid capacity / continuity by municipalities on requirements or restrictions

Trade Shortages

Increasing Costs – land, legal, Trades, Manufacturers, Municipal

Consumer Affordability

Consumer awareness to protect the environment, increased social engagement – positive or negative. Value associated with this....

The process is incredibly challenging to bring on new properties / product through the development and approval process



WHERE WE ARE TODAY.....



WHERE WE NEED TO GO.....

Think **big** picture – increased growth, low load homes, infrastructure, demands on water, energy

Being reasonable – with increased density – from a production stand point – you will be very challenged to orientate every single home for the best possible scenario – off site production or condo – shared production - submetering

Collaboration – builder developer and municipalities, utilities. Look at development as a joint team, solve issues to help one another, be reasonable on all sides.

Consider incentivizing efficient communities – and increasing fees for code built or less efficient developments

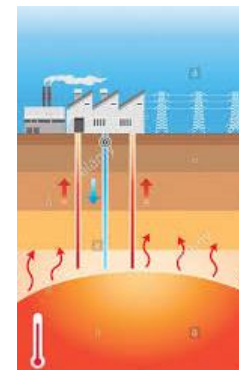
Affordability – how do we transition to scalable affordable energy efficient homes while ensuring there are buyers that can actually live there

WHERE WE NEED TO GO.....

Careful changes for transition – unintended consequences, short cut, failures – ie programmable thermostats in low load homes do not work

Microgrids – on site or on site through condo corporation, off setting high production to low production

Alternative forms of energy production – transitional approach – hybrid energy and electricity, co gen, geo thermal, solar, wind. What is the best long term solution? The one point though – it starts with **CONSERVATION in the buildings**



NET IMPACTS – LOADS ON A SCALABLE LEVEL

1. Seeing Advancements in Building Code, overall improvement in performance of homes resulted in higher performing communities – reduced infrastructure
2. The Challenge to find alternative energy sources, how can we make it affordable for buyers to get off the grid or put more money back in their pockets

Homes offered today	Per Home Energy Consumption *	By Scale of Community	Community Net Energy Impact*	Community Net GHG Impact*
Current Ontario Building Code Home	110 GJ	100 Homes	11,000 GJ	900
Energy Star Home	101 GJ		10,100 GJ	800
NET ZERO READY Home	37 GJ		3,700 GJ	150
NET ZERO Home with Solar	37 /-37 GJ		0 GJ	

*SUBJECT TO HOUSE SIZE, MECHANICALS AND FUEL SOURCE / *GHG BASED ON AVERAGES / *ALL ENERGY REFERENCES ABOVE ARE BASED ON ANNUAL CALCULATIONS

THE KEY ITEMS THAT MAKE OR BREAK IT

IDENTIFY 4 KEY TECHNOLOGIES OR PROCESS THAT ARE CRITICAL TO ACHIEVING YOUR GOALS FOR THE COMMUNITY?

1. **PROCESS** – slow down and think about the unintended consequences – there is always an unintended impact – how do you minimize the associated risk
2. **CONSERVATION** first mentality– where is the most opportunity to scale as opposed to lowest price and less scale
3. **TEAM – COLLABORATION** it takes a team of folks that do not settle for anything, each answer is scrutinized and researched, alternatives ran through multiple scenarios, trade off solutions. They are internal **AND** external



WHAT WE NEED TO DO..

1. Municipalities recognizing the value of the community to their infrastructure and offer back incentive/opportunity in some form to builders or end user. The new infrastructure, waste / water demands are significantly reduced. Less up front in the ground costing to shift to other spaces.
2. Incentivize – this benefits municipalities – why not help one another move the bar by learning from one another – why keep repeating the same bumps in the road, share the learnings, set to cruise
3. Code changes are trending this way –
4. Awareness – Energy Rating all homes mandatory on sale of property, increase awareness to buyers why they should be demanding more for themselves – not just in energy bills but in comfort and quality
5. Planners – find a way to mix density and optimal solar exposure or sittings. At present density is the key and plans are maxing out sites. Onsite placement for generation or systems
6. Consumer awareness – increased data, performance, return on investment. Possible property tax rebates or improvements. Value proposition
7. Designers – architectural buildings with single sloping roof lines – make a house beautiful without complicating it.





Thank you

