

# Building a Resilient Energy Efficiency Retrofit Ecosystem

February 8<sup>th</sup>, 2022

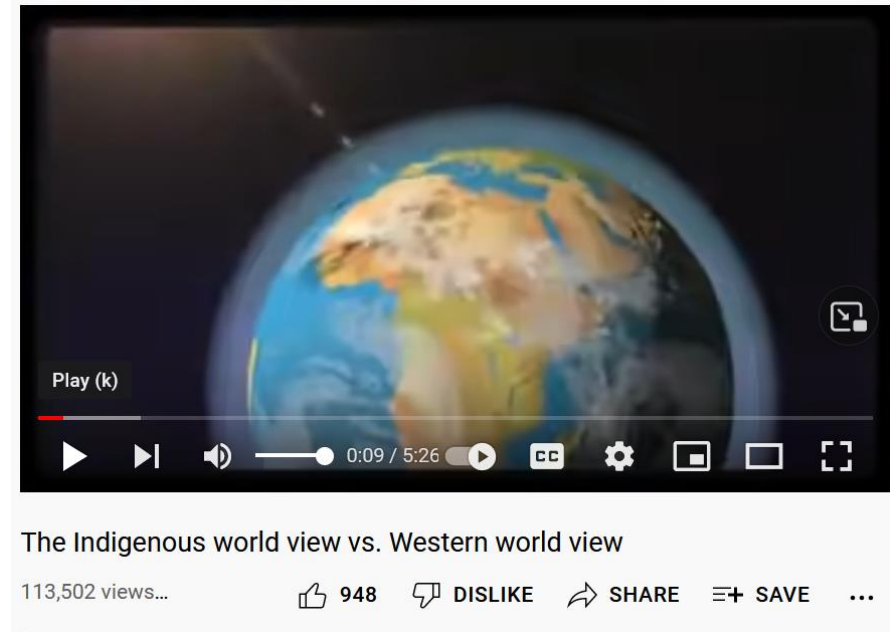
We will start at 1 pm ET



# Land Acknowledgements



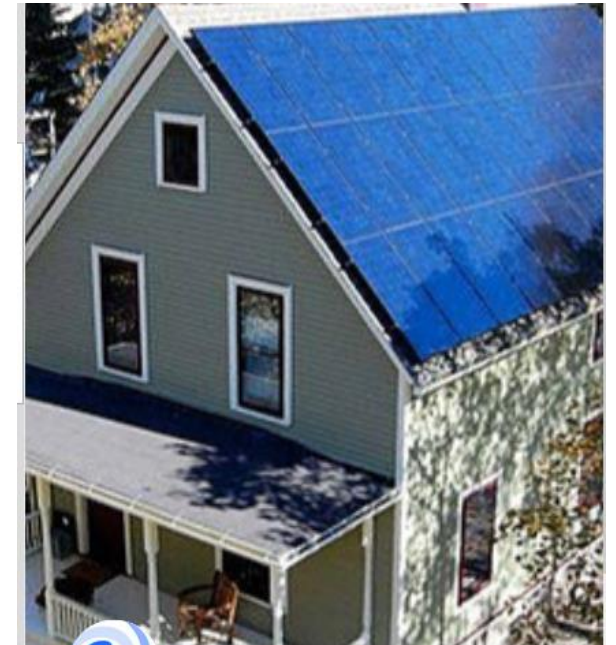
- Joining you from the traditional territories of the Erie, Neutral, Huron-Wendat, Haudenosaunee and Mississaugas.
- This land is covered by the Dish With One Spoon Wampum Belt Covenant, which was an agreement between the Haudenosaunee and Anishinaabek to share and care for the resources around the Great Lakes.
- A “dish with one spoon” was often mentioned by Indigenous peoples while making treaties with one another to avoid violent conflict. The “dish” represents the land that is to be shared peacefully and the “spoon” represents the individuals living on and using the resources of the land in **a spirit of mutual co-operation**.
- [https://www.youtube.com/watch?v=g2HiPW\\_qSrs](https://www.youtube.com/watch?v=g2HiPW_qSrs)



# Retrofit Ecosystem Puzzle Pieces



- Market Status and Gaps
- Energy Efficiency Retrofit Programs in Market
- Customer Value Proposition and Supports and Handholding
- Increasing the Pool of Energy Advisor/Auditors
- Embodied Carbon
- Contractors as Low Carbon Building Science Partners and Allies
- Increasing the Pool of Contractors/Renovators
- Building Science Knowledge/Experience in Contractor World
- Realtors as Partners and Allies
- Improving the Value Proposition of Energy Efficiency
- Addressing the Rental Market
- Rowing Together



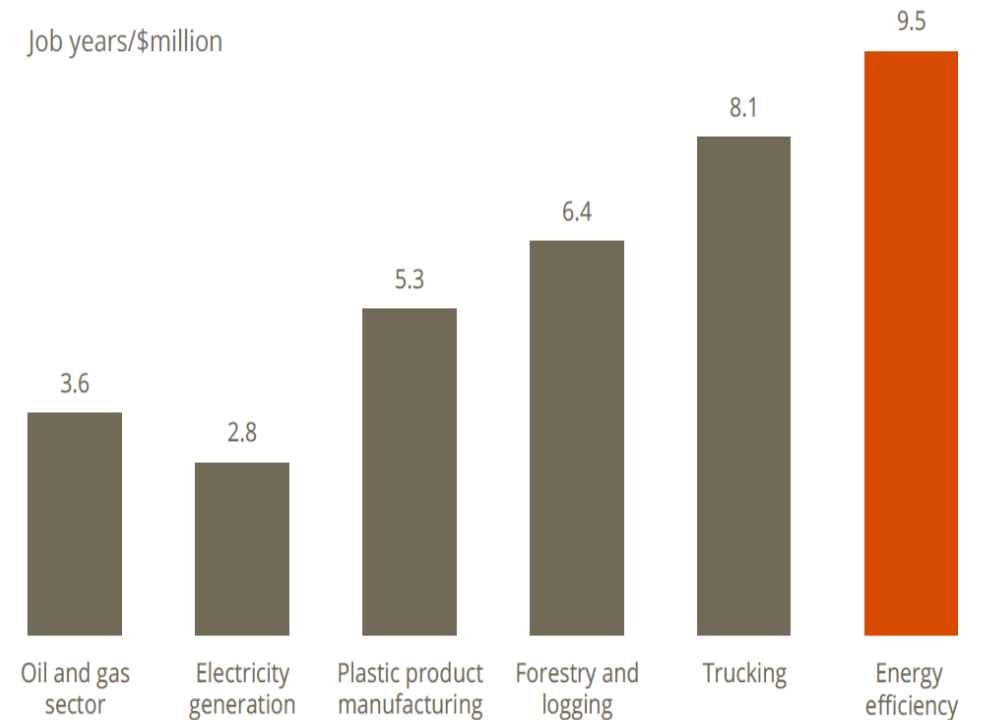
Clean Air Partnership

**Residential Energy  
Efficiency Retrofit  
Training Network**

# Why Bother With a Retrofit Program



- Can serve as a mechanism for multiple policy goals (ex. renewables, resilience, aging in place, etc).
- Between 30 to 50% of GHG emissions come from our buildings
- Most Ontario energy efficiency programs have focused on the non-residential sector
- Residential sector has a huge gap in terms of retrofit programs/supports
- Energy efficiency jobs present a mix between higher pay and lower barriers to entry
- Ontario potential: Total investment: residential (\$ 5.6 billion/year) and commercial (\$ 2.4 billion/year); Gross jobs per year residential (53K/year) and commercial (23K/year)<sup>1</sup>.





- Over 80% of buildings in existence now will be here in 2050
- Most retrofits have been incremental (10 – 30 % reductions)
- Most building energy retrofits are one-offs
- Contractors are not (at present) salespeople for energy efficiency
- Our present retrofit market is not fit for scale-up – but working together it can and must be



**DON'T  
PANIC  
JUST  
PLAN  
IT**



# Energy Efficiency Retrofit Programs in Market

- Residential sector has been under-served via traditional utility programs in comparison to other sectors
- Greener Homes (Federal – in market)
- Home Efficiency Rebate (Enbridge – in market)
- Proposed CMHC program (40K in loan)
- FCM CEF program value
- Gaps: customer supports, contractor outreach, retrofit business models, building science training, stakeholder/partnership outreach, financing attached to property, value proposition outside of energy savings



# What is a Net Zero Emission Home



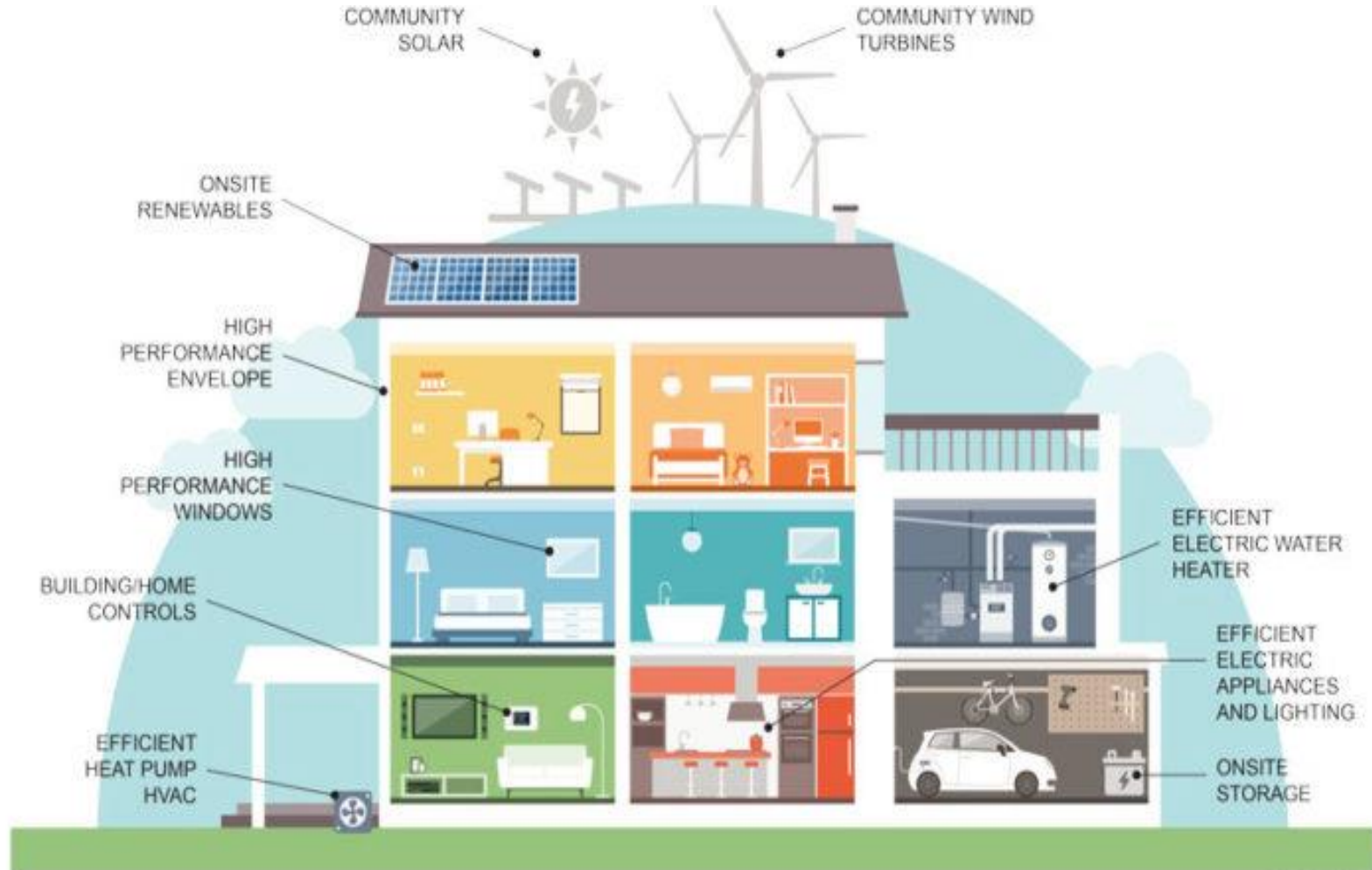
## Core Components:

Maximize energy efficiency

Prioritize on-site renewables

Utilize off-site renewables

Measure and manage net zero operations



## Additional Components:

Electrification-ready and minimize/eliminate on-site fossil fuels

Optimize building-grid integration and on-site storage

Specify low GWP refrigerants

Consider low embodied carbon materials



## 15 ways to make your home more efficient, resilient and climate friendly.

### Heating & Cooling

1. Furnace / Boiler
2. Water Heater
3. Air Conditioner
4. Air or Ground-source heat pump

### Building Envelope

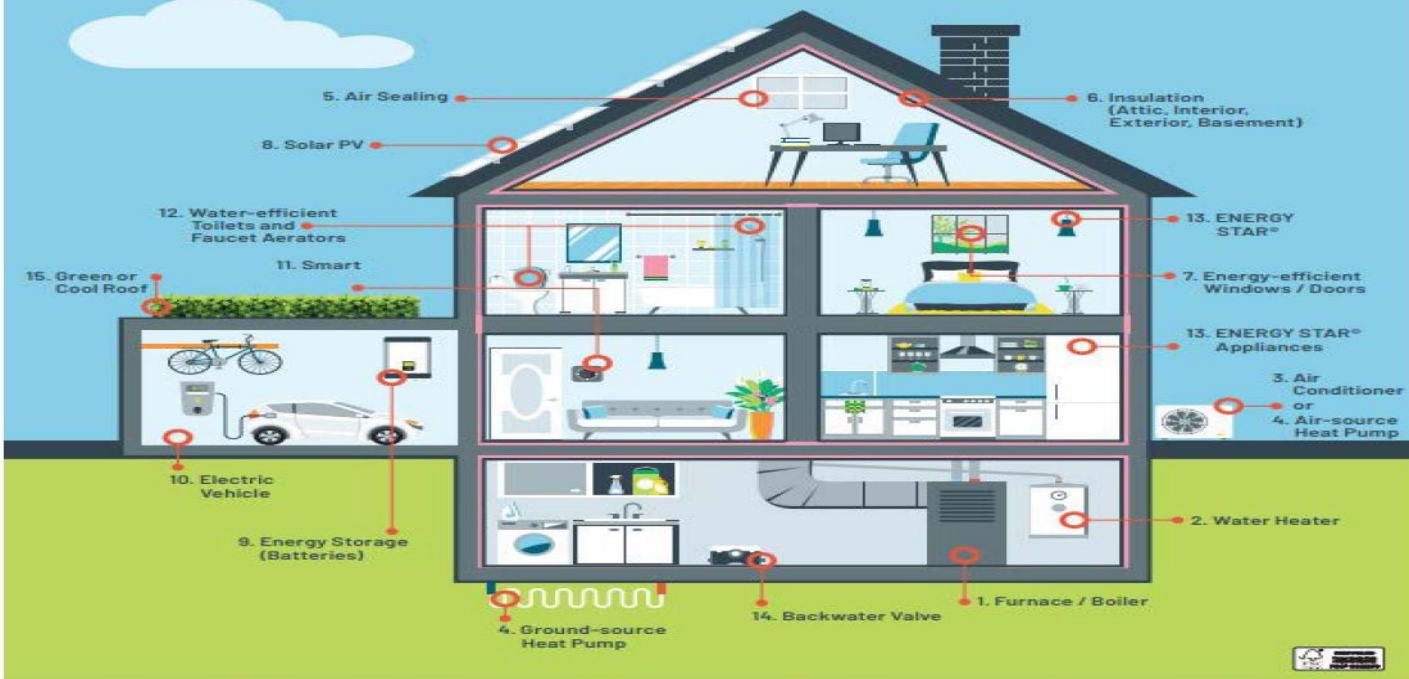
5. Air Sealing
6. Insulation
7. Energy-efficient Windows / Doors

### Renewables & Smart Technologies

8. Solar PV
9. Energy Storage (Batteries)
10. Electric Vehicle Charger
11. Smart Thermostats

### Other

12. Water-efficient Toilets and Faucet Aerators
13. ENERGY STAR® Lighting and Appliances
14. Sump pump and Backwater Valve
15. Green Roof | Cool Roof

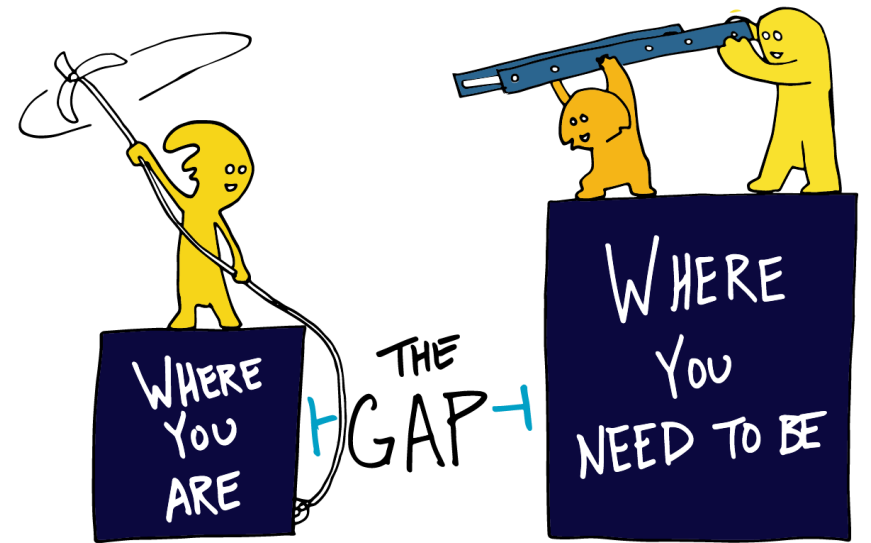




# Importance of Municipal Programs



- We have programs in other jurisdictions we can learn from, but we also need local data
- Three questions we need to get real market data on:
  - What factors influence customer uptake?
  - What makes for the best customer experience possible?
  - What factors drive deeper reductions?
- Allows creativity and greater ability to be customer oriented
- Need to create a cohesive approach (from the customer's perspective)



# Customer Value Proposition and Supports and Handholding



Helping customers through the retrofit process



Energy audit supports (providing information on how to schedule and get maximum value out of pre audit)



Helping translate NRCan audit into final measures decisions and future road map to net zero GHG emissions



Resident support for contractor recruitment, selection, scheduling, cost management, contractor management



Support for measure verification and post NRCan audit



Ongoing support as they move forward with net zero efforts



Homeowner retrofit capacity building video training



Collation of customer testimonials and program experience input to support program outreach/improvement opportunities

# Municipalities are not on their own - 3<sup>rd</sup> Party Supports



- Delivering a community retrofit program can be daunting
- Community partners are there to support you
- There are 3<sup>rd</sup> party models that can deliver programs for municipalities
- Helps address market gaps within your community
- Enables your community to help build its local (as well as wider) retrofit ecosystem



# Moving Towards a Turn-Key Model – Building Demand....



- Hard to go out to market with a turn-key model
- Grow into the offering
- Chicken/egg and supply and demand
- Too soon concerns
- Wait List for clients wanting a “general contractor” for their retrofit
- Can also serve as a “pull” for building science training for contractors
- Windsor and Newmarket – leading the charge
- All retrofit programs can help the growth of the turn-key market.



# Increasing the Pool of Energy Advisor/Auditors



Registered Energy Advisors are tested on, and must have knowledge and experience in areas such as:

- EnerGuide Rating System
- Residential construction practices for low-rise housing
- Energy efficiency renovation practices
- Building science
- Energy simulation modeling
- [CACEA](#) – Upcoming webinar
- Job sharing
- Streamlining audits versus quality assurance
- Combo audits (promotional/engagement tool) & advisor efficiency)





- Bringing embodied carbon into eligible products
- What is the embodied carbon of retrofit products?
- Builders for Climate Action – [BEAM Estimator](#)
- [Achieving Real Net Zero Homes](#)
- Carbon Leadership Forum – [Carbon Storing Materials Report](#)
- Embodied Carbon – MURB (more to share on that soon)
- Embodied carbon villains can be addressed via eligible products/customer concierge supports/contractor knowledge

## Understanding Carbon



# Contractors as Low Carbon Building Science Partners and Allies – Program Marketers



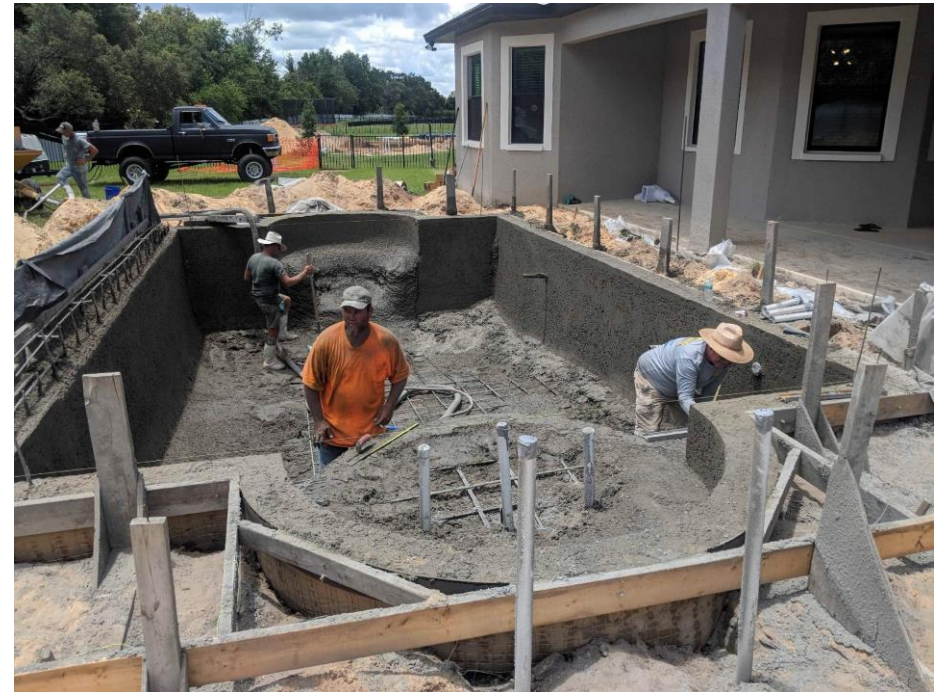
- Contractors are a critical sales force for retrofit programs
- How to make the business model work for them
- [HRAI Webinar and Report](#) – mechanical system contractors
- Contractors/Renovators/General Contractors
- Input on program design
- Program outreach and engagement
- Decentralized network challenges
- Local outreach will be critical to better preparing your community to building climate champions



# Increasing the Pool of Contractors/Renovators



- Need more contractors and renovators to be able to serve and grow the retrofit ecosystem
- Increasing the diversity within the retrofit contractor world (gender, socio-economics, race, age, etc)
- Labour intensive
- Balance between well paying jobs and training investment
- Local jobs that can't be outsourced
- Customer-oriented contractors







- A LOT of room for improvement
- In new construction and retrofit market
- [DiscoverEE](#)
- [Our Human Energy](#) – Training Database
- [Bluehouse Energy](#)
- [CHBA Net Zero Training](#)
- [CIET](#)
- [Passivehouse](#)
- Colleges
- Trade Associations
- Build demand and the supply of contractors will come
- Remember the lag





- LICs are not a 4 letter word
- Benefits of a Retrofit LIC
- Education/outreach potential
- Energy disclosure
- Energy labeling
- Realtor concerns – slowing down the sale of a property
- Hurting/Benefiting sale price
- Local outreach critical to reducing resistance from associations
- Realtors as Climate Super Heroes



# Improving the Value Proposition of Energy Efficiency



- Reducing costs by mainstreaming retrofit/building the market
- Reducing customer acquisition costs
- Bulk-purchasing
- Energy use disclosure
- Energy labelling
- Resale value
- Carbon price increases
- Blue boxing energy efficiency
- Climate champion home plaque
- Keeping up with the jones – use it for good this time, not evil





- Split incentive issue
- Who pays for energy?
- Renters always miss out!!
- Energy use disclosure requirements
- Full cost of rent and utilities being considered at time of listing
- Would likely need to be mandated
- Climate change by-law? What is it good for?
- Municipal authorities re existing buildings are limited....



# Rowing Together- White Water Ahead (we better be rowing together!!!)



- Federal retrofit programs
- Federal model building code and retrofit code
- Provincial government – critical for what municipalities can and cannot do. What they need to do:
- Ensure a climate lens for those managing Ontario's energy system;
- Stop subsidizing fossil fuels;
- Adopt the national model building code with tiered approach, bring in GHG metric and municipal authority to advance higher tier and support market transformation (beyond just site plan authorities)
- Model retrofit code adoption in Ontario or clarity for municipal adoption
- Get into the game of advancing an energy efficiency retrofit ecosystem – huge economic development opportunity for Ontario
- Municipal climate change by-law authorities (have there been discussions in your municipality?)



# Scary and Exciting – But its an All Hands on Deck Effort



- Gaps in the Ecosystem puzzle?
- Excited and scared!!!
- What an opportunity!!!!
- Future generation will wonder what the hell took us so long!!!
- For more information or for options for a municipal program contact Gaby at [gkalapos@cleanairpartnership.org](mailto:gkalapos@cleanairpartnership.org)

