

# Decarb Lunch Series

zebx

**Bondi Energy is  
Coming to BC**

Wed Jun 28, 2023,  
from 12- 1pm PDT  
Free Webinar | [zebx.org](https://zebx.org)

The **Zero** Emissions  
Building Exchange

Zeb<sub>x</sub>

Podcast



# RESOURCES

🔍 Enter your search

20 posts found

### Categories

- Articles
- Reports
- Case Studies
- Videos & Slides
- Podcasts

### Series

- Deep Emissions Retrofit Dialogues
- CleanBC Net Zero Energy-Ready Challenge Playbook
- CleanBC Net Zero Energy-Ready Challenge Winners
- Decarb Lunches
- Tech Demo Workshops
- Decarbonization Planning

### Systems

- Mechanical
- Building Enclosure
- Solar Energy
- Geothermal
- Domestic Hot Water Heat Pump

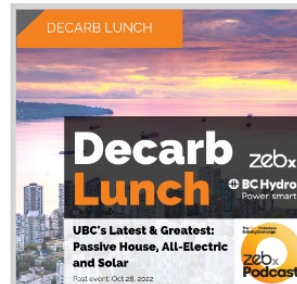
### Subjects

Reset all

Podcasts x



Decarb Lunch: Nov 2022, The OSO Residential Development



Decarb Lunch: Oct 2022, UBC's Latest & Greatest: Passive House, All-Electric and Solar



Decarb Lunch: Sep 2022, Getting Unstuck: Homeowner and Contractor perspectives on home electrification



Vancouver's New Green Building Regulations



Overheating: Will the need for cooling accelerate decarbonization?



Legendary Airtightness: The Most Airtight Homes of the NearZero Program

# Resource Library

- ✓ BC Energy Step Code
- ✓ Passive House
- ✓ All-Electric Buildings
- ✓ Retrofits

# zeb x

ZERO EMISSIONS BUILDING EXCHANGE



**B2E**

Building to  
Electrification  
Coalition

Operational Emissions

New Construction

Retrofits

Embodied Emissions



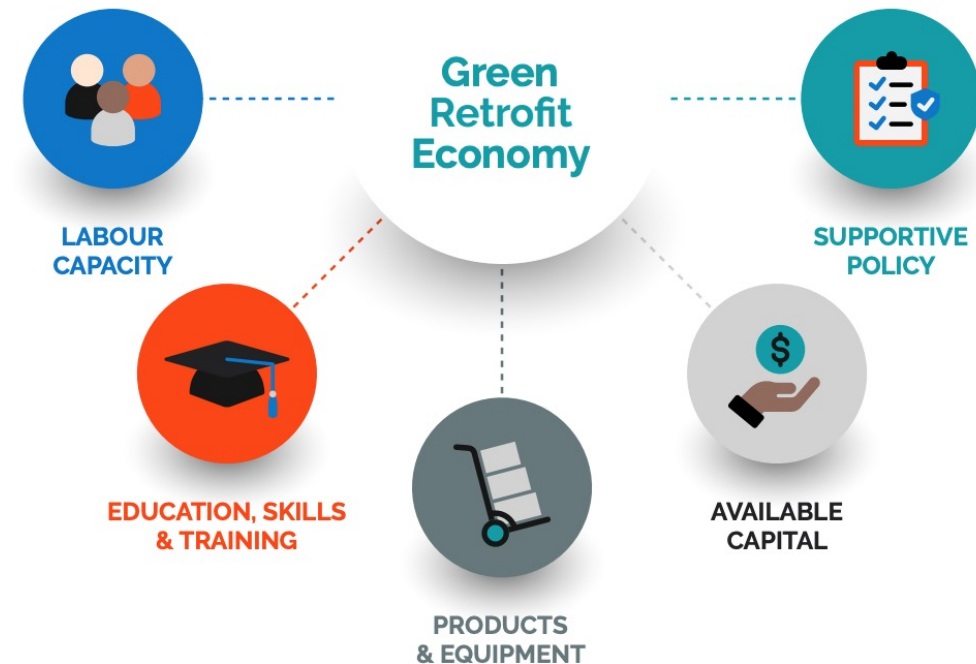
Carbon  
Leadership  
Forum  
British  
Columbia

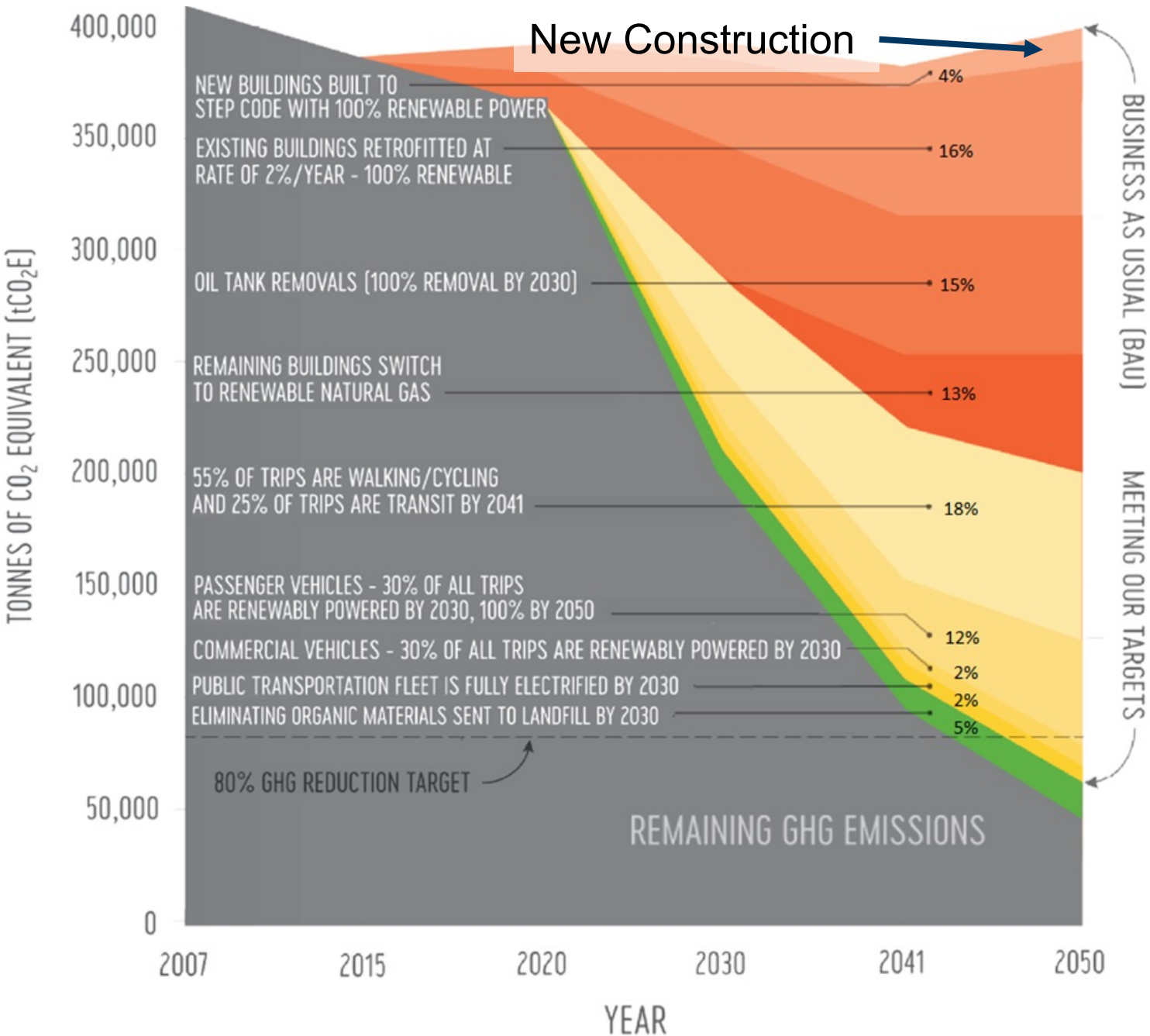
## 1.2 Enabling Conditions for a Green Retrofit Economy

Currently most retrofits are completed as separate custom projects, requiring significant resources to make a business case, plan, design, execute, and verify the work. In order to catalyze a self-sustaining local green retrofit economy that facilitates investment and mobilizes capital towards large portfolios of building retrofit projects, several enabling conditions need to be in place, including:

- Adequate local workforce capacity to meet the labour demand
- Skills and training partnerships to equip the modern green building workforce with the knowledge required
- Access to high performance building materials in the local supply chain
- Strategies for securing available capital financing
- Supportive policy at all levels of government that provide a clear roadmap upon which investments in training and retrofit projects can be secured

Figure 2: Enabling Conditions





# Emission Reductions Targets

50% GHG emissions reduction by 2030

80% GHG emissions reduction by 2050

100% Renewable Energy by 2050





POLL 1

Tell us about yourself!

Three-part anonymous poll



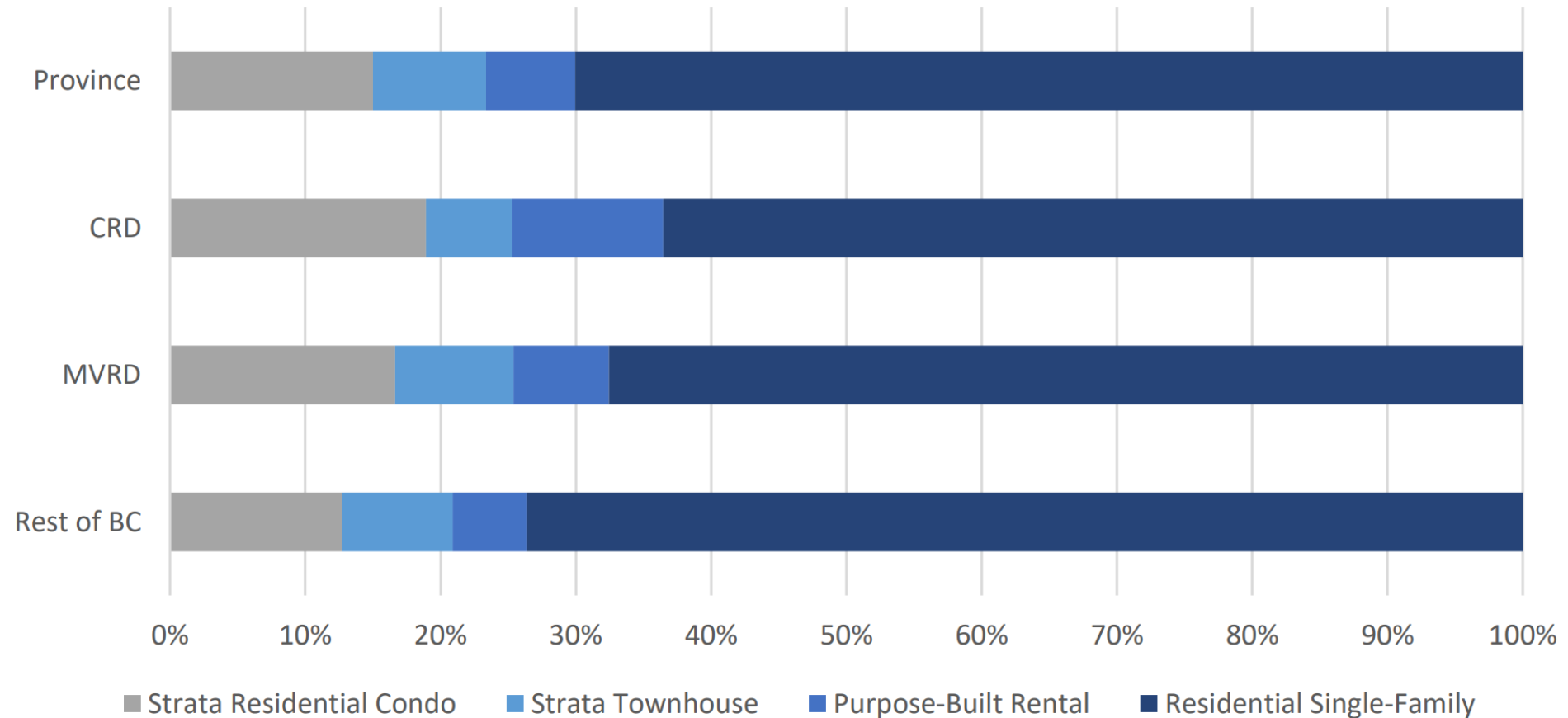
# Scale of Opportunity

## Residential Housing Stock in BC

Housing Type	Buildings	Units/Households	% of Total Households	Gross Floor Area (ft <sup>2</sup> )	% of Total Floor Area
Strata Residential Condo	10,891	494,698	24%	498,037,875	15%
Strata Townhouse	-	191,239	9%	276,761,981	8%
Purpose-Built Rental	12,152	243,315	12%	218,527,982	6%
Residential Single-Family	967,036	1,057,736	51%	2,324,106,685	69%
Mobile Homes	-	67,000	3%	67,000,000	2%
Grand Total	1,181,318	2,053,987	100%	3,384,434,523	100%

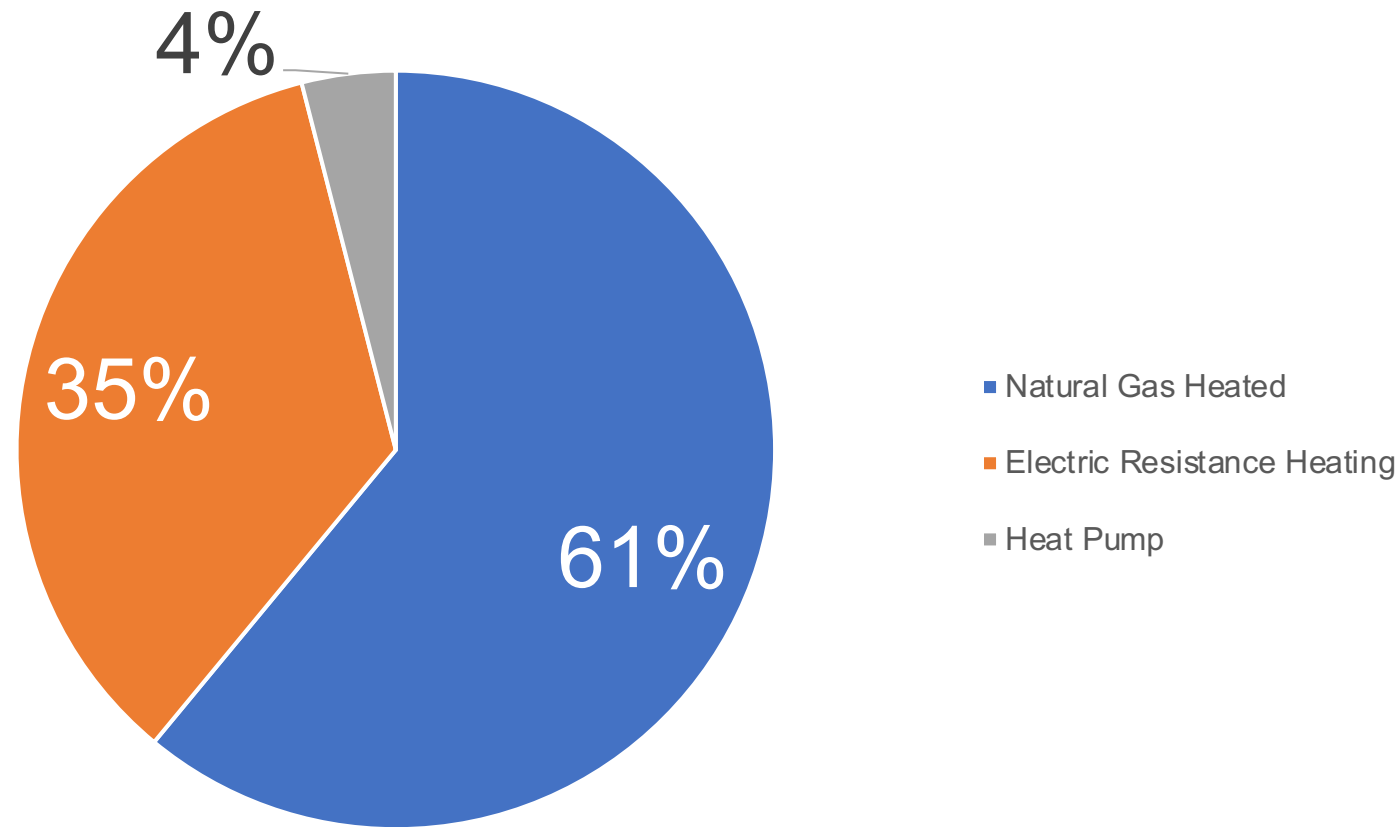
# Scale of Opportunity

## Residential Housing by Geographic Area



# Scale of Opportunity

## Heat Energy Source in BC MURB's



# Heating Electrification Carbon Pollution Limits

**2050**

Net-zero in BC

**2030**

35% reduction in building emissions in Metro Vancouver

**2025/2026**

City of Vancouver carbon pollution reporting regulation



## Roadmap to 2030



# Heating Electrification

## Climate Resilience

**2021**

BC Heat Dome Extreme Weather Event

619 heat related deaths



# Heating Electrification Retrofit Challenges

- In suite & building electrical capacity
- Wall penetrations, outdoor unit siting & noise considerations can be design challenges
- Rental: access to tenant suites only at turnover
- Strata: council approval
- Deferred maintenance or poorly performing envelope
- Transferring heating cost from building owner / strata to tenant
- COST!



## POLL 1

What did you tell us about yourself?



# **MAT 4Site Engineers Ltd.**

*Helping you Create your Best Building!*



**QUALITY – RESPECT – EFFICIENCY – DEDICATION**



# MAT 4SITE ENGINEERS

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- We are a Building Services Engineering firm
- Established in 2004
- Located at 401 and Dufferin in Toronto.
- Actively working on projects for clients across Ontario
- 40+ staff members
- 17 Licensed Engineers
- Members of PEO, CEO, ACEC, CaGBC, CBCP, ASHRAE
- Steady growth in both staff complement and project volume

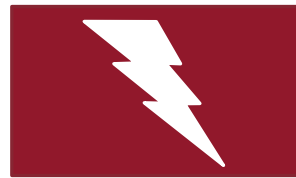
# WHAT WE DO

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- Feasibility Studies
- Conceptual Planning & Design
- Life Cycle Analysis
- Sustainable & LEED Design
- Detailed Design & Engineering
- Energy Modelling & Energy Studies
- Project Management
- Commissioning
- Contract Administration
- Prime Consultant



Mechanical



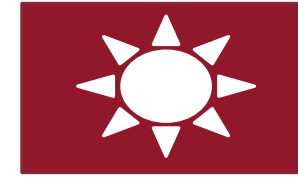
Electrical



Fire Protection



ICAT



Energy Modelling  
& Study



Commissioning

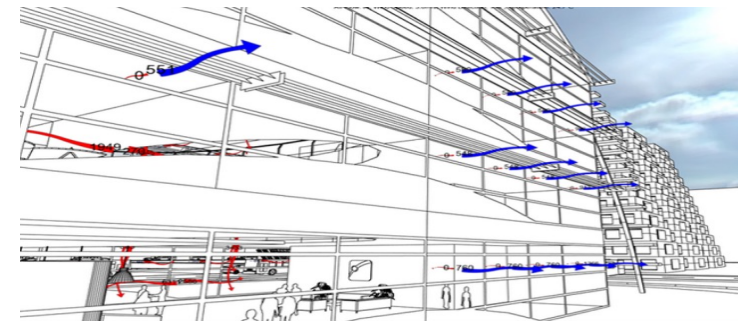
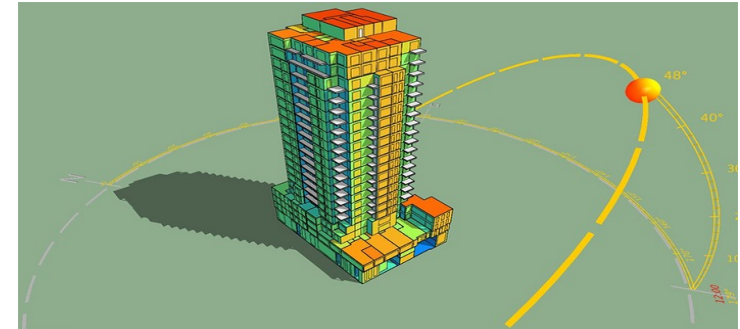
# WHAT MAKES US DIFFERENT

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- **A Better Approach to Sustainability.** Our commitment to sustainability goes beyond innovation in net-zero design and carbon-neutral buildings; we also operate our Firm through a sustainability lens. For us, this means a fully-digital paperless office, a hybrid work model to reduce employee commuting, utilizing transit to attend site meetings, sourcing local products, and growing our business by pursuing building retrofit projects. Breathing life into existing buildings results in reduced carbon footprint, less waste, and less energy/water consumption.

# SUSTAINABLE ENGINEERING

- MAT 4Site Engineers utilizes IES-Virtual Environment energy modelling software that characterizes the proposed building design, operation, optimization and various energy conservation measures. Energy modelling drives the design decision, strategies, innovation and ensures the proposed design not only complies with code, standard, incentives, and the green rating system, but also has the optimal design solution for the project.
- MAT 4Site Engineers can provide energy modelling services for code compliance, LEED, and Toronto Green Standard in support of application for Energy Incentive Programs and to facilitate benchmarking of building performance. This approach is of great benefit to new and old buildings alike and allows us to identify opportunities for cost savings through efficiency and incentives.
- We are also experienced in design and implementation of deep green design strategies including net-zero, carbon neutral design, and decarbonization.



# PROCESS FOR DECARBONIZATION OF MURBS

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1. ELECTRICAL & MECHANICAL ASSESSMENT STAGE
2. PRE-DESIGN (FEASIBILITY) STAGE
3. DESIGN STAGE
4. CONSTRUCTION ADMINISTRATION STAGE
5. CLOSEOUT STAGE

# ELECTRICAL & MECHANICAL ASSESSMENT

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- Understand Client Needs
- Detailed Site Review

E&M  
Assessment

Pre-Design  
(Feasibility)

Design

Construction  
Administration

Closeout

## PRE-DESIGN (FEASIBILITY)

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- Preliminary Energy Model
- Review Design Options
- Design Charrette

E&M  
Assessment

Pre-Design  
(Feasibility)

Design

Construction  
Administration

Closeout

# DESIGN

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- Implement Design
- Obtain Permits

E&M  
Assessment

Pre-Design  
(Feasibility)

Design

Construction  
Administration

Closeout



# CONSTRUCTION ADMINISTRATION STAGE

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- Support Construction
  - Unforeseen site conditions
  - Building Inspections

E&M  
Assessment

Pre-Design  
(Feasibility)

Design

Construction  
Administration

Closeout

# CLOSEOUT STAGE

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- Permit Closeout
- Training Owners and Operators
- Closeout Meeting

E&M  
Assessment

Pre-Design  
(Feasibility)

Design

Construction  
Administration

Closeout

2023

CANADA

# BOND I

ENERGY

[www.bondicorp.com](http://www.bondicorp.com)

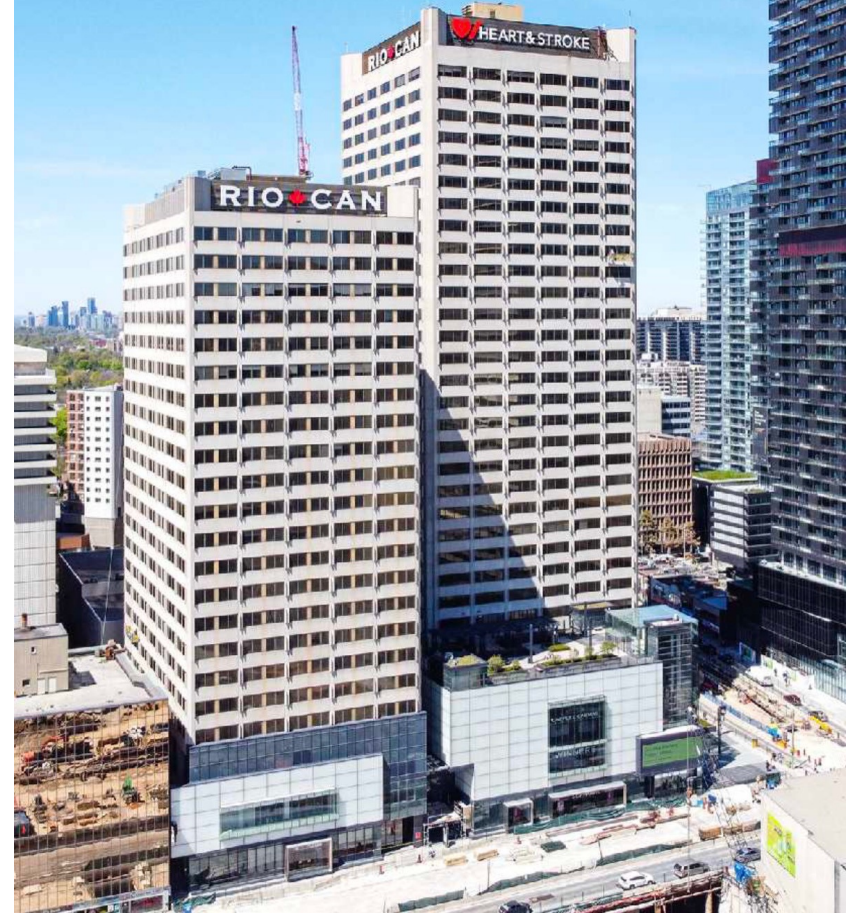
# About BONDI

BONDI delivers heat pump retrofit solutions to multifamily property owners and managers.

We provide turnkey services, including heat pump system design, engineering, grant & incentive applications, equipment procurement, installation, project management, M&V, and ongoing maintenance.

**BONDI has completed and has under contract ~3,000+ suites**

BONDI serves building owners and landlords directly, MURBs, consultants, senior care facilities, etc.



BONDI Energy operates in Ontario, British Columbia, New York, Illinois, and Michigan.



# Our Turnkey Process

1. Energy savings and payback modeling
2. Project financing and grant procurement
3. Installation and project management
4. Ongoing service and support



# Decarbonization

The burning of natural gas for space heating and hot water is one of the biggest contributors to greenhouse gas emissions in Canada.

Heat pumps are the most efficient way to decarbonize buildings. They are **3 to 4 times more energy efficient** than combustible heating, meaning they significantly lower building carbon emissions and are the most impactful measure you can take toward building electrification.

In electrically heated buildings, Bondi's heat pump retrofits drop heating energy consumption by

**50% to 65%.**



# Challenges Facing Landlords



## Electrically Heated Buildings

- Hydro prices are increasing
- Margin erosion on rental income
- Decreasing cap rate values
- Housing affordability



## Gas-Heated/Hydronic Buildings

- Government push to decarbonize
- Carbon tax - future heating costs?
- Aging legacy equipment and plumbing



## Increasing Market Demand for A/C

- A/C is no longer a nice-to-have, it is a must-have
- Installing central system in older buildings is cost-prohibitive
- Window shaker units are a liability

**\*Gas heated buildings typically have electrical capacity issues when considering heat pump retrofits. We can Assist customers through the process from electrical Load studies, electrical upgrade design, and liaising With local utilities to facilitate the upgrade.**

# Why Heat Pumps?



## 1. Increased cap rate values

Offset rising electricity costs, interest rates and inflationary operating costs.



## 4. Perfect for retrofit applications



## 2. Provides both heating and cooling



## 5. Protect against future carbon fines and taxes

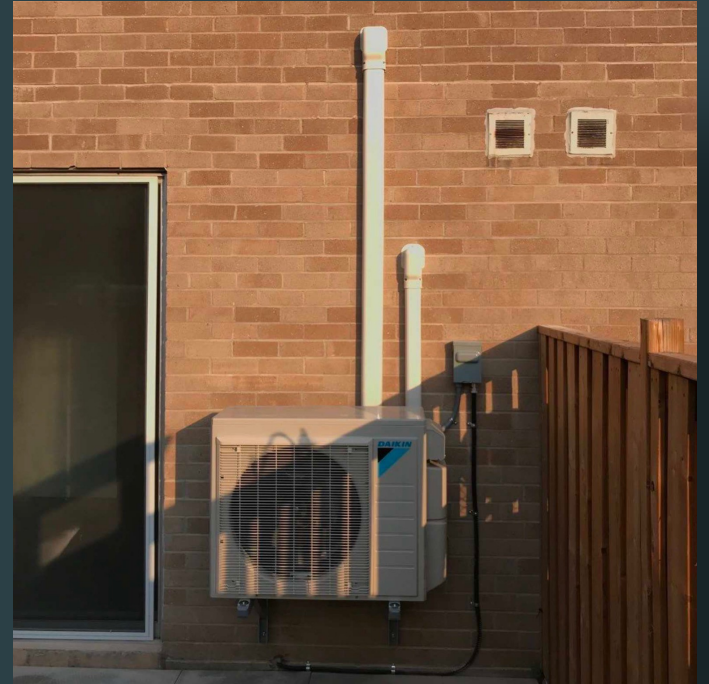


## 3. Works in cold climates



## 6. Improve tenant experience

- Introduce air conditioning
- Provide great comfort control
- Improve affordability





# Savings

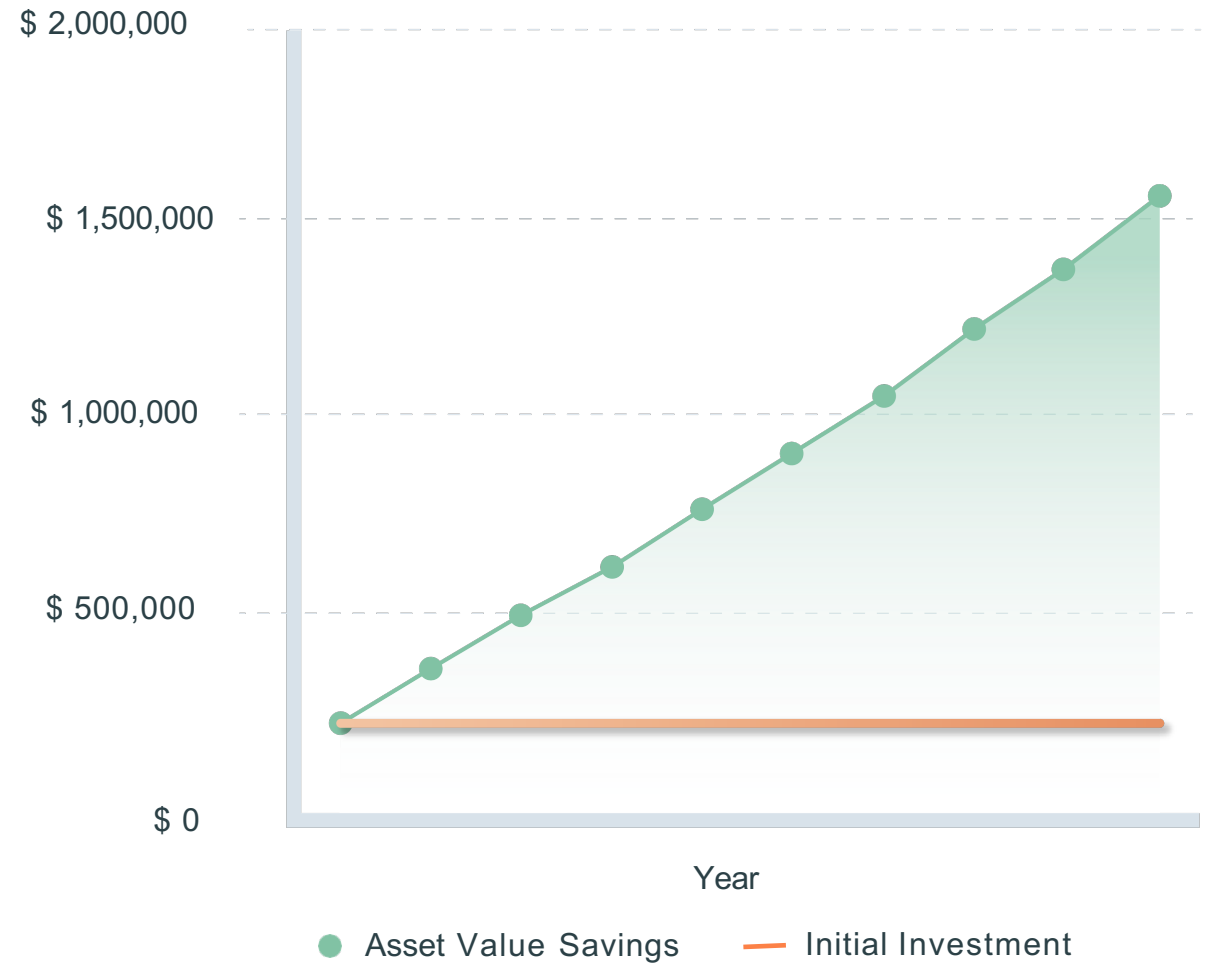
We can save you  
**\$1,000** per suite per year or more.

This will increase the value of your building by  
**\$25,000** per suite (4% cap rate).

Attain higher rents and increase the quality of life for tenants by adding **efficient air conditioning**.

*What is a CAP RATE? This is the language building owners speak to analyze asset values.*

*Formula: Cap rate (%) = NOI / Asset value*



# Case Study

## 253 residential suites

### Baseline:

- Electric resistance baseboards for heating
- No central A/C
- No sub-metering

### Post-Retrofit:

- Cold-climate Daikin Aurora heat pumps
- Cooling activated for new tenants only
- Sub-metering implemented

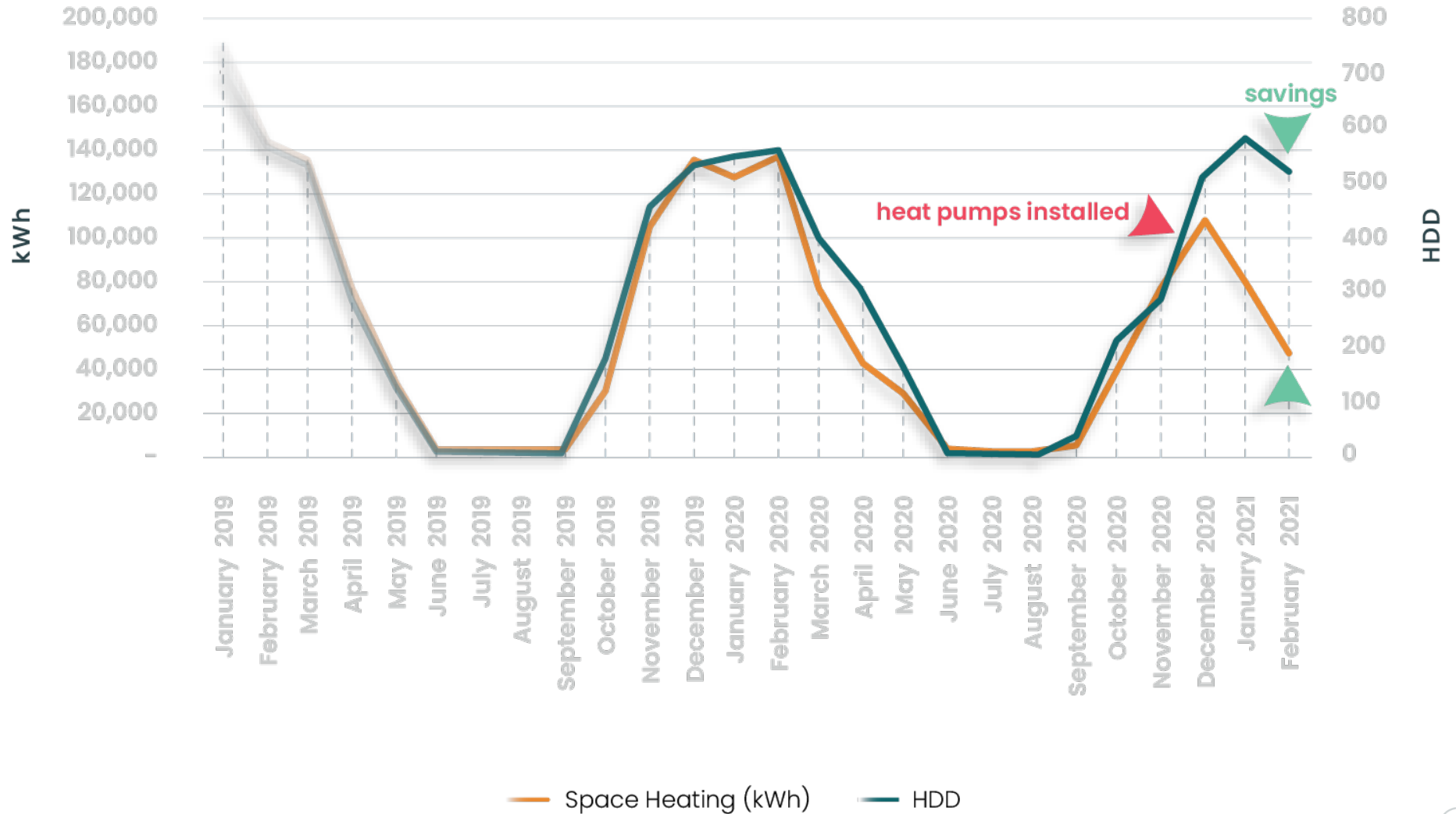
- CAP rate Value increase (before/after)

Savings \$2,000 per year per door (efficiencies and behavioural changes from sub-metering)

\$50,000 increased value per door (4% cap rate)



# M&V



# Environmental Impact

This project has removed 2MWh of electricity off the grid, annually.

$2,000,000 \text{ kWh} \times 31 \text{ g CO}_2\text{e per kWh} = 62,000,000 \text{ g CO}_2\text{e} = 62 \text{ T CO}_2\text{e}$



149 passenger vehicles



6.4 tanker trucks' worth of gasoline



1,148 barrels of oil consumed

That translates to **62 Tons of CO<sub>2</sub>** emissions removed from the atmosphere each year.



# Bondi's Customer Portal

All your building information and upgrades in one place

## Portal Features:

- Customized building profile with units and floor plans
- Equipment indexing and tracking
- Warranty and service documentation

The screenshot shows the 'Company' page in the Bondi Energy portal. It features a navigation bar with 'Dashboard' and 'Company' tabs. The main content area displays several key metrics and contact information:

- Total Buildings:** 1
- Total Number Of Suites:** 5
- Total Of Suites Completed:** 3
- Company Head Quarter Address:** 2300 Yonge St, Toronto, Ontario, M4P 1E4, Canada
- Office Phone Number:** 18449638731
- Contact Details:**
  - belinda 11 111111111 belinda@bondicorp.com
  - B test 1111111111 belindaglibey@gmail.com
- Do you want to change the status of this Company?** (No  Yes)
- Measurement And Verification:** (No  Yes)

The screenshot shows the 'Building Details' page for building 102. It includes a floor plan, address, and a table of equipment pieces.

**102**  
Townhomes, Ontario, Brantford, Canada

Total Equipment Pieces: 3

Do you want to change the status of the suite?  
No  Yes

**Total Equipment Pieces** [+ Add Equipment Pieces](#)

Serial Number	Make	Model	Install Date	Estimated Replacement Date	Warranty Registration Date	Warranty Expiration Date	Status	Modified Date	Last Known Service Date	Edit
E186895	Daikin	FTXS12LVJU					<input checked="" type="checkbox"/>	2022-02-10		<a href="#">✎</a>
E187042	Daikin	FTXS12LVJU					<input checked="" type="checkbox"/>	2022-02-10		<a href="#">✎</a>
E007446	Daikin	3MXL24RMVJ UA					<input checked="" type="checkbox"/>	2022-02-10		<a href="#">✎</a>

The screenshot shows the 'Building Details' section with a large image of a modern multi-story building. Below the image is a '+ Add Building' button.

# M&V and Cloud Control

**We are developing a heat pump BAS control system**

**Bi-directional data push/remote cloud control for individual units from a central dashboard**

**Sensors for IAQ, temp, humidity**



# Through-Wall Heat Pump

- Designed and manufactured in Italy
- Quiet operation
- Very energy efficient (COP = 3.2)
- User Friendly
- Plug-and-play install
- Ideal for Hotels and Multifamily Buildings
- 120v, 240v, and integrated resistance heater models available





Installing on turnover (multi-year project) vs. all at once





## Innova Vs. Multi-Splits/VRF

### Innova:

- Buildings without balconies
- Buildings with mostly studio and 1-bedroom units – more economical
- Owners that don't want to see any outdoor compressors

### Multi-Splits/VRF:

- Buildings that can support installing outdoor compressors
- Projects requiring higher energy efficiency results
- Larger buildings, buildings with larger apartments/suites – more economical





THANK YOU

BOND I  
ENERGY

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