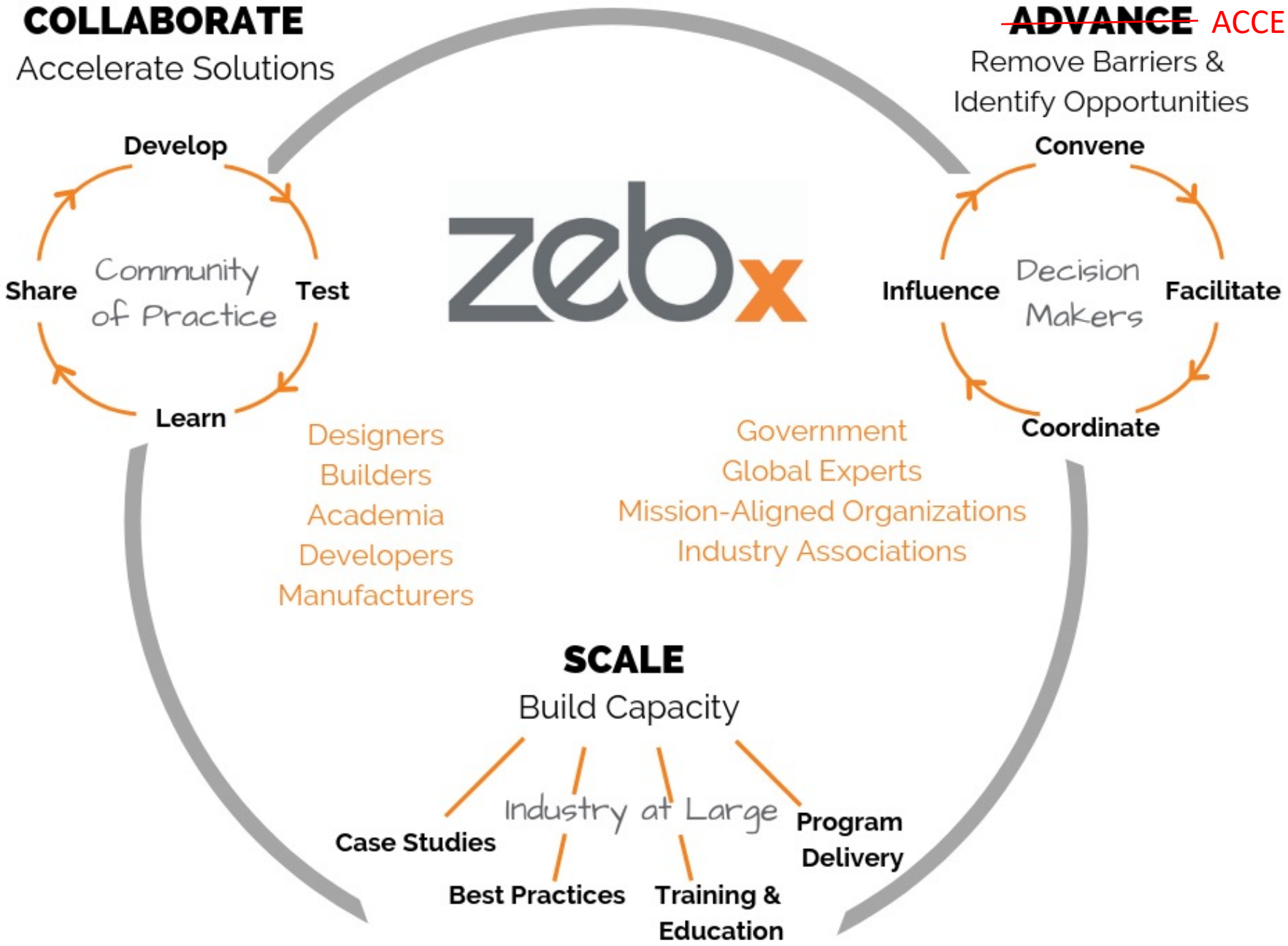
One Nation Under a Groove – Instrumental Disco Mix


COLLABORATE
Accelerate Solutions
ADVANCE ACCELERATE
Remove Barriers &
Identify Opportunities
Develop
Share
Community of Practice
Test
Learn
zebx
Convene
Influence
Decision Makers
Facilitate
Coordinate
Designers
Builders
Academia
Developers
Manufacturers
Government
Global Experts
Mission-Aligned Organizations
Industry Associations
SCALE
Build Capacity
Industry at Large
Case Studies
Best Practices
Training & Education
Program Delivery

B2E

Building to Electrification Coalition

We are a broad coalition working together to electrify buildings in British Columbia in order to reduce their climate impacts and reliance on fossil fuels.

B2E
Building to Electrification Coalition

Events Resources FAQ About ZEBx Contact Get Involved

Building to Electrification Coalition

B2E is a BC-based member-driven coalition working towards a Vision that by 2030, all new and most replacement space heating and domestic hot water systems in BC's buildings will be high-efficiency and low-carbon with electric systems being widely used across all market sectors.

Our Mission

We are a broad coalition working together to electrify buildings in British Columbia in order to reduce their climate impacts and reliance on fossil fuels.

bcgreeneventcalendar.ca

The BC Green Building Calendar

Welcome to the BC Green Building Calendar.

Here you will find all of the latest events and training related to green building subject matter, including: emissions, energy efficiency, resiliency, high-performance design, and more.

If you would like to submit an event or for more details on submission guidelines, see the bottom of this page.

Filters

February 2022

Webinar | **Presented by: ZEBx**

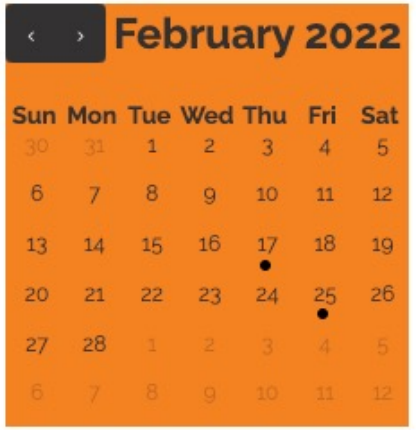
Feb
17
Thursday
10:00am - 12:00pm

Deep Emissions Retrofit Dialogue - Ready to Roll: Simple Solutions for Going Electric

Webinar | **Presented by: ZEBx**

Feb
25
Friday
12:00 - 1:00pm

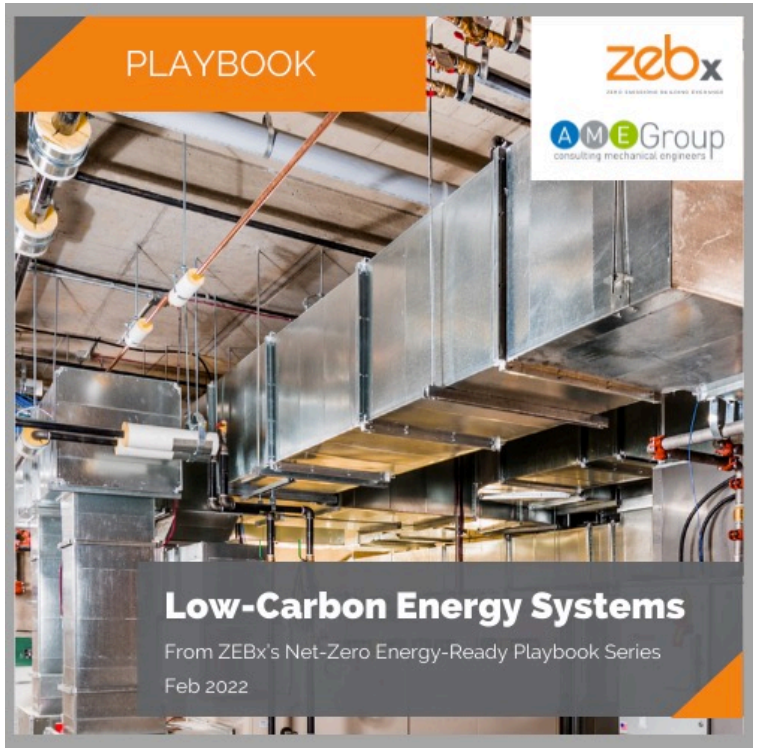
ZEBx Decarb Lunch - Be Prepared! The BC Energy Step Code Capacity Study.

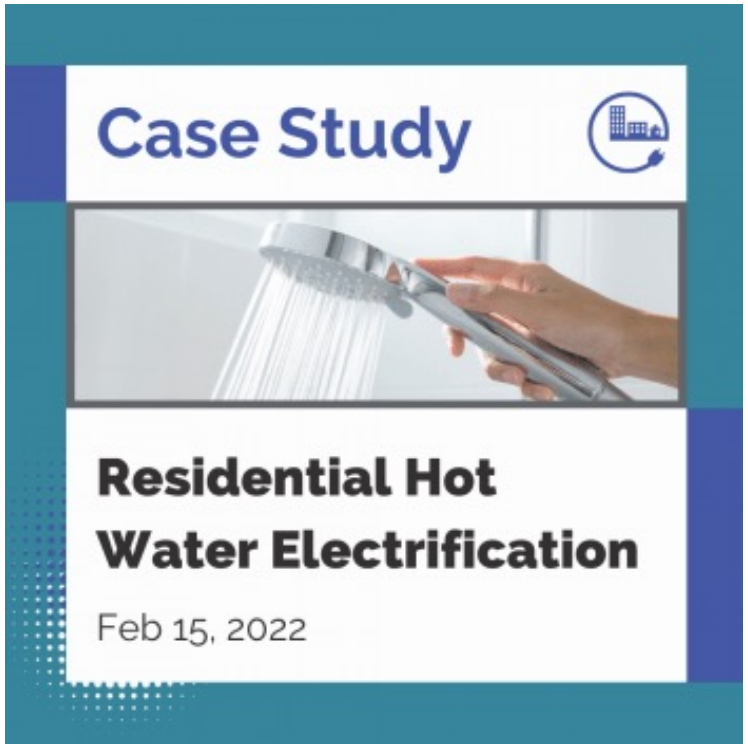


To submit events for your organization:

Join our community

b2electrification.org





zebx.org

POLL

Tell us about yourself!

Three-part anonymous poll

B2E
Building to Electrification

BCNPHA
BC Non-Profit Housing Association

BCNPHA

BC Non-Profit Housing Association

SECTOR OVERVIEW

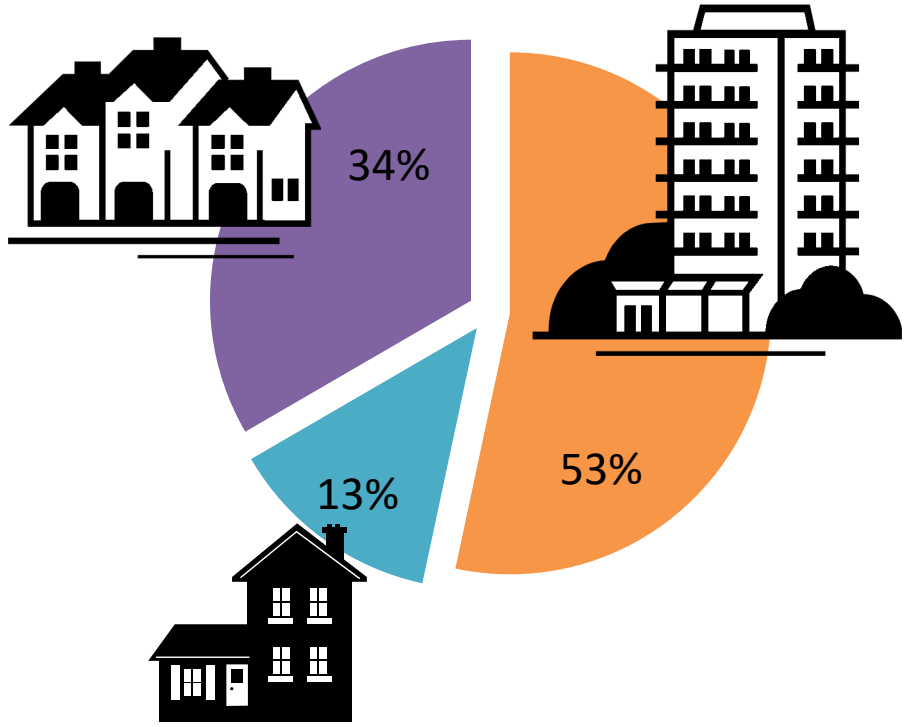
Non-Profit Housing Sector in BC

Housing Sector

- 800 societies
- 3,200 properties
- 65,000 units

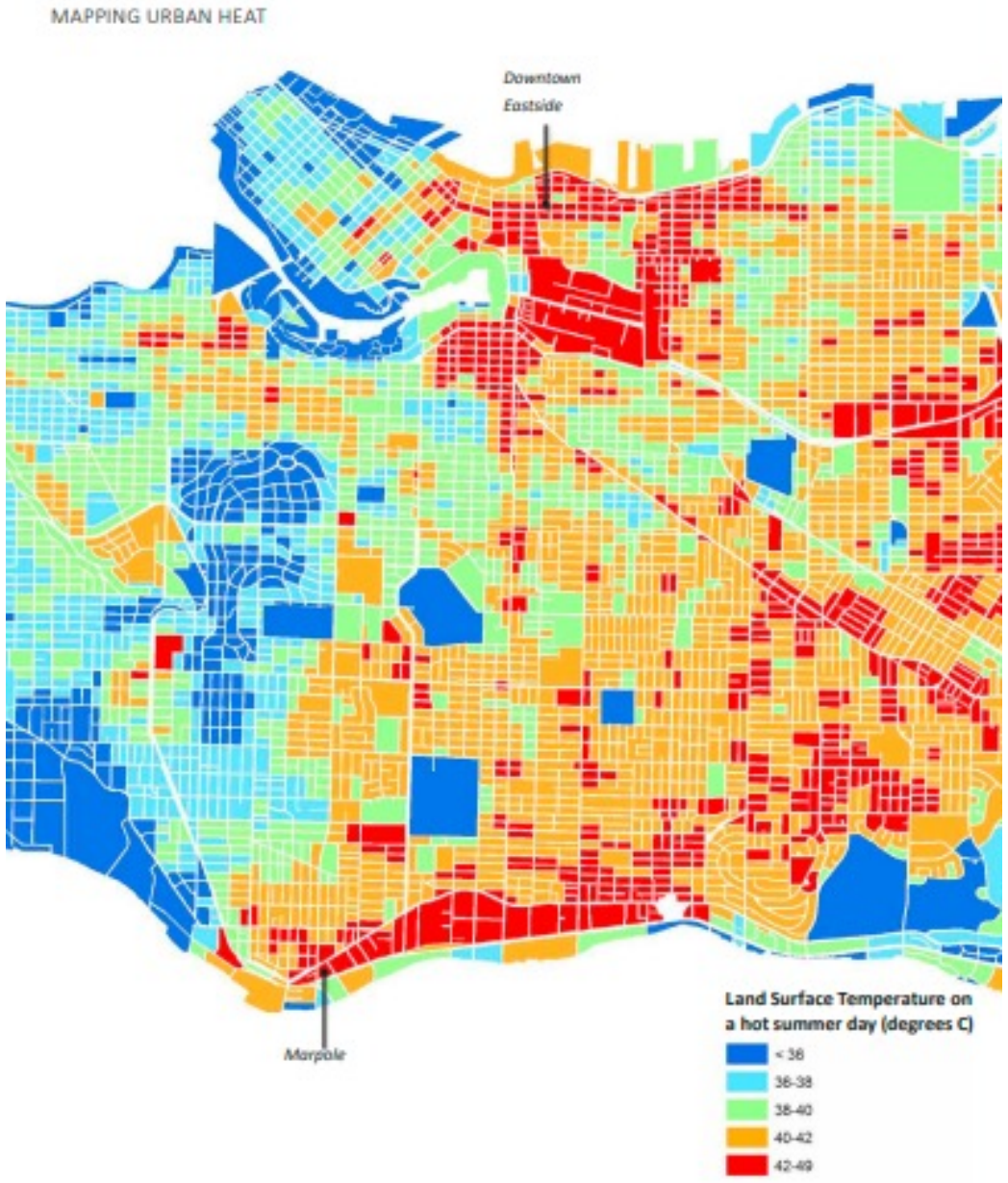
Existing buildings

- Most built between 1970 & 2000
- Predominantly apartments
- Many single family homes
- Aging envelopes & mechanical equipment



BCNPHA Research

- Research
  - A snapshot on renters
  - Housing projections (114,000 units)
  - Maintenance needs (>$1 Billion deferred
  - Homelessness (3,600 in MetroVan)

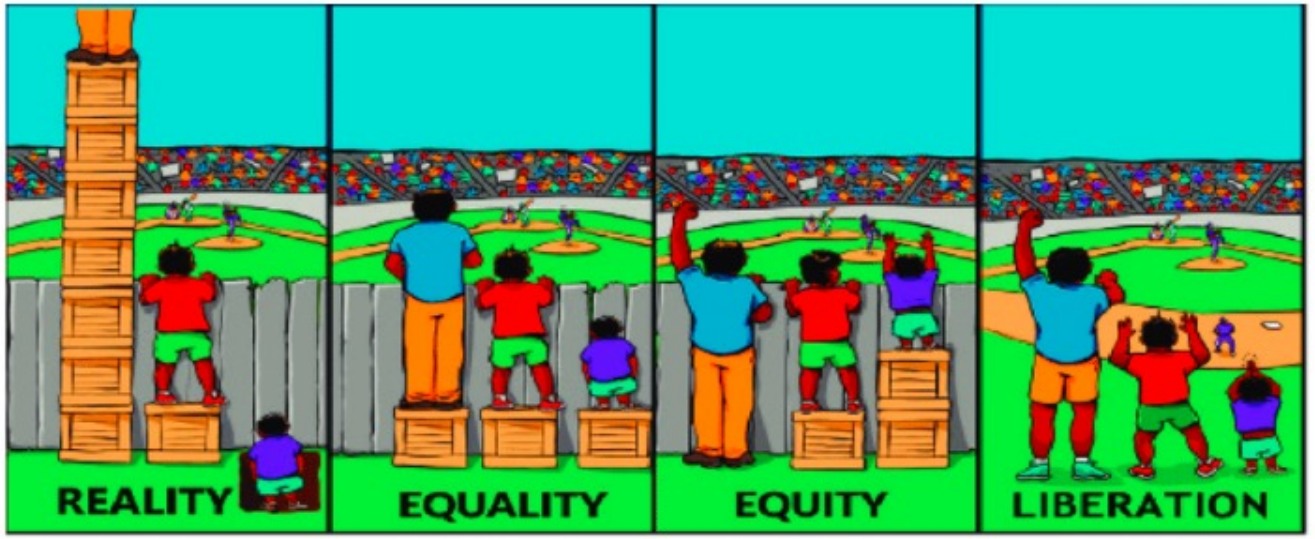


Vulnerable Demographic

- Personal
  - Addiction
  - Mental health
  - Poverty
  - Generational trauma
- Built Environment
  - Overheating
  - Ageing buildings
  - Mould

Future

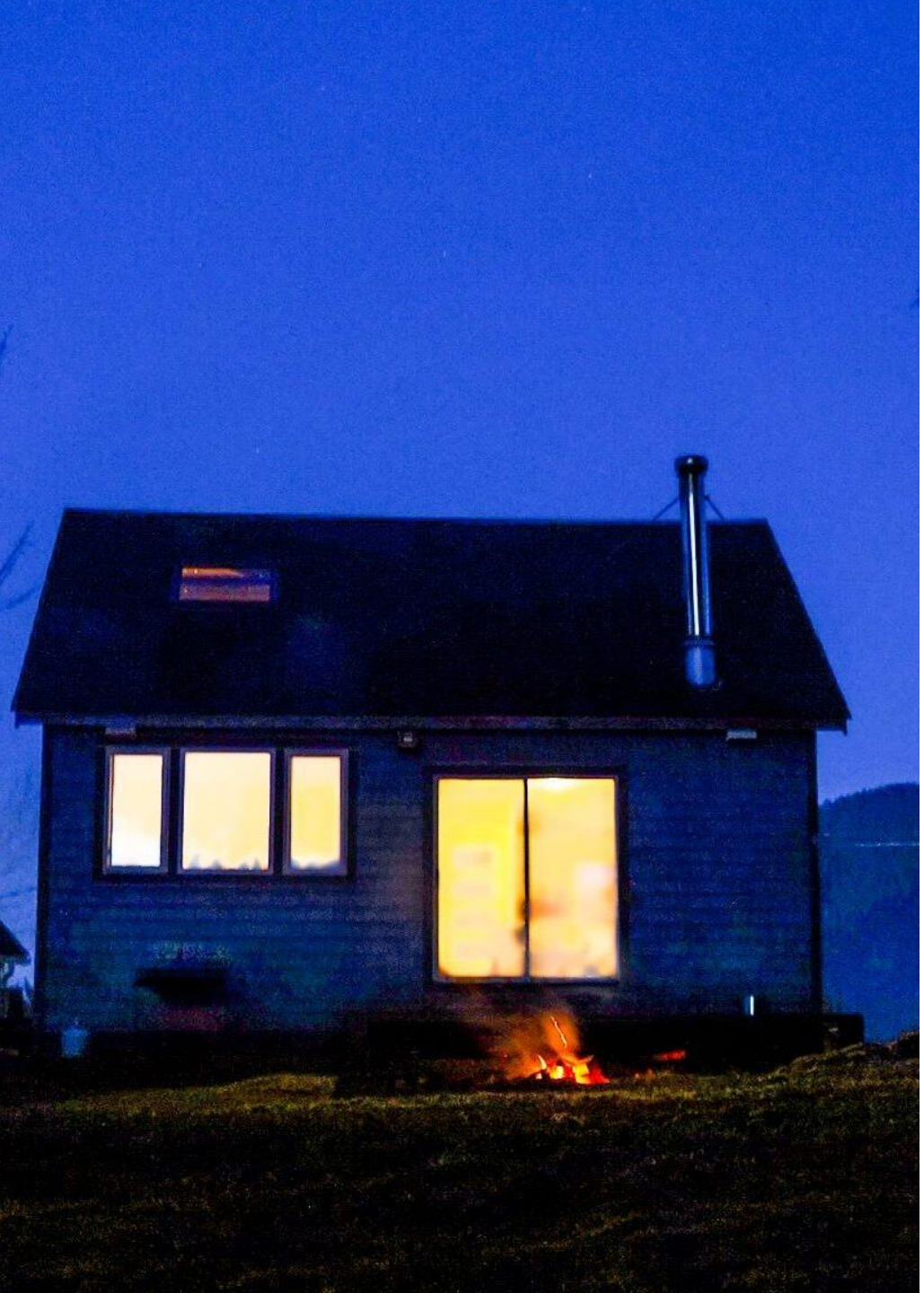
- Buy-in
- Collaboration
- Investment (public and private)
- Focus on life cycle costs



The difference between the terms equality, equity, and liberation, illustrated; © Interaction Institute for Social Change | Artist: Angus Maguire

Deep Emissions Retrofits

Access	Health	Comfort
Jobs	Air quality	Cooling
Affordability	Incentives	Justice



ecotrust canada

Equity, Electrification and Home Energy Retrofits in BC

Dylan Heerema, Senior Policy Advisor

March 30, 2022

ecotrust canada

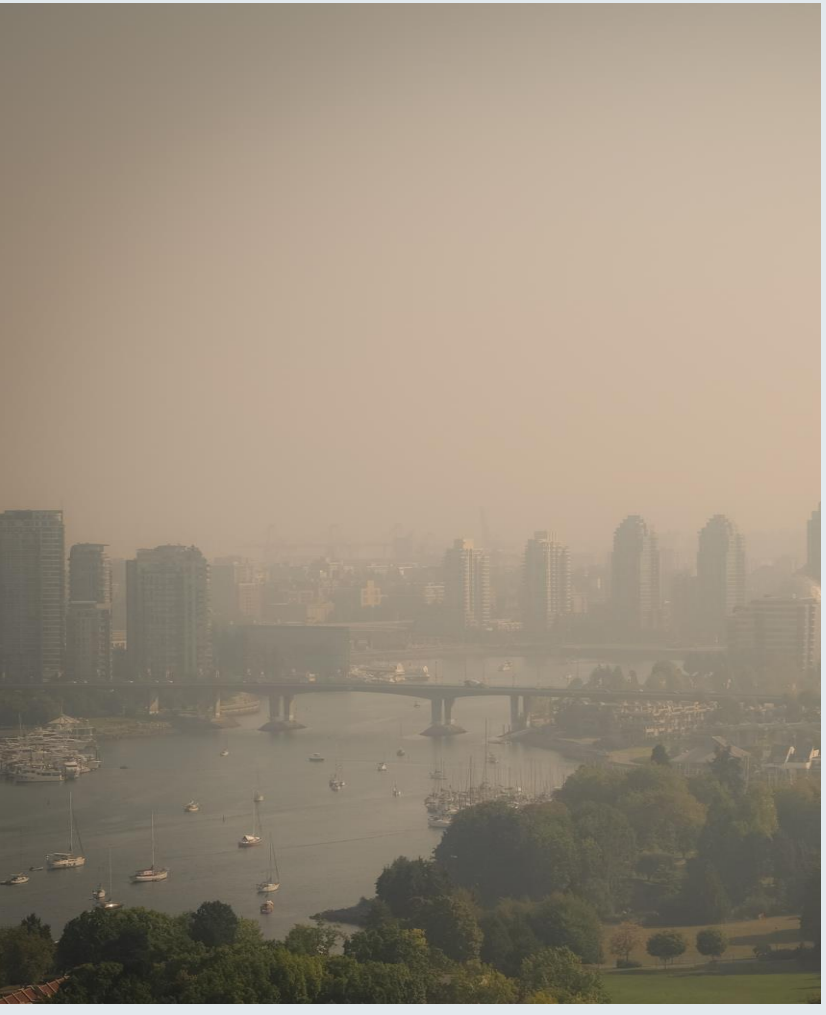
About Us

Ecotrust Canada has partnered with communities for 25 years, planting the seeds of systems change. Together, we build innovative, on-the-ground examples of an economy that provides for the essentials of life.

Our Community Energy team focuses on projects and policies that reduce the cost burden for communities that are facing energy poverty – due to a combination of poor quality housing, low incomes and lack of access to affordable energy sources.

Our community partners include the Heiltsuk Nation, Regional District of Mount Waddington, Cities of Powell River and Prince Rupert, Quatsino First Nation and ‘Namgis First Nation.

What is energy insecurity? Why does it matter?



ecotrust canada

Qualitatively: ‘Energy poverty’ is experienced by households that struggle to pay for basic energy services like cooking, lighting and heat

Quantitatively: Households spending more than **6%** of their after-tax income on home energy bills, twice the national median

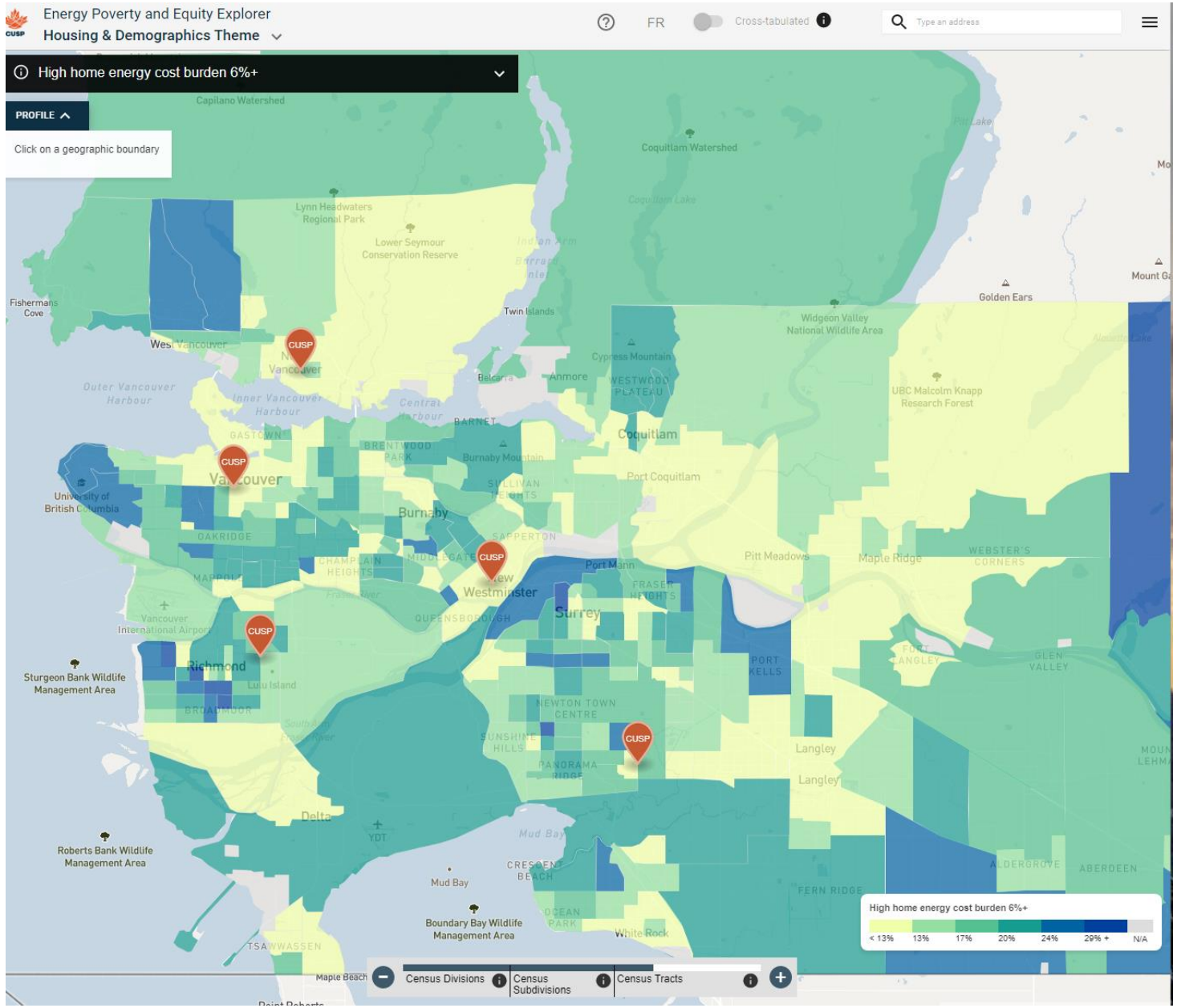
- **272,000 households in BC** [1]
- Both low and moderate income (LMI)

Consequences:

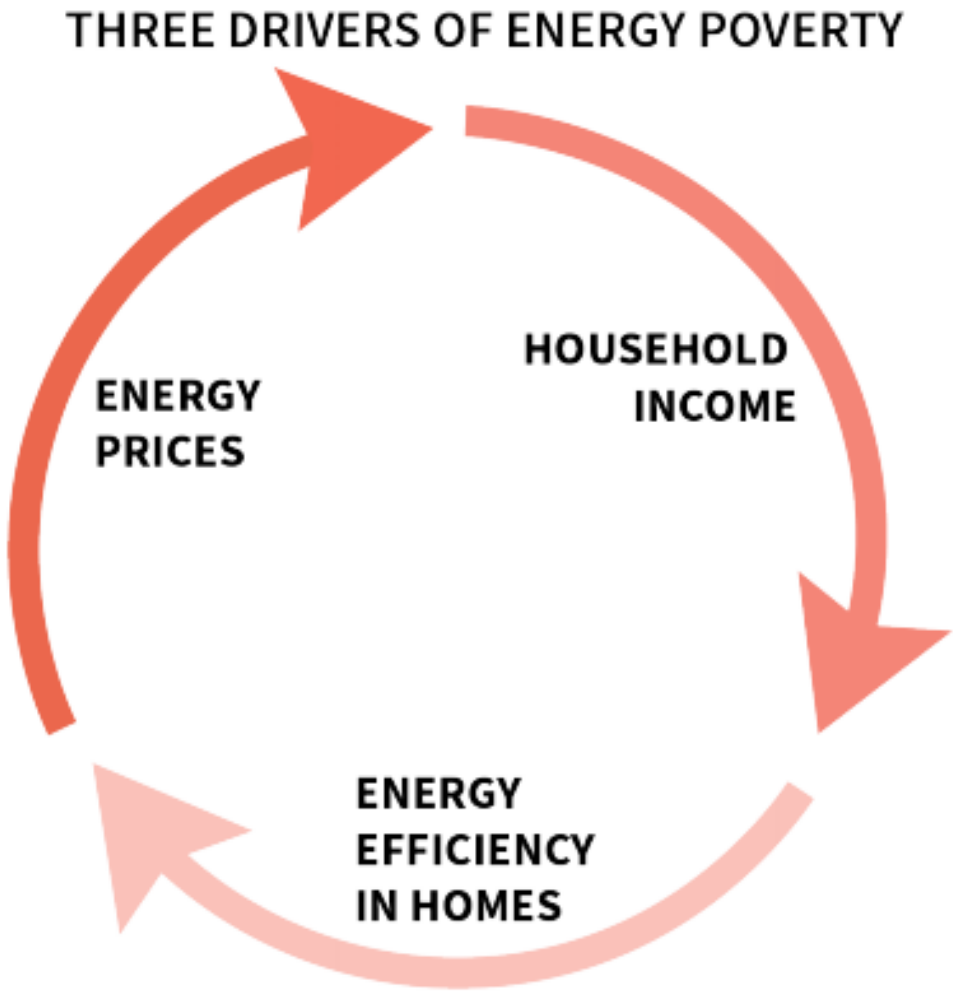
- Unaffordable energy bills
- Inadequate heating
- Inadequate ventilation
- Heat-related, cardiovascular, and respiratory illnesses [2]

Visualizing census data – Energy Poverty and Equity Explorer

http://energypoverty.ca



Drivers of energy insecurity



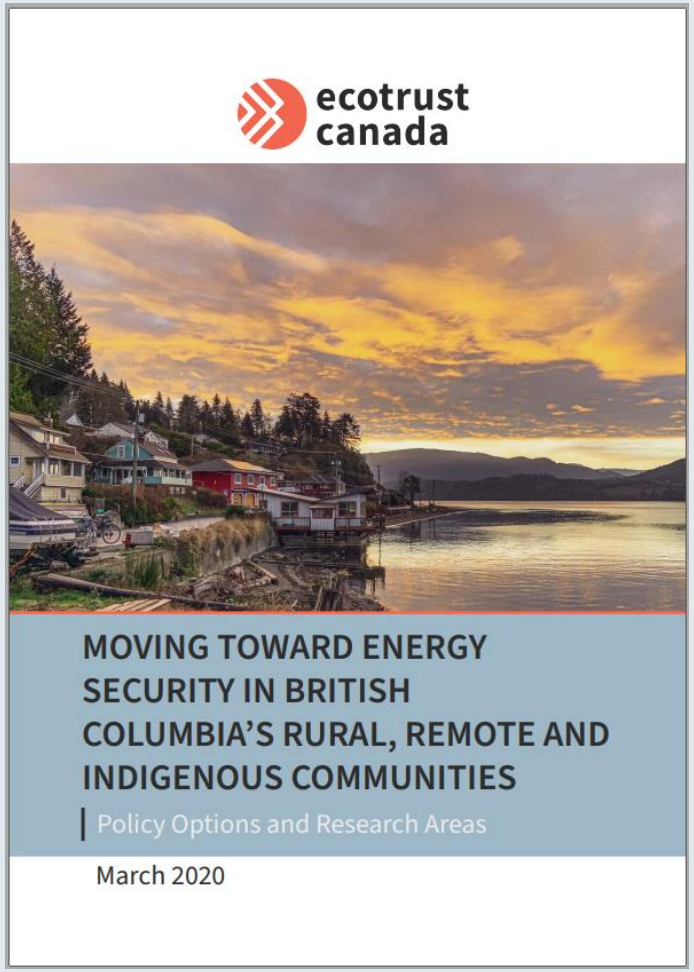
Equity and health implications of energy insecurity

- Recent immigrant, racialized and Indigenous households can be at greater risk of experiencing energy insecurity[3]
- Energy insecurity disproportionately impacts rural communities **– some pay up to 3x the provincial average.**
- These populations are more likely to live in inefficient, leaky and unhealthy housing, leading to higher instances of respiratory and cardiovascular disease, heat and cold-related deaths
- Why? Drafts, mould, moisture, poor air quality, underheating and overheating

The policy gap in BC

- We consider basic energy services, thermal comfort and healthy air as a human right
- Ensuring everyone can experience adequate heating, energy efficiency and air quality in their homes will contribute to better health outcomes and a more resilient society
- Unfortunately, BC does not have a unified policy direction or clear mandate specific to energy insecurity
- Our electrification incentive programs are reaching too many higher income households – we must shift to *equitable* electrification and deeper retrofits for LMI households

Big move 1: equitable electrification

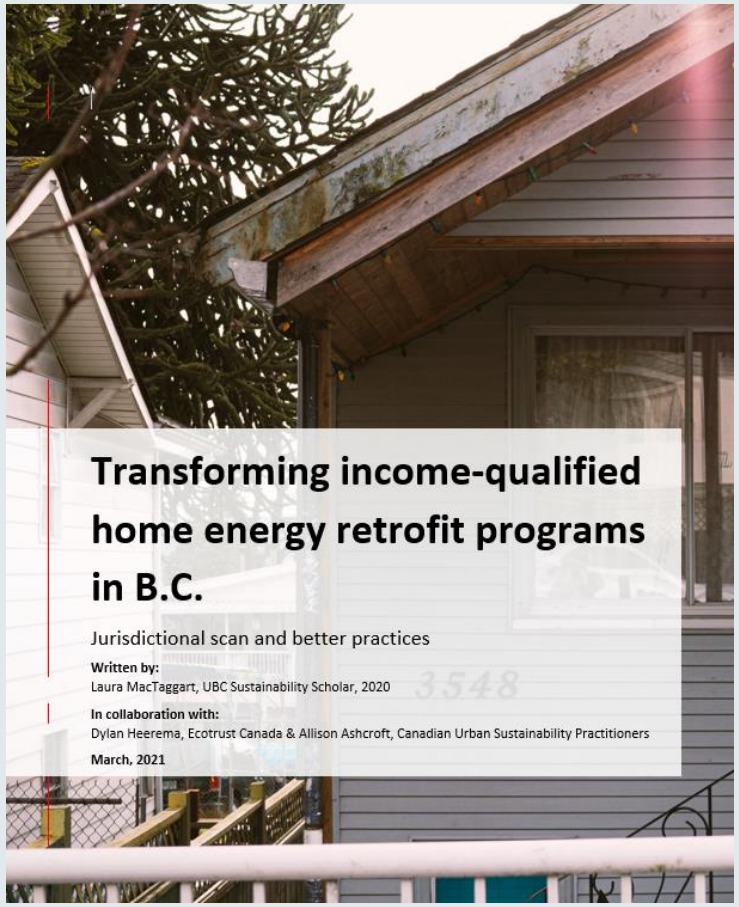


Read more

ecotrust canada

- Households heating with electric resistance pay the highest energy bills – **and do not have the same access to rebates e.g. when switching to a heat pump**
- Rental and multifamily units also face issues accessing incentive programs, most are for single family homes
- The province has a goal of electrification, but current BC Hydro rate structure penalizes heating with electricity
- Some households understandably choose natural gas as the most affordable option – incompatible with a habitable climate and future cost shocks
  - Increase carbon tax + regulations
  - End fossil fuel-siloed EE programs

Big move 2: evolve income-qualified programs



Read more

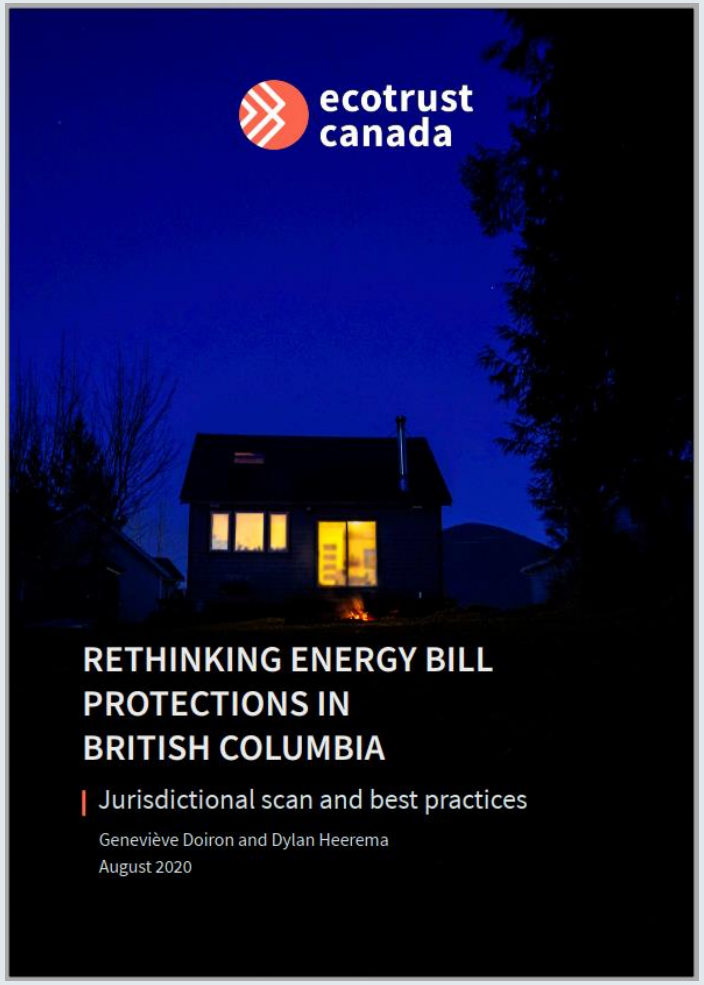
ecotrust canada

- **Traditional no-cost retrofit programs for LMI households have struggled to achieve widespread adoption or significant bill savings**

- BC Hydro's ECAP reaches 1-2% of eligible participants annually, with average savings of ~$100 per year[4]
  - The program has seen somewhat better results in multi-family, non-profit and social housing

- The new CleanBC Income Qualified Program seeks to address some of these issues, with enhanced rebates that cover 60–95% of upfront costs for deeper retrofits
  - Rebates paid directly to contractors
  - Still much greater amount available for homes switching from fossil fuel heating

Big move 3: go beyond electrification



Read more

ecotrust canada

- **Heat pumps are necessary:** Active cooling is likely to be a critical component of future climate equity
- **Heat pumps are not enough**: quality building envelope, addressing deferred maintenance are also paramount to health, comfort and safety
- **We need to stop incentivizing wealthy households to retrofit** – redirect taxpayer dollars to those that need them
  - Energy insecure households are more likely to experience climate impacts
  - Every avoided hospital admission is thousands of public dollars saved
- Some households will still need interim relief from high bills - BC Hydro's Customer Crisis Fund is a one-time safety net, not a sustained solution [5]

Big move 4: Provincial retrofit strategy

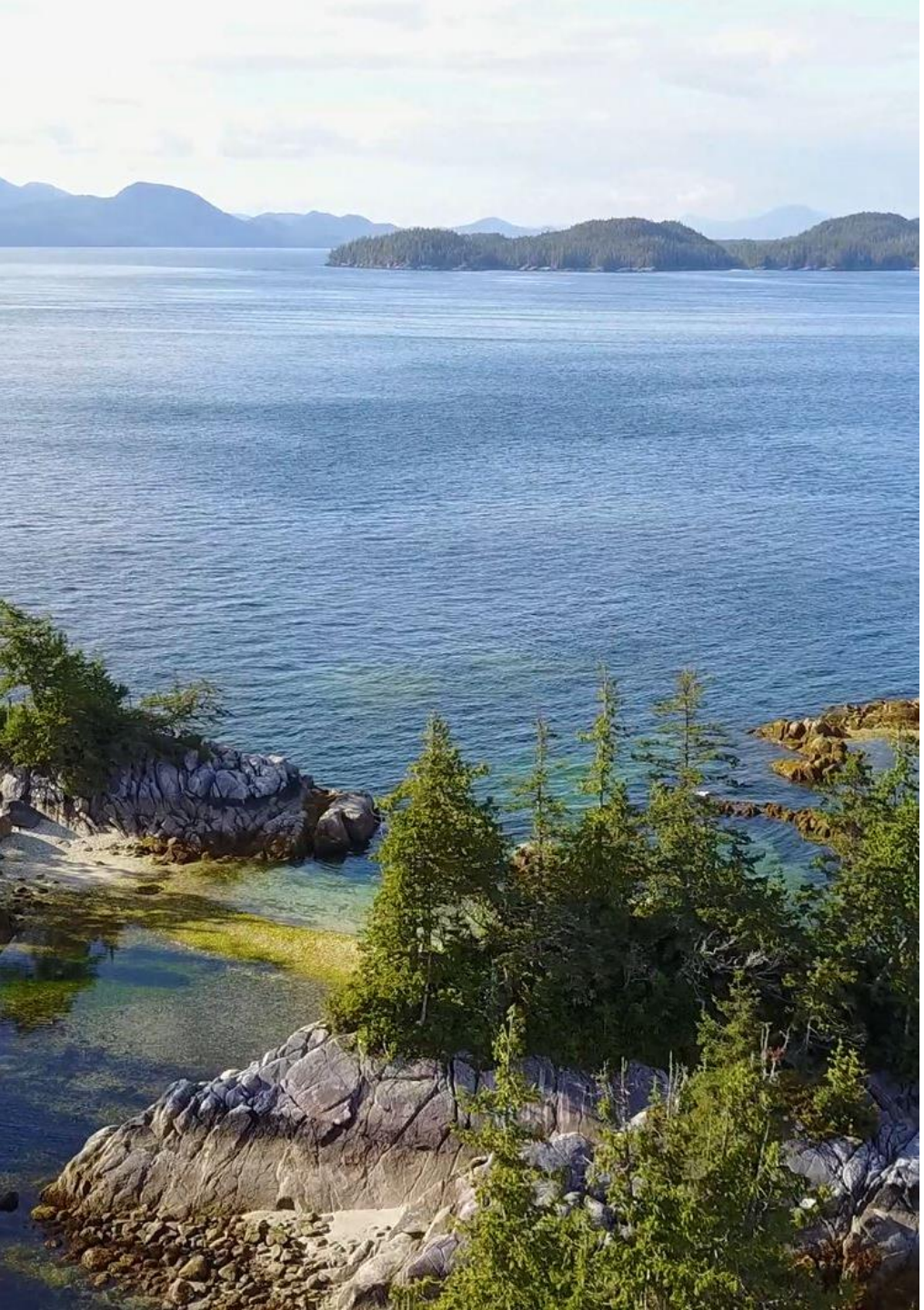
Read more

ecotrust canada

B.C. needs an ambitious housing renewal strategy, ensuring that every home and building is healthy, safe, and resilient in the face of threats like extreme heat, smoke and COVID-19

- All homes should be brought up to modern safety, ventilation and thermal comfort standards,
  - Prioritize public funds for low-income, vulnerable and renter households
  - Regulatory pathway for the rest
- Workforce development and ensuring quality installations is critical
- Need to reach 10,000 LMI homes each year until 2050 [6]
  - **~$100M** public funding per year
  - 50,000+ home retrofits required each year province-wide [7]
- Every $1M invested creates 8-10 jobs.[8]

Case Study: Haíłzaqv Heat Pump Project



2020-2021 Work

Fundraising:

- Raised **$2.2 million** from six different sources

Accomplishments:

- Installed **117 systems** between October 2020 and June 2021
- **Total of 154 homes** now with heat pumps

2020-2021 Benefits

Household Savings per Year:

- **$2,400** or **50% savings**
- 1,800 litres of oil
- 5 tonnes of GHG emissions

Project Lifetime Savings (15 years):

- $5.5 million
- Over 25,000 barrels of oil
- **Over 11,000 tonnes of GHG emissions**

Other Project Benefits

- Air-conditioning in extreme heat
- Reduced humidity and improved air quality
- Reduced calls to Housing Dept.
- Safer than burning oil
- Training local members in maintenance and repair

Contact

Dylan Heerema, P.Eng.
Senior Policy Advisor
dylan@ecotrust.ca
236-838-5607

Learn more

Energy Poverty and Equity Explorer Tool

https://energypoverty.ca/

Ecotrust Canada research

https://ecotrust.ca/priorities/energy/

ecotrust canada

References

1. https://energypoverty.ca/backgrounder.pdf

2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5571750/

3. https://nationalpost.com/news/canada/its-not-caucasian-canadians-who-most-struggle-with-energy-poverty-report-says

4. “On average, between F2012 and F2016, ECAP Basic participants saved between 642 and 899 kWh per year per home. These averages apply across all regions, building types, and space and water heating fuels.” from https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-filings/rra/2019-01-15-bch-d66-f2018.pdf , p. 19.
Participation in the ECAP Advanced Weatherization program has been “too low to enable statistical analysis”, see https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-filings/rra/2019-01-15-bch-d66-f2018.pdf , p. 11

5. Province-wide, BC Hydro rejected 64% of applications made to the Customer Crisis Fund during its first year. Eligibility for the program requires documentation of a qualifying temporary crisis and requires that an account be facing imminent disconnection. See: https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/regulatory-planning-documents/regulatory-filings/reports/2019-07-31-bchydro-customer-crisis-fund-evaluation-report-year-1.pdf

6. Based on an estimate of 272,000 BC households currently in energy poverty.

7. https://www.pembina.org/op-ed/retrofit-existing-buildings

8. https://www.pembina.org/reports/bc-green-building-jobs-2021-12.pdf

A Just Transition in Vancouver

George Benson –
Manager, Economic Transformation (Decarbonization and the Just Transition)

Vanessa Sun - Coordinator, Economic Transformation

VANCOUVER ECONOMIC COMMISSION

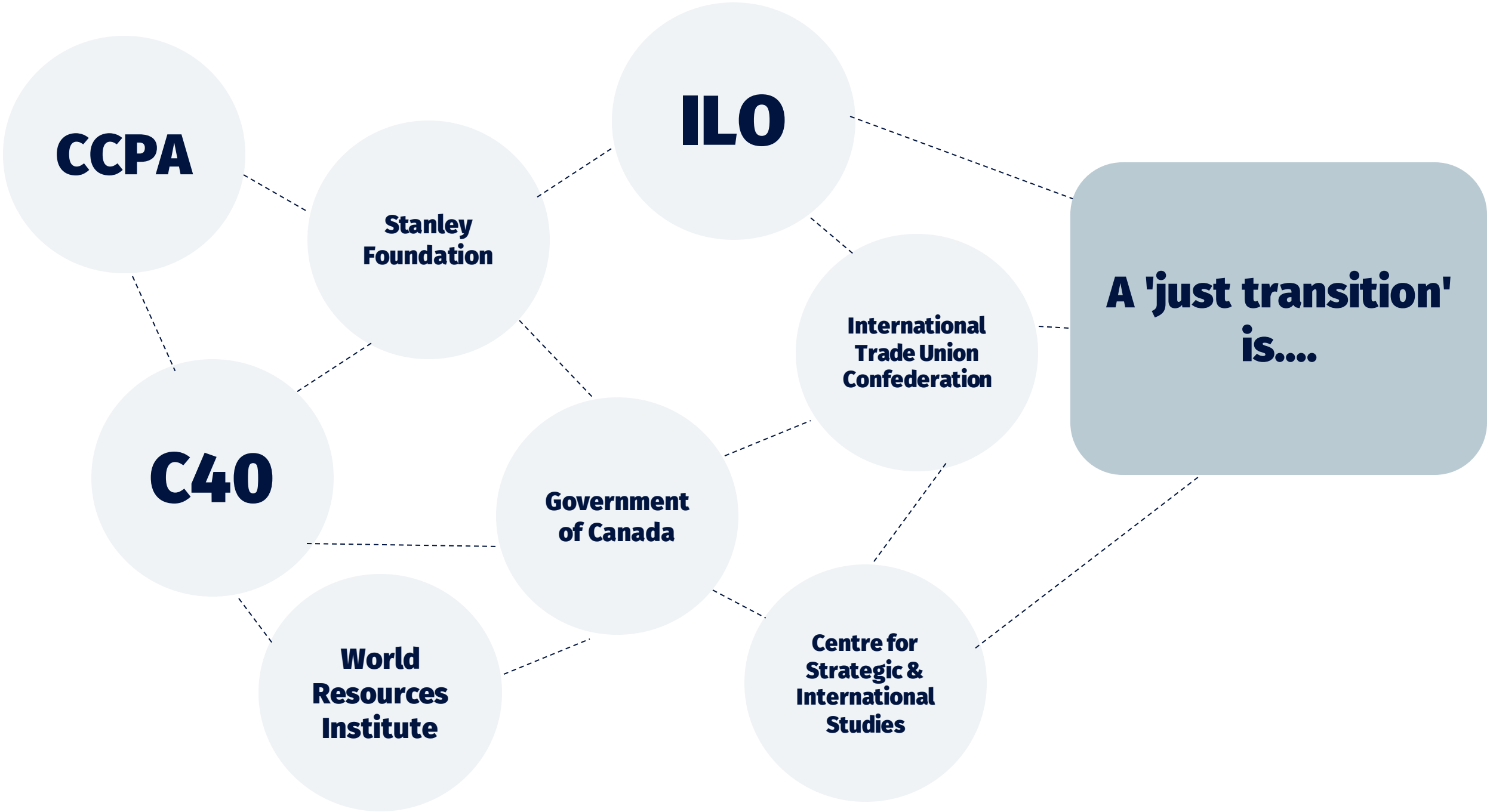
VANCOUVER ECONOMIC COMMISSION

Our Purpose

The Vancouver Economic Commission's purpose is to build a prosperous, inclusive, zero carbon and resilient local economy, competitively positioned in the global market.

A Just Transition

What is a 'just transition'?
Why does it matter?
BC's Workforce Readiness
What is VEC doing?
Examples of 'just transitions'
Call to Actions


CCPA
Stanley Foundation
ILO
International Trade Union Confederation
A 'just transition' is....
C40
Government of Canada
World Resources Institute
Centre for Strategic & International Studies

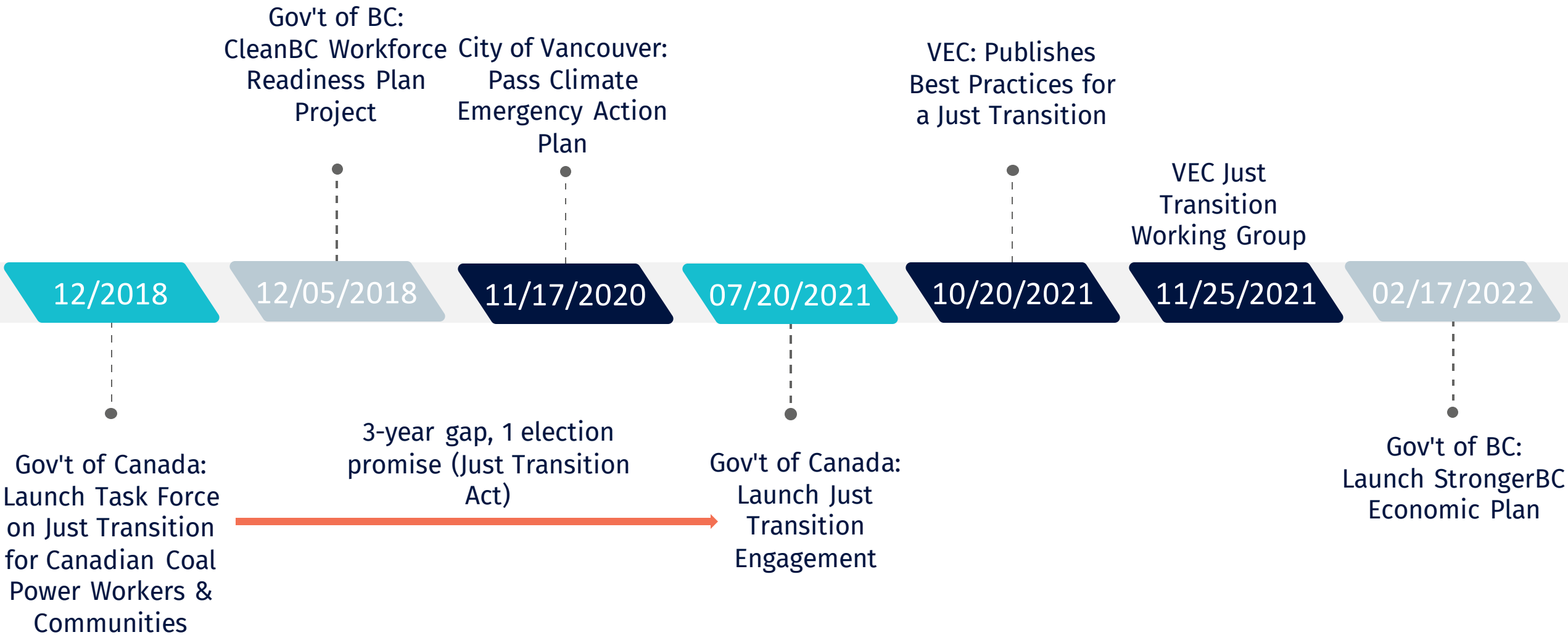
Working Definition of a Just Transition

A just transition is a **worker inclusive approach** that aims to **minimize the impacts of environmental policies on workers** in affected industries. Additionally, the just transition will move towards an equitable future, ensuring that **new opportunities in the "green economy"** will **include** those **previously excluded from the high-carbon economy.** A just transition is met when everyone has social protection, all jobs are decent, emissions are low / at zero, and communities are thriving and resilient.

"job losses are not an automatic consequence of climate policies, but the lack of investment, social policies, and anticipation."

-Rosemburg, 2010, International Trade Union Confederation

Brief Timeline: Just Transition Policies in Canada



BC's Workforce Readiness

ONE MILLION JOB OPENINGS

2021 – 2031 BC Labour Market Outlook

85,000

Skilled Trades Occupations

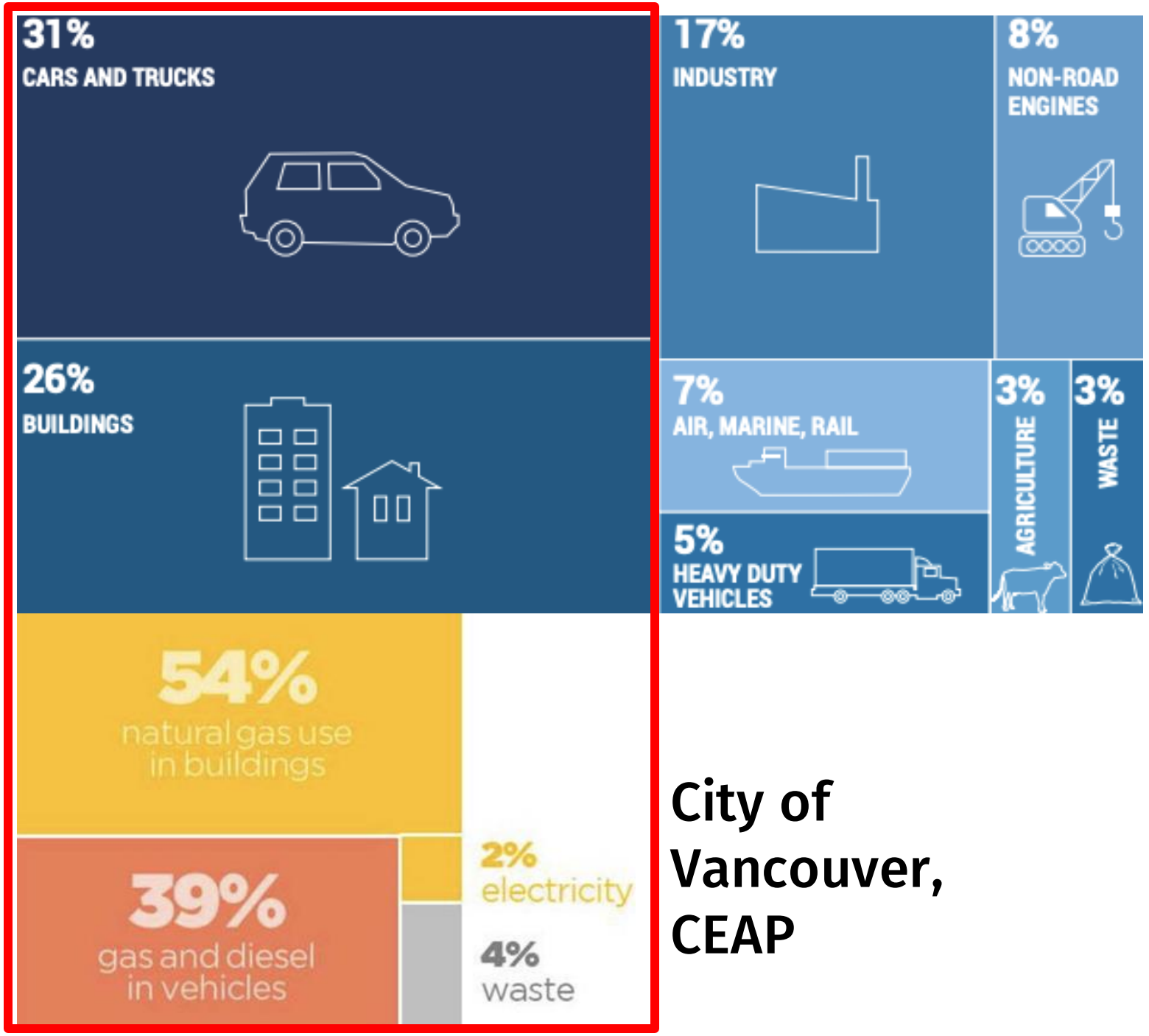
The IN-DEMAND TRADES occupations:

- Cooks
- Auto service technicians
- Construction trades helpers and labourers
- Hairstylists and barbers
- Carpenters
- Construction electricians
- Heavy equipment operators (except crane)
- Painters and decorators (except interior decorators)
- Welders and related machine operators
- Plumbers

111,000

STEM (tech) Occupations

Metro Vancouver, Climate 2050



City of Vancouver, CEAP

10-YEAR WORKFORCE OUTLOOK FOR BRITISH COLUMBIA

Source: Build Force Canada Construction & Maintenance Looking Forward

Net employment and GDP impacts from the low-carbon retrofit policy scenario.

	TOTAL JOBS (full-time equivalent) *2019-2039*			TOTAL GDP ($ millions) *2019-2039*		
	Direct	Direct & Indirect	Direct, Indirect & Induced	Direct	Direct & Indirect	Direct, Indirect & Induced
City of Vancouver	729	986	1,199	$ 1,374	$ 1,809	$ 2,256
Other Metro Vancouver	1,827	2,473	3,007	$ 3,446	$ 4,541	$ 5,665
Capital Region	851	1,153	1,400	$ 1,614	$ 2,132	$ 2,650
Thompson-Okanagan	1,010	1,369	1,663	$ 1,914	$ 2,526	$ 3,144
TOTAL	**4,417**	**5,982**	**7,269**	**$ 8,348**	**$ 11,009**	**$ 13,714**

Source: BC Retrofit Economic Impact Model

Source: Delphi Group BC Retrofit Code Economic Impact Study

Career Transition Tool

Looking for a new career?

Find out what careers you may be able to transition to based on your current occupation.

Explore your career options

Current occupation:

Enter job title, Keyword(s) or NOC

FIND CAREER OPTIONS

Informal / Invisible Workers

VEC's Actions

Past government efforts at transition were described by workers as **'throwing money at the problem'** with little foresight. Rather than waiting for each closure, government, industry, and unions need to take a proactive approach and work together to develop long-term plans that meet mutual needs.

-CCPA, 2015

Vancouver's Climate Emergency Action Plan (CEAP)

VEC will develop an economic plan to support businesses and workers in taking on climate action, and to:

"provide a just transition for workers impacted by climate action transition to ensure a healthy economy and clean environment can and should co-exist."

Literature Review

External Advisory Group

1-1 Interviews

Global Best Practices

Diverse definition, approaches, motivation

Need for permanent convening group

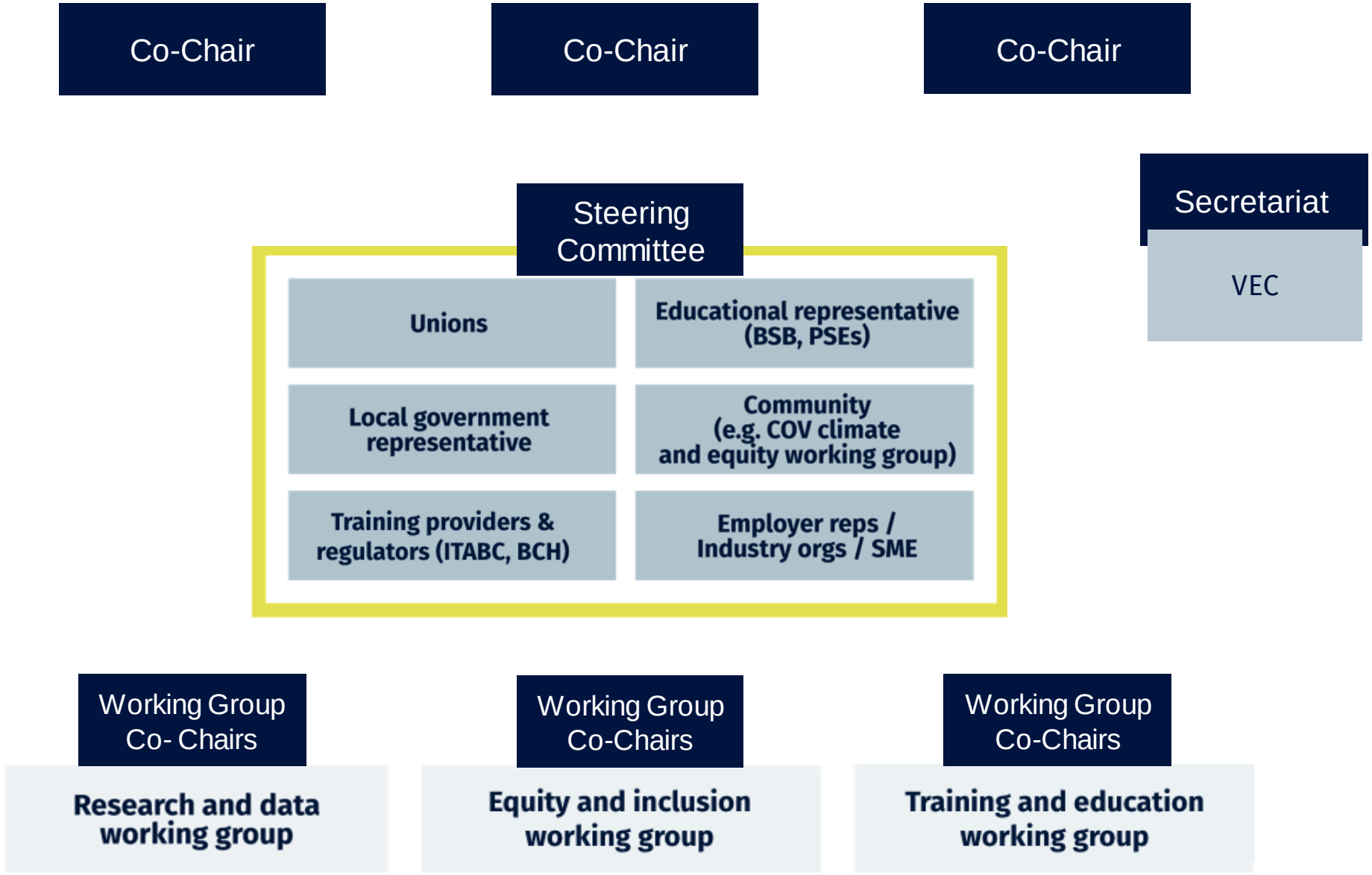
Existing work can be leveraged

Labour shortage in key industries

Just transition is a LONG process

VEC's Objective

To proactively respond to future labour market stresses created as the City of Vancouver moves towards a net-zero economy through co-creating a Just Transition Council with local stakeholders identified that will oversee future just transition research, programs, and coordination.

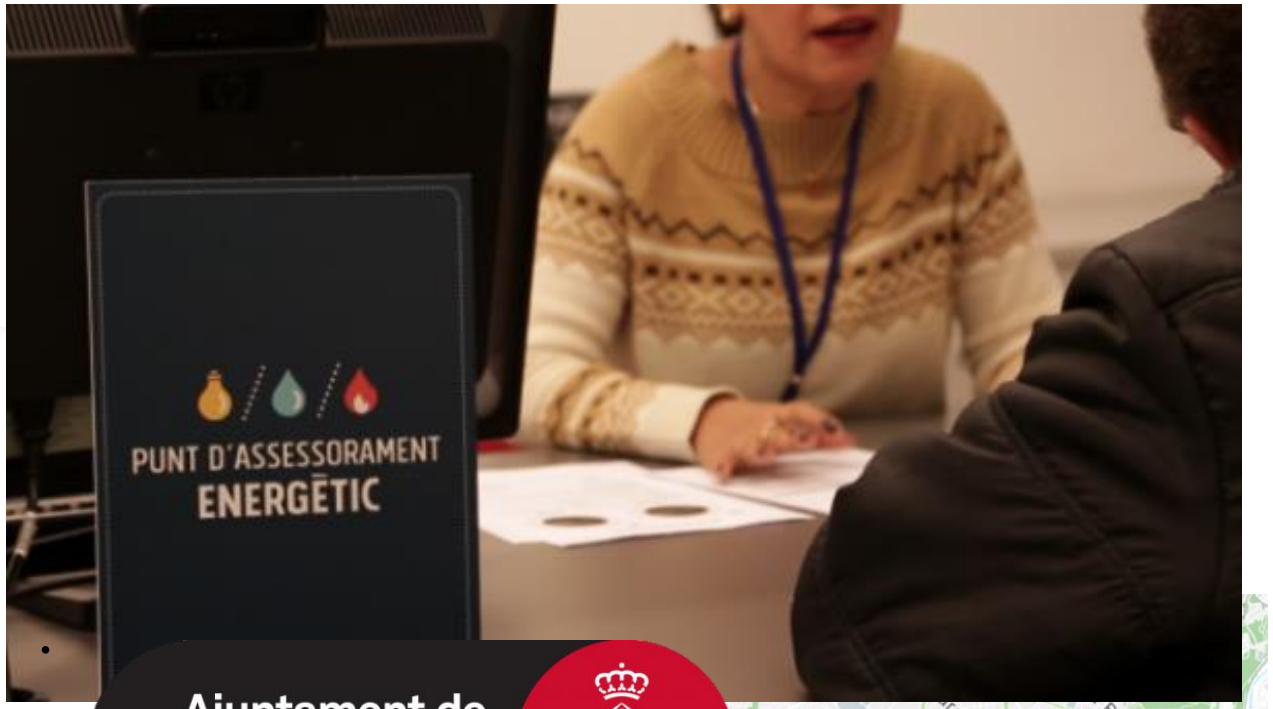

Co-Chair
Co-Chair
Co-Chair
Secretariat
VEC
Steering Committee
Unions
Educational representative (BSB, PSEs)
Local government representative
Community (e.g. COV climate and equity working group)
Training providers & regulators (ITABC, BCH)
Employer reps / Industry orgs / SME
Working Group Co- Chairs
Research and data working group
Working Group Co-Chairs
Equity and inclusion working group
Working Group Co-Chairs
Training and education working group

Global Best Practices - Cities

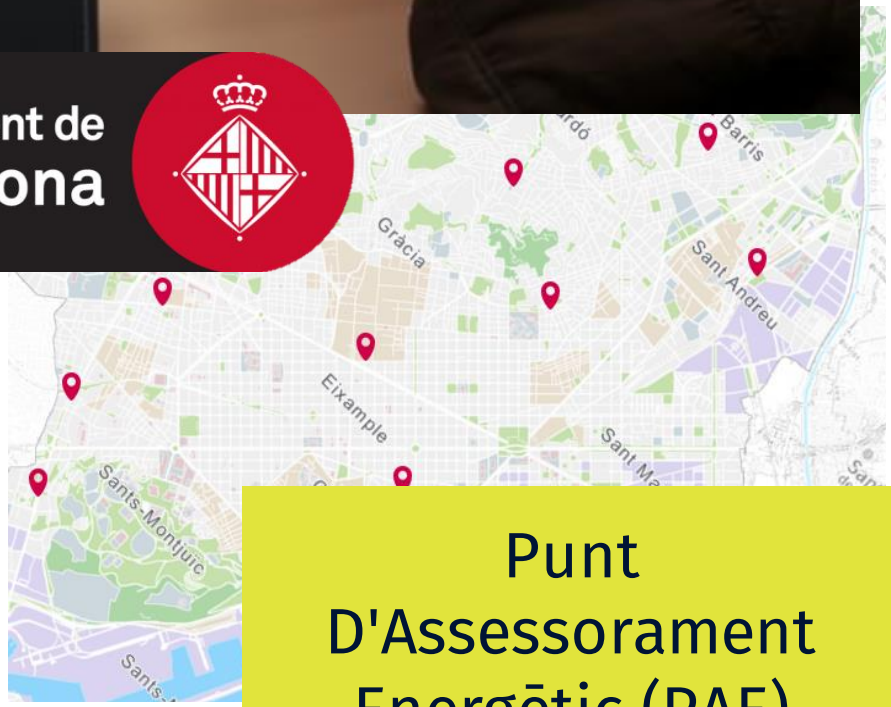
THE CITY OF PITTSBURGH

MARSHALL PLAN MIDDLE AMERICA

Marshall Plan for Middle America Roadmap (MP4MA)



Ajuntament de Barcelona



Punt D'Assessorament Energètic (PAE)

SEATTLE FOR A GREEN NEW DEAL

Seattle

Green New Deal Oversight Board

LOS ANGELES

County of Los Angeles
lacounty.gov

LA Just Transition Task Force

Back to Newsroom

Urban 20 mayors call on G20 leaders to invest in a green, just, and local recovery ahead of the G20 Summit

PRESS RELEASE September 2, 2021

- The Urban 20 Communiqué urges G20 leaders to accelerate climate action ahead of COP26 and invest in the core tenets of a green and just recovery.
- The U20 Communiqué calls for strengthening health systems and public services to ensure global and equitable access to vaccines.
- The Communiqué calls on the G20 to foster social cohesion and equity and to move towards inclusive and prosperous societies.

Cities from G20 countries, gathered as the Urban 20 (U20) met today for the U20 Mayors Summit 2021. The virtual meeting was hosted by the U20 Chairs, Virginia Raggi, Mayor of Rome and Giuseppe Sala, Mayor of Milan.

Call to Action

Business

- [ ] Understand what your readiness as a company is for the transition
- [ ] Draw on existing resources to future proof your workforce (e.g. Step Code Capacity Study)
- [ ] Use climate as your brand differentiator
- [ ] Talk to us on how to be involved in our summer Regional Just Transition Workshop

Call to Action

Government

- [ ] **Read up on what the just transition will mean for your local economy**
- [ ] **Talk to us and we can build the Regional Just Transition Council!**

BC HOUSING

[BC Housing Research Library]

CONSTRUCTION RESEARCH NETWORK

[Construction Innovation]

SCIUS Advisory

DELPHI GROUP

OMICRON A BETTER WAY.

ACKNOWLEDGEMENTS

BC Hydro

FORTIS BC™ Energy at work

[BC Step Code Capacity Building Study]

Quick Start Resources

Thank you!

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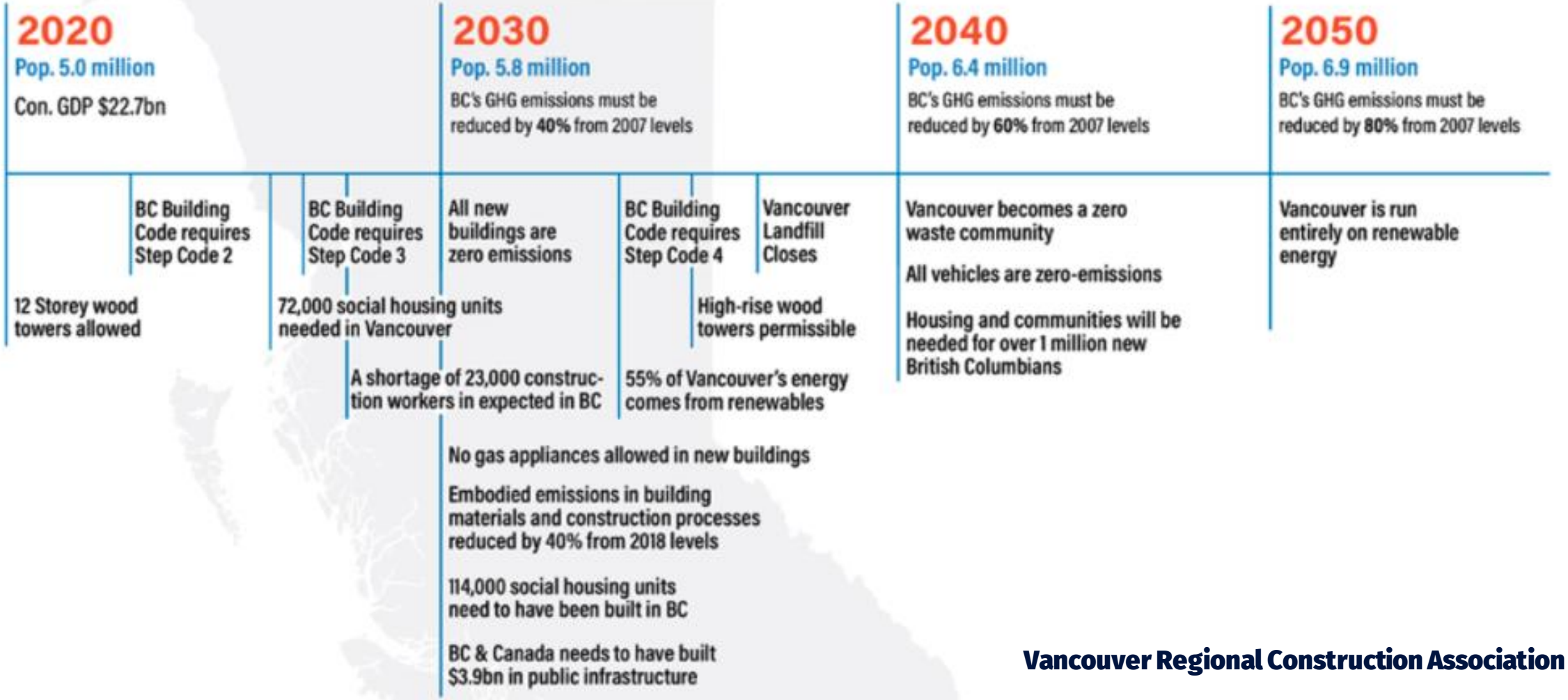
Vanessa Sun
Co-ordinator, Economic Transformation
vsun@vancouvereconomic.com

VANCOUVER ECONOMIC COMMISSION

@VanEconomic /VanEconomic vancouvereconomic.com

Construction is changing. Are you?

In a bid to tackle climate change, federal, provincial and local governments are transforming the way we build in British Columbia. Here's what the coming years will bring to our industry.



Vancouver Regional Construction Association (VRCA)

BLOC POWER

Intersectional Approaches to Climate Solutions

By Glenn Schatz, Bradford Parker, Valerie Shoates

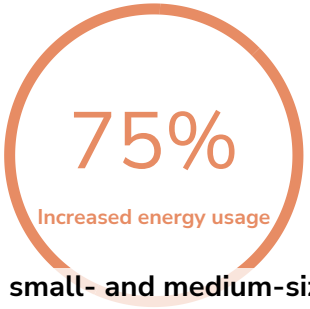
BlocPower Lunch & Learn

Presented on March 30th, 2022

BlocPower's mission is to make buildings smarter, greener, healthier, and more profitable. We do this by reducing fossil fuel consumption and pollution in building energy systems.

Why Building Electrification

- **Climate Change -** national, provincial and city governments have identified building electrification as a critical component of their climate action plans and have enacted policies to reduce fossil fuel use
- **Health** - indoor air quality, compounded by deferred maintenance, pandemic, wildfires and natural disasters
- **Equity** - directing benefits toward disadvantaged communities highlight gaps in building infrastructure
- **Financial incentives** - over 1,800 incentive programs now exist across the US to support owners in electrifying their heating, cooling and hot water
- **Green Workforce Development** - programs introducing electrification training



5 million U.S. small- and medium-sized buildings are outdated and inefficient, consuming 40% to 75% more energy than needed

30% more people experience sick building symptoms than those in green certified buildings

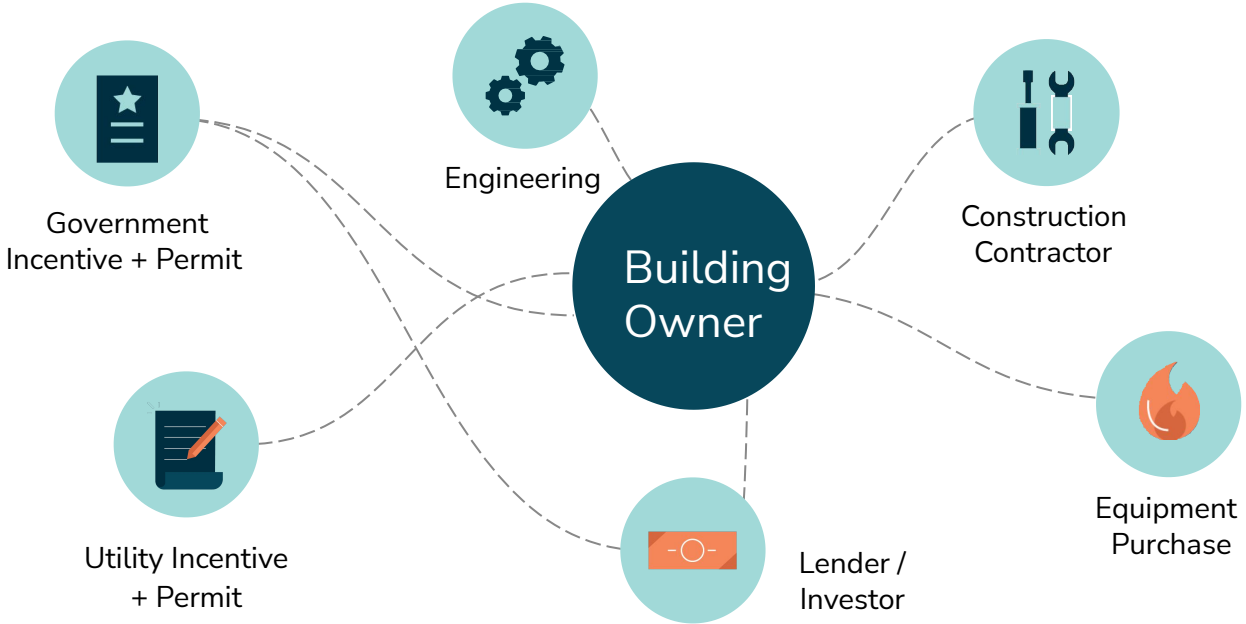
In Vancouver, estimates range from 54-60% of carbon emissions comes from the building sector.

Combustion of natural gas used for space heating and hot water equipment is the target for electrification.

Source: ScienceDirect & Climate Emergency Action Plan, City of Vancouver.

BlocPower Addresses Inefficiencies in the Marketplace

The problem: complexity



Fragmentation and disparate parties augment miscommunication and prevent collaboration and efficient project assessment.

This drives up costs, reduces profitability, and prevents **5 million SMEs** from upgrading.

80%

Project Cost Increase Potential

BlocPower's Software BlocMaps Overview

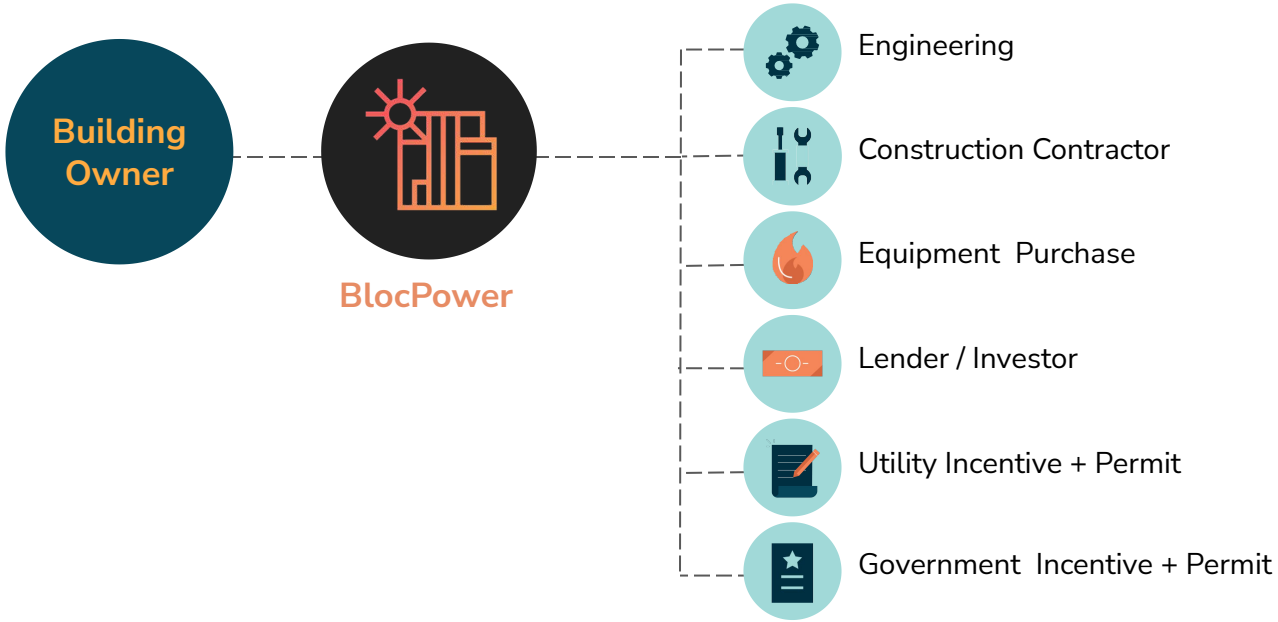
- BlocMaps includes building analytics and visualization tools to kickstart building electrification or energy efficiency program with an environmental justice focus

- Program simulation to prioritize project opportunities based on your goals, and model the impact and cost of applying upgrade measures to target buildings

- Shareable reports and maps make stakeholder engagement easy and compelling

BlocPower delivers a one-stop solution for building owners, working with local partners

The solution: a steward of the customer experience



Software streamlines project management and keeps costs low

Financial offering eliminates upfront cost & structures payments to match savings

An “all of the above” suite of electrification services allows all building owners to implement custom solutions

BlocPower Capabilities

Air source & ground source heat pumps; High SEER AC units

Heat pump hot water

Home appliances, + panel upgrades

LED lighting, insulation, air sealing, water measures

Project planning to put it all together

Remediation: Lead, mold, asbestos

Monitoring and control systems

Local Solar or Community Solar

Battery Storage

Incentive sourcing & financing to make it accessible

Multi-Family 8 Unit Walk-Up, Brooklyn NY

Heat Pump + Solar Installation

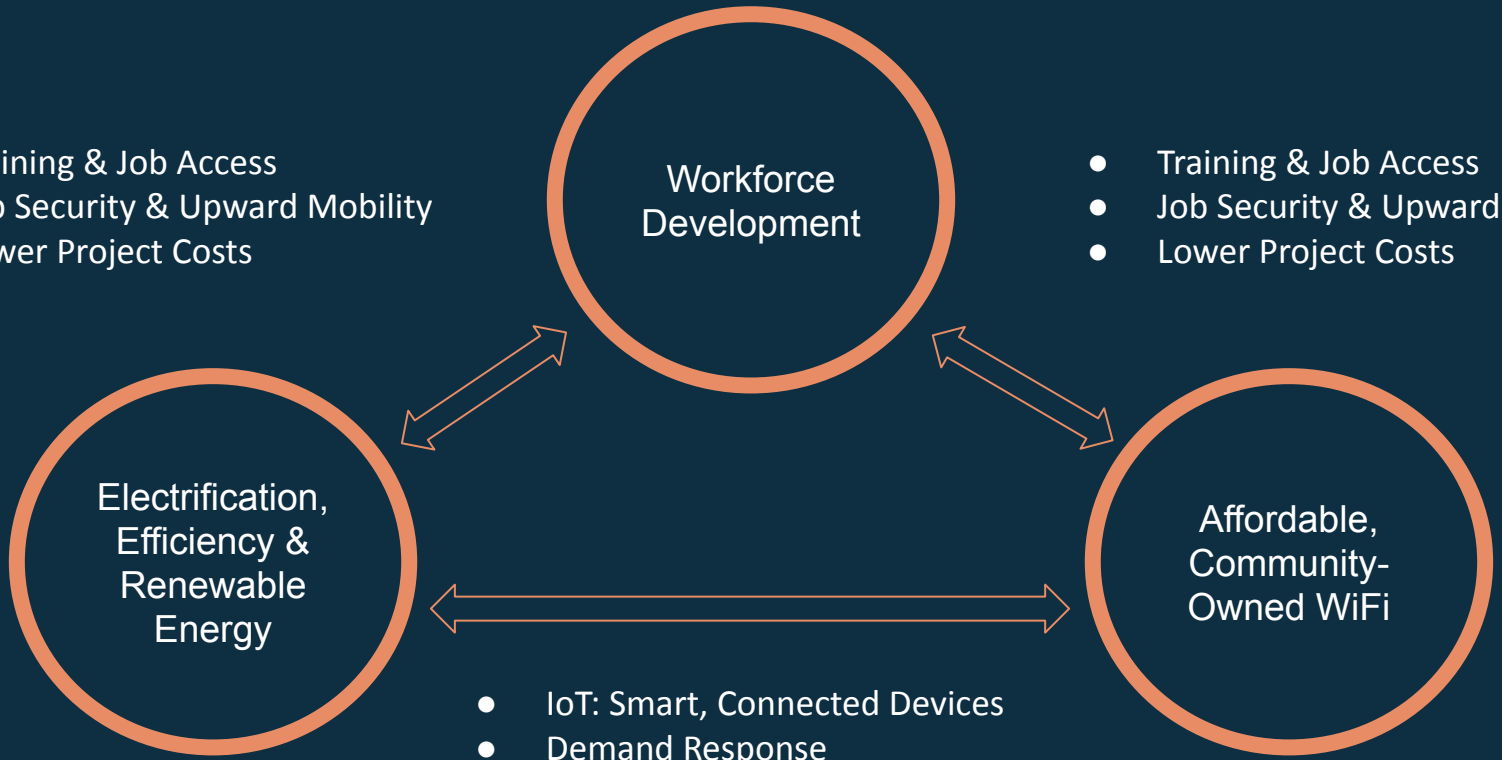
BlocPower worked on a quintessential NYC walk-up. A limestone apartment building located in Brooklyn, New York was experiencing all the common heating and energy issues; high energy bills, drafty windows, and uneven heating. Urban Homesteading Assistance Board (UHAB) connected the building and two sister cooperatives with Bloc Power, who completed an energy efficiency study, through Community Retrofit NYC. The study helped inspire the building to do a retrofit project.

The solar project was coordinated by Solar One and installed by Brooklyn Solar Works. Royalty Heating installed the heat pumps, which currently supplement the existing boiler. BlocPower provided technical assistance in every step of the project process, from start to finish.

Each apartment received 6 air source heat pump units and 2 outdoor units.
Total cost: $139,000
Solar: 84 panels installed to produce 25,460 watts of power
Solar price pre-incentive: $100,000
Solar price post incentive: $6,000

Intersectional Approach to Electrification

- Training & Job Access
- Job Security & Upward Mobility
- Lower Project Costs



- Training & Job Access
- Job Security & Upward Mobility
- Lower Project Costs

- IoT: Smart, Connected Devices
- Demand Response
- Advanced Controls

BLOC POWER

CIVILIAN CLIMATE CORPS

The BlocPower Civilian Climate Corps is a workforce development program building the workforce America needs to power the clean energy and building modernization revolution.

Our program aims to develop career opportunities for participants from historically left out environmental justice communities and fossil fuel industries, enabling them to complete energy retrofits to reduce emissions and make their local communities more green, healthy, and resilient.

Training Program

Technical Trainings for careers in climate tech

Foundational Training

- Basic Construction
- OSHA 40 (includes SST certification)
- Low Voltage Electrical Training

Specialized Training

- HVAC Systems
- Energy Auditing
- Community Wifi Installation
- Solar Installation

On-Site Training

- Work opportunities and hands-on experience at real job sites using technical training in green construction

Additional trainings may be made available based on customer needs

Wrap Around Services

Wrap-around services that set participants up for long term success

Career Readiness Training

- Resume Workshops
- Interview prep
- Financial Literacy
- Digital Literacy
- Business Communication

Case Management and Social Work

- Transportation
- Logistics & Supplies
- Childcare Support
- Counseling, violence interruption, trauma-based healing, social work resources

Equity in a Green Workforce Creates Impact

Benefits of BlocPower workforce development

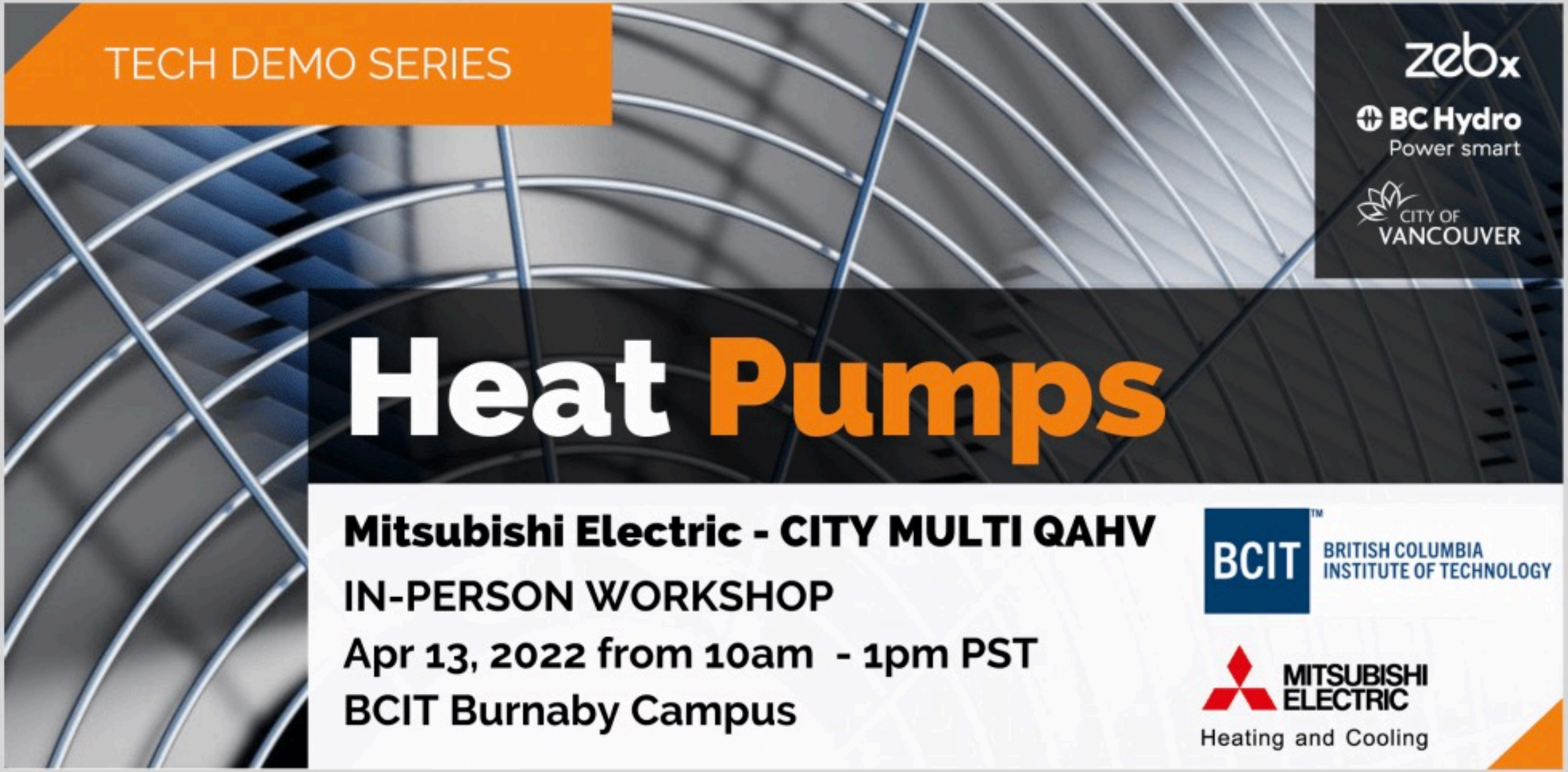
BlocPower's training model grows the labor force, recruiting trainees from community networks to create paid "on the job" training slots on crews completing

- Contractors expand their business to additional value-add tech
- Local workforce grows and deepens their green skillset
- Community benefits from money and jobs that stay local and flow
- Building owners and multifamily residents (overlapping significantly with LMI) are able to take advantage of health and wealth benefits

Building durable wealth in the community

THANK YOU


Decarb
Lunch Series
zebx
BC Hydro
Power smart
CITY OF VANCOUVER
SFU Parcel 21: Achieving Step 4 at Conventional Construction Budgets
Thu Mar 31, 2022,
from 12- 1pm PDT
Free Webinar I zebx.org
SFU
SIMON FRASER UNIVERSITY


TECH DEMO SERIES
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BC Hydro
Power smart
CITY OF VANCOUVER
Heat Pumps
Mitsubishi Electric - CITY MULTI QAHV
IN-PERSON WORKSHOP
Apr 13, 2022 from 10am - 1pm PST
BCIT Burnaby Campus
BCIT
BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY
MITSUBISHI ELECTRIC
Heating and Cooling

BCNPHA
BC Non-Profit Housing Association

Thank you!

zebx

B2E
Building to Electrification