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To: ["Direct to Mayor and Council - DL"](#)  
Date: 5/12/2022 6:07:05 PM  
Subject: Zero Emissions Economic Transition Action Plan (ZEETAP)  
Attachments: ZEETAP Council Backgrounder - 05-11-2022.pdf  
[05-2022-ZEETAP-Compressed.pdf](#)

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Dear Mayor and Council,

In November 2020, Council approved the Climate Emergency Action Plan (CEAP), and directed VEC to develop a Zero Emissions Economic Transition Action Plan (ZEETAP), with the primary objective to support businesses and workers in collectively achieving the City of Vancouver's commitment to reduce carbon emissions by 50% by 2030. Council also requested that VEC provide a report back, once the plan was completed.

I am pleased to share the recently completed Zero Emissions Economic Transition Action Plan, and a supporting backgrounder outlining the process, engagement, and alignment to COV's priorities and processes.

Note that ZEETAP will be referenced in the upcoming Green Buildings-related reports, coming to Council on May 17, so this email is timely context:

- ☐ Climate Emergency By-law and Policy Updates Applicable to New Buildings - RTS 14981
- ☐ Annual Carbon Pollution Limits for Existing Large Commercial and Multifamily Buildings RTS 14231
- ☐ Climate Emergency: Existing Detached Homes Update RTS 14232
- ☐ Non Market Housing Climate Resilient Retrofit Grant RTS 15111

By way of an overview, ZEETAP defines 25 targeted action areas, that supports the CEAP's goal of reducing city-wide emissions by 50% by 2030, by six directions to prioritized economic challenges which are focused on businesses and workers:

1. Make climate solutions and their impacts just and equitable
2. Make it easier to get climate information
3. Make it easier to access and buy climate solutions
4. Make climate solutions more affordable
5. Make climate solutions more profitable
6. Make climate solutions scale

The 25 actions will be the responsibility of VEC, industry and key partners and the majority are already underway or in the planning stages, with resources identified.

Should you have any questions or would like to learn more, please do not hesitate to reach out to Eleena Marley ([emarley@vancouvereconomic.com](mailto:emarley@vancouvereconomic.com)).

Best,  
Paul

**Paul Mochrie** (he/him)  
City Manager  
City of Vancouver



The City of Vancouver acknowledges that it is situated on the unceded traditional territories of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səliłwətał (Tseil-Waututh) Nations.

# Backgrounder

May 11, 2022

## Overview

In November 2020, Council approved the Climate Emergency Action Plan (“CEAP”) and directed VEC to develop a Zero Emissions Economic Transition Action Plan. This memo provides an overview of the action plan’s progress and its alignment with key City processes, such as the proposed regulations for Carbon Pollution Limits in Existing Buildings soon coming forward to Council.

The Council-approved primary objective of ZEETAP is to define and implement specific prioritised actions that are led by VEC, industry and/or key partners that support businesses and workers in collectively achieving the City of Vancouver’s commitment to reduce carbon emissions by 50% by 2030.

In addition to this broad vision, VEC’s ZEETAP Team and External Advisory Group (EAG) identified four economic goals contributing to the overarching vision of halving emissions:

1. Maximizing economic opportunities of climate action
2. Minimizing challenges and costs of taking climate action
3. Accelerating voluntary action to address climate change
4. Championing equity and justice in all aspects of climate action and economic development

The responses to these goals are structured at three levels:

- **Directions:** 6 statements that guide the intended outcomes in areas of work related to the project lifecycle
- **Actions:** 25 distinct projects or programs to support the directions over three years, subject to resource availability and partnering with other stakeholders in the community
- **Activities:** annual work items for VEC and partners to support each action. While directions and actions build upon one another, all of ZEETAP is guided by the first direction to build equity and justice in the economy as a whole as an essential part of climate action.

The plan is structured around a theory of change that builds on policy and regulatory shifts, and seeks to address economic challenges across a range of integrated thematic areas (“Directions”) that solve problems along businesses’ project lifecycles.



The six Directions identified by VEC and the External Advisory Group include specific actions that VEC will undertake between 2022 and 2025 in partnership with local industry and stakeholders:

- **Direction 1** - Make Climate Solutions and their Impacts Just and Equitable  
Embed equity and justice across all ZEETAP activities and create new systems and institutions to work directly with equity-deserving populations.
- **Direction 2** - Make it Easier to get Climate Information  
Remove barriers standing in the way of organizations understanding challenges or potential solutions when it comes to decarbonizing their work.
- **Direction 3** - Make it Easier to Access and Buy Climate Solutions – remove barriers and build collective, scalable solutions for organizations to access and buy the right types of climate solutions for their context.
- **Direction 4** - Make Climate Solutions More Affordable – reduce the cost, through new programs and collaborations, as well as policy and regulatory advocacy, of buying climate solutions.
- **Direction 5** - Make Climate Solutions More Profitable – enhance markets’ understanding of the positive value of climate solutions and the increased financial and business risk of climate endangering activities
- **Direction 6** - Make Climate Solutions Scale – create systems and initiatives that support the spreading of climate action initiatives across the entire economy

## Overview of the Directions and Actions

The Directions, Actions, and Activities of ZEETAP were co-developed by the VEC’s ZEETAP team and the External Advisory Group, integrating input from interviews, research, and other engagement-related inputs.

The following 6 Directions and associated Actions will be resourced and implemented through VEC, industry and other key partners working together collaboratively.

<b>DIRECTION 1</b>	<b>Make climate solutions and their impacts just and equitable</b> – embed equity and justice across all ZEETAP activities and create new systems and institutions to work directly with equity-deserving populations.
D1A1	Use a framework and review process to embed equity in all ZEETAP actions
D1A2	Create a Just Transition Council that will oversee and coordinate climate-related capacity building in the workforce
D1A3	Work with local justice, equity, diversity, and inclusion practitioners to increase diversity in the sustainability industry
D1A4	Translate relevant climate information materials for diverse business owners

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<b>DIRECTION 2</b>	<b>Make it easier to get climate information</b> – remove barriers standing in the way of organizations understanding challenges or potential solutions when it comes to decarbonizing their work.
D2A1	Curate and amplify business-related resources on climate action across networks and hubs
D2A2	Undertake a regional Business Energy and Emissions Profile (BEEP) of Metro Vancouver’s businesses and use this to help strategize on action areas, while also promoting the region for investment
D2A3	Develop sector-focused decarbonization guides that help business owners act in their chosen sectors
D2A4	Develop resources to help teachers better prepare students for the green economy
D2A5	Develop economic forecasts and market assessments in critical sectors to identify opportunities and celebrate economic opportunities created by climate action
<b>DIRECTION 3</b>	<b>Make it easier to access and buy climate solutions</b> – remove barriers and build collective, scalable solutions for organizations to access and buy the right types of climate solutions for their context.
D3A1	Develop Industry Working Groups to support conversations about shared challenges and opportunities, and pursue collective action
D3A2	Develop an annual report on climate action regulatory barriers for sharing with all levels of government to reduce challenges for businesses’ decarbonization
D3A3	Support and advocate for streamlining of large-scale procurement through research, pilot projects and advocacy
D3A4	Develop plans to strengthen supply chains for key decarbonization products and services
<b>DIRECTION 4</b>	<b>Make climate solutions more affordable</b> – reduce the cost, through new programs and collaborations, as well as policy and regulatory advocacy, of buying climate solutions.
D4A1	Create new industry coalition and/or programs to pursue bulk-buying of high-value decarbonization technologies
D4A2	Research and advocate for new financing solutions for business decarbonization
D4A3	Share methods for technology de-risking for promising decarbonization
<b>DIRECTION 5</b>	<b>Make climate solutions more profitable</b> – enhance markets’ understanding of the positive value of climate solutions and the increased financial and business risk of climate endangering activities.
D5A1	Create a coordinating structure – a “Climate and Economy Hub” – for conversations and action around climate finance in BC to support the development of a roadmap of public and private action to 2030
D5A2	Advocate for valuation practices in corporate finance – including real estate – that recognize the risks of inaction on climate change and the true value of climate solutions, with special attention to nature-based solutions

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<b>DIRECTION 6</b>	<b>Make climate solutions scale</b> – create systems and initiatives that support the spreading of climate action initiatives across the entire economy.
<b>D6A1</b>	Develop and support new and improved ways of amplifying the successes of climate leaders
<b>D6A2</b>	Develop a Youth Green Economy Corps that can catalyze and amplify climate action across the economy
<b>D6A3</b>	Promote investment opportunities in Vancouver that advance climate action
<b>D6A4</b>	Support the promotion of Vancouver as a destination for sustainability-related events
<b>D6A5</b>	Use international networks, such as C40, and events such as the UNFCCC's COPs, to share Vancouver's successes and economic opportunities

## Why an economic plan for climate action?

Climate change is the defining economic issue of the 21st Century. Actions to address climate change will fundamentally shape every scale and sector of economic activity humans partake in, including within Vancouver's city limits. In 2021, the global reinsurance house **Swiss Re** estimated that inaction on climate change could lead to global GDP declining by 10% by 2050 if temperature rises exceed 2°C above pre-Industrialization. Even in a world of 1.5°C of warming, global economic output will still be 4.2% lower than it would have been with no warming at all.<sup>1</sup>

While the local numbers of this are less defined, the takeaway is clear: economic consequences will be severe without action across the entirety of the economy. ZEETAP works to amplify existing policy and regulatory work while using economic development levers to protect against these risks, and open up new opportunities.

## Why the Vancouver Economic Commission?

ZEETAP builds on the decade of experience VEC has spent working on Vancouver's green economy and capitalizes on the unique tools and perspective that economic development brings to planning. The plan integrates intimately with existing city staff work and the capacities of local businesses and workers. When Vancouver's Greenest City Action Plan (GCAP) was first under development in 2009, every type of stakeholder – from Council, to staff, to community members – was adamant that the plan's success relied on a well-integrated economic development function.

GCAP's Green Economy Goal focused on building Vancouver's reputation as a global leader in green economic development. This goal area, assigned to VEC, included targets to double both the number of green jobs and the number of businesses greening their operations. From 2011–2021, VEC's programs and activities delivered unique and innovative interventions to help realize these goals:

- **Small business engagement** – thousands of businesses engaged through workshops, seminars, training sessions, and other projects and programs
- **Green and Digital Demonstration Program (GDDP)** – now expanded at a regional level as **Project Greenlight**, this program has helped dozens of local entrepreneurs demonstrate and commercialize their sustainability innovations

<sup>1</sup> Swiss Re Institute. The Economics of Climate Change: No Action Not an Option. (April, 2021). Accessed from: <https://www.swissre.com/dam/jcr:e73ee7c3-7f83-4c17-a2b8-8ef23a8d3312/swiss-re-institute-expertise-publication-economics-of-climate-change.pdf>



- **Investment Attraction** – engaged hundreds of global corporate leaders in sustainability and achieved numerous successes in attracting new players to the Vancouver ecosystem to advance shared sustainability outcomes. VEC is now transitioning the majority of this work to Invest Vancouver
- **Research and Market Intelligence** – the publication of dozens of reports on cutting-edge economic issues and market opportunities. For instance, the **2019 Green Buildings Market Forecast** visualized billions of dollars of economic opportunity as a result of climate action policy
- **Capital Mentorship** – supporting dozens of hundreds of businesses in acquiring first-time or scale-up financing, including, most recently, the extremely successful **Angels for Climate Solutions** program.

As a result of this work, the number of businesses greening their operations more than quadrupled in Vancouver from 2011–2021, growing from one in every 20 businesses to one in five. The number of green jobs – as measured through VEC’s first-of-its-kind methodology – almost doubled (+87%). The numbers prove the depth and vibrancy of Vancouver’s economic potential to address climate change, the readiness of many players in the economy to capitalize on climate action, and the critical role of the economy itself.

## Stakeholders and Engagement Involved So Far

The ZEETAP project team used a blend of past work and engagement methods, as well as conducting net-new consultations. These included:

- Leveraging many existing climate policy consultation processes, including **CEAP**, **Climate 2050**, the **BC Hydro Electrification Plan**, the development of the **Metro Vancouver Zero Emissions Innovation Centre (ZEIC)**, and many others
- Forming a diverse ZEETAP External Advisory Group
- Conducting over 30 interviews with local stakeholders and partners (industry associations, small, medium enterprises, and global thought leaders)
- Consulting the City of Vancouver’s Climate and Equity Working Group,
- Participating in City of Vancouver’s internal Climate Emergency Director’s Forum (CEDF)
- VEC has submitted and is awaiting a request for engagement with Host Nations, namely the Musqueam, Squamish and Tsleil-Waututh Nations

For more comprehensive details on our engagement, please refer to Appendix 1 (p. 31) of the attached plan.

## How will the plan advance equity and justice?

In alignment with the Vancouver Plan’s focus on equity and the equity principles of CEAP, ZEETAP’s first area of work is to embed equity and justice across all work in the plan by using a lens approach for Justice, Equity, Diversity, and Inclusion (JEDI) on each project. The plan subsequently develops several large-scale, equity-specific actions at multiple levels of the economy. While Directions and Actions build upon one another, all of ZEETAP is guided by the first Direction to build equity and justice throughout the plan and the economy.



The Actions range from the formation of a Just Transition Council to support dialogue and action between workers, businesses, and government. It also includes an expectation to better interface with diverse business owners and worker communities to ensure that climate materials are culturally appropriate and translated. Additional activities may emerge over the course of the plan's implementation.

## **Next Steps**

Now that the Action Plan is complete, VEC and partners will begin the process of scoping, securing funding and initiating or continuing ZEETAP's first prioritized projects. Initial areas of work for the remainder of 2022 will include:

- Working to develop a Just Transition Council to bring together relevant partners to address workforce and equity issues related to climate action
- Continuing to support the City's Green Buildings team on issues related to industry capacity building and retrofit financing
- Expanding the membership and number of projects supported within VEC's Project Greenlight program
- Continuing to work and build new relationships with industry associations and multi-stakeholder groups, such as the Vancouver Maritime Centre for Climate (VMCC) or the Vancouver Hydrogen Hub working group

Going forward, VEC will continue to work with COV's Sustainability Department to integrate ZEETAP into overall CEAP reporting.

# ZEETAP

## Zero Emissions Economic Transition Action Plan



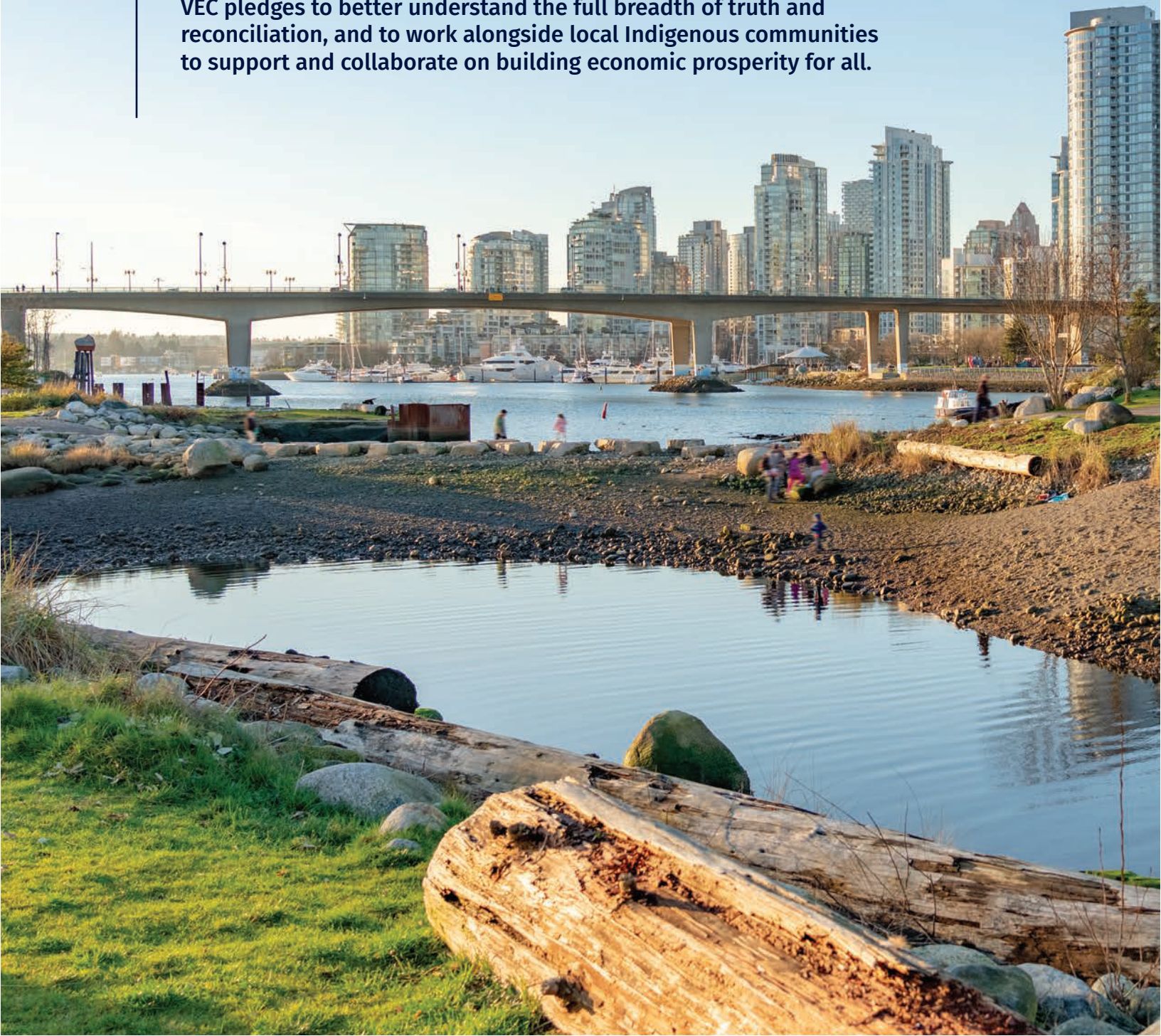
**VANCOUVER  
ECONOMIC  
COMMISSION**



This report was commissioned by Vancouver Economic Commission (VEC), working on the unceded territory of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and sə́lilwətaʔɬ (Tsleil-Waututh) Nations.

These Nations have cared for lands and waters of “Vancouver” since time immemorial, sustaining strong economies while thriving in balance with the natural world. Vancouver is a City of Reconciliation and VEC – an agency of the City – commits to forming long-lasting relationships of mutual respect and understanding with host First Nations and other local urban Indigenous communities.

VEC pledges to better understand the full breadth of truth and reconciliation, and to work alongside local Indigenous communities to support and collaborate on building economic prosperity for all.





# Acknowledgments

## External Advisory Group

The Zero Emissions Economic Transition Action Plan (ZEETAP) would not have been possible without the contributions of its external advisory group (EAG). The team would like to thank the EAG for their guidance, knowledge, openness, and honesty. Their passion for creating a sustainable and equitable Vancouver sets the stage for all the transformative work envisioned within ZEETAP – work we hope we can continue with all of them going forward.

### Michelle Bonner

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### Gwendal Castellan

Destination Vancouver

### Elizabeth Chick

Buy Social Canada

### Dave Earle

BC Trucking Association

### Jason Emmert

Metro Vancouver Regional District

### Donna Grant

Vancouver Regional Construction Association

### Matt Horne

City of Vancouver

### Tessa Jordan

BCIT

### Mark Kirby

Canadian Hydrogen & Fuel Cell Association

### Shayna Rector Bleeker

7Gen

### Rita Steele

City of Vancouver Climate and Equity Working Group

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# Who We Are

## Purpose

The Vancouver Economic Commission's (VEC) purpose is to contribute to building a prosperous, inclusive, zero-carbon and resilient local economy, competitively positioned in the global market.

## Pledges

As the world reopens, and commits to a net zero future, following the COVID-19 pandemic, we must reflect on the new realities of how people work – and how we measure prosperity across a wider social, economic and environmental framework.

It is within this context that VEC delivers on its corporate values, which guide the long-term resilience and values of our local economy.

Our pledge to Vancouver is further shaped by our corporate values – values that guide how we prioritize the highest and best use of our resources.

### **1. Local Focus, Local Support**

To ensure we maintain a strong local economy, our top priority remains supporting existing businesses and residents in Vancouver.

### **2. Prioritizing Climate Action**

As an agency charged to contribute to building a prosperous, inclusive and resilient economy for Vancouver, we have a strategic imperative to ensure Vancouver responds powerfully to the climate emergency. With new global goals outlined at COP-26, we commit to increasing our adaptive capacity to capitalize on opportunity to build a diverse, zero-carbon, circular economy.

### **3. Meaningful Reconciliation**

The Vancouver Economic Commission acknowledges that it is situated on the unceded traditional territories of the xʷməθkʷəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səliłwətaʔ / səliłwítulh (Tsleil-Waututh) Nations and operates in a “City of Reconciliation” – meaning we look to form sustained relationships of mutual respect with local First Nations and the urban Indigenous community, acknowledge the truth of our shared history, and commit to tangible actions to towards true reconciliation.

### **4. Prosperity for All**

We acknowledge that economic prosperity must dramatically shift to being measured through many lenses that account for a diverse set of social, environmental, and economic factors. This “beyond GDP” view of economic prosperity acknowledges that embedding justice, equity, diversity, and inclusion factors in the work we do will ensure our programming can be leveraged for the benefit of all.

# Executive Summary

Vancouver's economy is at a turning point: we can double-down on a just and equitable zero-carbon future, or we can let the world race ahead.

The choice is ours.

The Vancouver Economic Commission (VEC) has been at the forefront of the green economy for over a decade. Through an inaugural green jobs count in 2011, VEC broke new ground to understand and help encourage the prosperous transition to a net zero economy.

In November 2020, the City of Vancouver approved the Climate Emergency Action Plan (CEAP), which declared the necessity of speeding up climate action in recognition of the IPCC's warnings about warming above 2°C.

When Vancouver City Council approved the Climate Emergency Action Plan, they also directed VEC to develop a complementary one that addresses prospective economic opportunities and challenges triggered by the big moves in CEAP and by the climate emergency itself.

In response to this directive, VEC applied its expertise in the green economy, research and industry engagement to develop the first climate emergency plan of its kind. ZEETAP distinguishes itself by being written by an economic developer focusing on the economic transition, and taking into account the relatively limited powers of a municipality.

The **Zero Emissions Economic Transition Action Plan (ZEETAP)** supports the City of Vancouver's ambition to halve greenhouse gas (GHG) emissions by 2030, while integrating four economic goals:

- 1. Maximizing the economic opportunities of climate action**
- 2. Minimizing the challenges and costs of taking climate action**
- 3. Accelerating voluntary action to address climate change**
- 4. Championing equity and justice in all aspects of climate action and economic development**

This is ultimately in service of a resilient Vancouver economy that creates prosperity, opportunity and decent work for all while thriving in balance with planetary boundaries.

Planetary boundaries represent the ideal earth system processes – such as freshwater use, ocean acidification, land-system change and biodiversity – in which humanity can survive, develop and prosper for generations. Without planetary balance, there is no economy. Without full and willing mobilization in every aspect of the economy, there is no hope for the planet.



## How was the plan created?

ZEETAP was developed by a VEC team working closely with an external advisory group of industry and government experts and community members. It involved significant strategic engagement via interviews, roundtables, and collaboration through other existing processes. In addition to direct engagement, VEC staff reviewed numerous reports, surveys and studies that shaped the structure and content of the final plan.

The plan uses a unique theory of change that attempts to supplement the high-level approaches of existing climate plans to solve specific economic pain-points. It uses the framework of a project's "lifecycle" (wherein one moves from analysis, to planning, to implementation, to closure) as a way of identifying where to solve businesses' challenges around decarbonization.



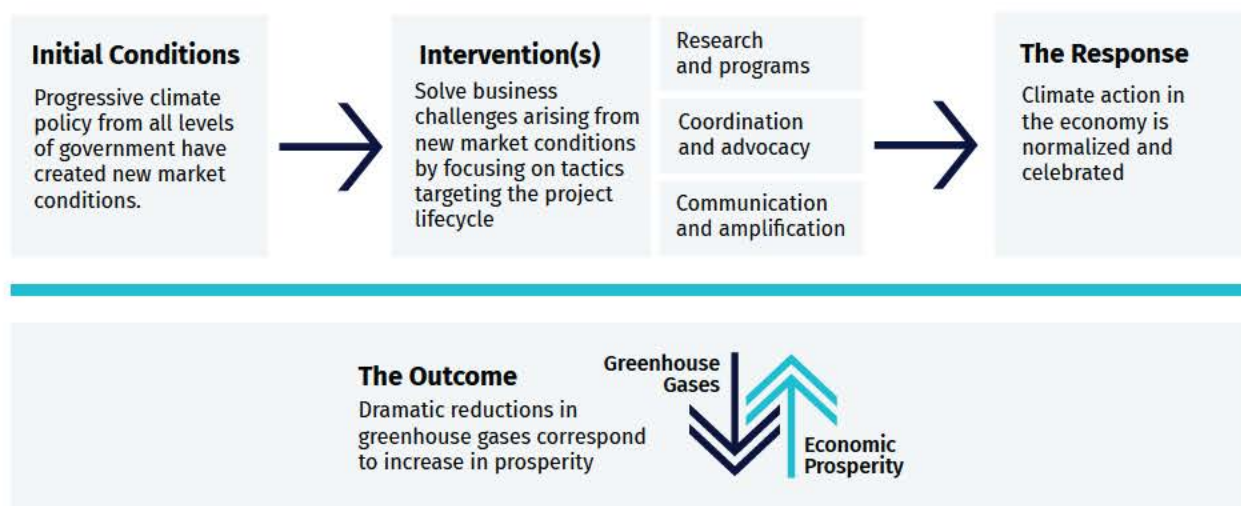
## The theory of change behind ZEETAP

ZEETAP is a groundbreaking plan, the first of its kind at this scale of ambition. With no existing blueprint to work from, ZEETAP requires a theory of change.

Policy sets our economy on a net zero trajectory. However, these regulations are designed to directly target carbon emissions; they only indirectly account for economic transformation. Any economic aspects net zero policies are peripheral to the goal of reducing emissions. However, since these policies drive additional market responses to regulations and work, that effectively makes them the new economic foundation – or operating environment – for businesses. In short, it can be viewed through the same lenses we view business environments (the market).

The theory of change behind ZEETAP is to treat zero regulations as the business environment they are, and solve problems for businesses and workers within this new context. The reason? These are no longer climate problems; they are economic ones. Solve these problems and we can remove some of the largest barriers to climate action and building a more resilient economy.

Figure I ZEETAP Theory of Change





## How will success be measured?

ZEETAP is embedded within an existing CEAP reporting system with overarching headline indicators and sub-metrics. The central metrics used to gauge the success of this plan are economy-wide GHGs – as captured in a Business Energy and Emissions Profile (BEEP) – as well as the ratio of green jobs to traditional jobs, and the rate of green job growth. The plan below includes suggested metrics for each direction.

In early 2023, VEC will undertake a prioritization exercise to confirm and move forward with its ZEETAP metrics, in alignment with other related economic research and data tracking efforts that will be underway.

## How will the plan advance equity and justice?

ZEETAP's first priority is to embed equity and justice across all work in the plan by using a lens approach on each project. Thus, we can develop several large-scale, equity-specific actions at multiple levels of the economy.

## What will the plan do?

ZEETAP is an action plan focused on advancing climate action and protection for businesses and workers. It aligns with the City and region's goals to roughly halve emissions by 2030 by working to ensure both businesses and workers can benefit from (and be supported through) the transition to a net zero economy. The plan leverages VEC's existing competencies and experience in four key areas: **research**; **convening** and **engagement**; **programming**; and **advocacy**.

ZEETAP's overarching aim is to support the decarbonization of Vancouver's economy by 2050 while achieving its four **goals**. It does this through three additional layers: **directions**, which are statements that guide the intended outcomes in areas of work related to the project lifecycle; **actions**, which are distinct projects or programs to support the directions; and **activities**, which are annual work-items for VEC and partners to support each action. While directions and actions build upon one another, all of ZEETAP is guided by the first direction to build equity and justice throughout the plan and the economy as a whole.

### Goals

Our four key goals, aligned with the outcomes of the Climate Emergency Action Plan (CEAP)

### Directions

The six directions are framed by the challenges we heard from stakeholders in our local economy. They are directional statements for VEC and partners to work towards over time

### Actions

Actions are specific projects VEC and partners will undertake over three years to support the directions

### Activities

Activities are discrete tasks that support each action, where activities are usually broken down year-by-year



# The Zero Emissions Economic Action Plan

## Directions and Actions to 2025

<b>DIRECTION 1</b>	<b>Make climate solutions and their impacts just and equitable</b> – embed equity and justice across all ZEETAP activities and create new systems and institutions to work directly with equity-deserving populations.
<b>D1A1</b>	Use a framework and review process to embed equity in all ZEETAP actions
<b>D1A2</b>	Create a Just Transition Council that will oversee and coordinate climate-related capacity building in the workforce
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<b>D5A1</b>	Create a coordinating structure – a “Climate and Economy Hub” – for conversations and action around climate finance in BC to support the development of a roadmap of public and private action to 2030
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<b>D6A4</b>	Support the promotion of Vancouver as a destination for sustainability-related events
<b>D6A5</b>	Use international networks, such as C40, and events such as the UNFCCC’s COPs, to share Vancouver’s successes and economic opportunities

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# 1. Introduction

In 2006, one of the most important studies of climate change and the economy was released. Termed the “[Stern Review](#)” after its coordinator, British Lord Nicholas Stern, the review called climate change the most wide-ranging market failure ever seen and emphasized that “the benefits of strong, early action on climate change outweigh the costs.” Over 15 years later, the truth of that claim could not be clearer: on the one hand, Vancouver surges forward as one of the greenest economies in the world, a beacon of clean innovation and sustainable living. On the other, this city and its people are devastated by successive climate change-influenced disasters.

## The promise and peril of our times could not be clearer

Building on its leadership on climate action and the environment over the last 30 years, Vancouver City Council declared a climate emergency in 2019. The following year, Council approved an action plan to build greater momentum to address both the local and global environmental crisis. By passing the Climate Emergency Action Plan (CEAP), Council tasked the Vancouver Economic Commission (VEC) with developing a plan to make the transition to a zero-carbon economy faster, easier and more prosperous for all. In addition to being centered on the economy, the plan must also account for and weave in the policy, regulations and programs of CEAP and other climate plans being implemented by the City of Vancouver and other orders of government.

The Zero Emissions Economic Transition Action Plan (ZEETAP) is the result of that work, including months of engagement with different economic stakeholders across the region, intensive research, and drawing on VEC’s decade-and-more of experience supporting the green economy. ZEETAP will help businesses and workers in Vancouver effectively and equitably be part of the transition away from fossil fuels. To ensure effective action, the plan responds to CEAP, Climate 2050 (Metro Vancouver Regional District’s climate plan), as well as CleanBC (the province of British Columbia’s climate plan).

## Promise and peril by the numbers

<b>87%</b>	<b>Increase in green jobs</b> (2010-2020)
<b>21%</b>	<b>of Vancouver businesses</b> <b>greening their operations in 2020</b>
<b>595</b>	<b>people killed in BC by</b> <b>June 2021 heat dome</b>
<b>\$515M</b>	<b>million in insured damages</b> <b>associated with 2021 BC floods</b>

## Climate action and the economy

The concept of tying climate action to economic impact is hardly novel: most large climate plans feature the economy prominently. As the Task Force on Climate-related Financial Disclosures said in its [2016 Phase 1 report](#) “inadequate information on risk exposures can lead to a mispricing and/or misallocation of investment” and can lead to both a “perception and a reality of financial stability and economic vulnerability.” Put more simply: ignoring climate change is bad business and even worse economic policy.

It is no longer the case that climate change is viewed by policymakers or even most business leaders as a solely environmental issue. The World Economic Forum consistently finds that businesses rank both the physical (e.g. forest fires, overheating) and transition risks (e.g. decarbonization creating “stranded” fossil fuel assets) as the largest and most impactful risks they face. Globally, more than US\$57 trillion worth of financial asset managers have made commitments to get to zero emissions by mid-century. Climate change is now a strategic issue in every market on the planet.

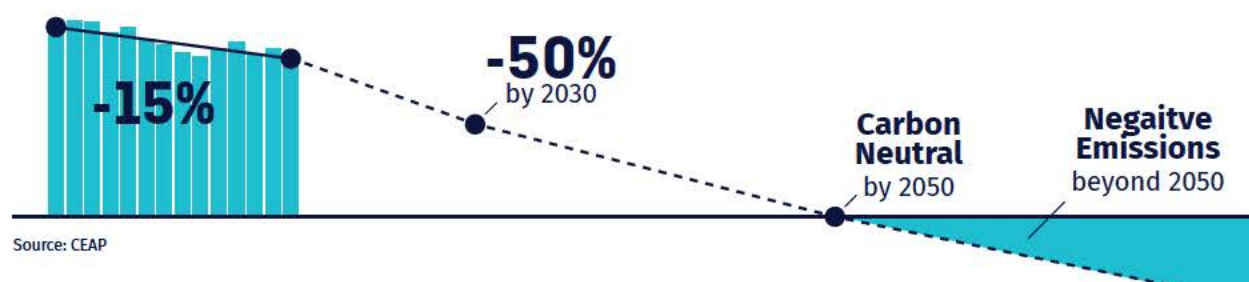
## Economic costs and opportunities of climate Action

- Between 2010–2019, Canada suffered \$14 billion in disaster-related costs, more than the preceding 40 years put together. Communities in the BC Interior – particularly the Cariboo and Gold Country – lost \$139 million in tourism income in 2017 alone. Climate change continues to increase the frequency and impact of these threats.
- The Bank of Canada and Office of the Superintendent of Financial Institutions' (OSFI) most recent climate scenario analysis showed that Canada's financial institutions are exposed to **\$239.3 billion in credit risk** across 10 industries likely to be negatively impacted by climate action. As a result, they must make significant additional preparations to ensure a just and prosperous transition for the Canadian economy.
- In the municipality of Vancouver alone, CEAP and CleanBC will unlock an estimated \$1.27 billion in resident and business investments into climate action solutions from 2021 through 2030. Those investments generate \$2.25 billion in savings over the life of the investments, for a net savings of \$980 million per resident or business.
- In 2019, the VEC found that the rollout of green building regulations throughout Metro Vancouver was generating a new **\$3.3 billion market for green building products**. The Canada Green Building Council further estimated that in an aggressive climate policy scenario, **BC's green building industry** could be worth \$29.5 billion by 2030.
- In 2021, numerous reports showed the incredible **growth of the electric vehicle industry in BC**, including growth in charging infrastructure as well as EV readiness in buildings. According to the **New Car Dealers Association of BC**, "BC holds a leadership position in sales of electric vehicles in North America on a per-capita basis as over 12% of new vehicle sales are EVs." In BC, Statistics Canada found that ZEV registrations in the third quarter of 2021 **increased by 43.5%** when compared to the same period in 2020.
- In 2019, the Government of British Columbia's Retrofit Impact Model estimated that a province-wide implementation of alterations codes and other green building measures for existing buildings could generate over 7,000 jobs between 2019 and 2039. This translates to nearly 1,200 direct, indirect, and induced jobs in the City of Vancouver alone. While there is not yet a total jobs estimate for CEAP, the number would be considerably higher than these 1,200 associated with retrofits.



# Vancouver's Climate Emergency Action Plan (CEAP)

Figure 1 Vancouver's Carbon Pollution



In November 2020, Vancouver City Council approved the CEAP, which included six “Big Moves” and 19 actions in areas as diverse as energy retrofits of existing building stock, electrification of the transportation system, and planning complete, walkable communities. CEAP builds on past successes – in particular, the Greenest City and Renewable City action plans. However, CEAP also recognizes that carbon pollution reductions will need to be much more aggressive to achieve the climate targets recommended by the International Panel on Climate Change (IPCC). The goal is to keep global warming below 2 degrees Celsius above

pre-industrialization levels by 2050, and it is understood that exceeding this threshold would trigger irrevocable impacts on earth systems and acute human deprivation.

The Climate Emergency Action Plan groups its Six Big Moves into three functional areas:

1. How We Move
2. How We Build and Renovate
3. How We Capture Carbon

Elements related to land use (“Where We Live”) are integrated into the Vancouver Plan.

Table 1 Big Moves in CEAP

Theme	Big Move Name	2030 Target
How We Move	Walkable, Complete Communities	90% of people live within an easy walk or roll of their daily needs
How We Move	Active Transportation and Transit	2/3 of trips in Vancouver by active transportation and transit
How We Move	Zero Emissions Vehicles	50% of all kilometres driven on Vancouver’s roads in zero-emissions vehicles
How We Build and Renovate	Zero Emissions Space and Water Heating	Operational emissions in all buildings are reduced by 50% relative to 2007 levels
How We Build and Renovate	Low Carbon Materials and Construction Practices	Embodied emissions in new construction projects are reduced by 40% relative to a 2018 baseline
How We Capture Carbon*	Natural Climate Solutions	(Interim target) By 2050, Vancouver aims to sequester 21,000 tonnes of carbon within City boundaries  By 2024, Vancouver codesigns a target with partners, especially Indigenous communities, to sequester carbon outside of city boundaries

\* This interim target and its action was approved not through CEAP but via a [subsequent report in Dec 2021](#).

## Regional and provincial climate policy

Policy and regulatory changes outlined in CEAP and plans by other orders of government are highly effective catalysts of uptake for green solutions and decarbonization. The purpose of ZEETAP is to support Vancouver businesses and workers in navigating the transition envisioned in those policies in a fair and cost-effective way. In doing so, ZEETAP must leverage opportunities – and integrate actions with – all levels of relevant climate policy to build out effective supports for businesses and workers.

**Table 2 ZEETAP Alignment with Other Policy**

<b>Policy or Strategy</b>	<b>Target</b>	<b>Alignment to ZEETAP</b>
<b>Climate Emergency Action Plan</b>	<ul style="list-style-type: none"> <li>• Reduce city-wide emission by 50% by 2030</li> <li>• Focus on buildings and transportation</li> <li>• Includes Scope 3 emissions for buildings, though no other sectors</li> </ul>	ZEETAP is built to support the entirety of CEAP
<b>Metro Vancouver Clean Air Plan (CAP)</b>	<ul style="list-style-type: none"> <li>• Reduce GHGs by 45% from 2010 levels by 2030; achieve carbon neutrality by 2050</li> <li>• Ensure ambient air quality meets or is better than standards set by Metro Vancouver, BC and federal governments</li> <li>• Increase the amount of time that visual air quality is classified as excellent</li> </ul>	ZEETAP activities aligned to CAP efforts include: <ul style="list-style-type: none"> <li>• Regional Just Transition Council</li> <li>• Industrial Emissions Working Group</li> <li>• Active transportation solutions for businesses</li> <li>• Medium and heavy duty vehicles decarbonization programs</li> </ul>
<b>CleanBC</b>	<ul style="list-style-type: none"> <li>• 40% reduction of GHGs by 2030</li> <li>• Sectoral GHG targets of:               <ul style="list-style-type: none"> <li>• Transportation – 27–32%</li> <li>• Industry – 38–43%</li> <li>• Oil and gas – 33–38%</li> <li>• Buildings and communities – 59–64%</li> </ul> </li> <li>• \$506 million in investments announced in Budget 2021 for CleanBC implementation</li> </ul>	ZEETAP activities aligned to CleanBC include: <ul style="list-style-type: none"> <li>• Convening and strategy on medium- and heavy-duty vehicles</li> <li>• Ongoing support for business retrofitting, especially new financial tools like PACE</li> <li>• Industrial emissions working group</li> </ul>
<b>Healthy Economy and Healthy Environment (HEHE)</b>	<ul style="list-style-type: none"> <li>• 40–45% reduction of emissions by 2030 and net zero by 2050</li> <li>• Carbon tax on fuels increased to \$170 per tonne by 2030</li> <li>• 64 policies and programs and \$15 billion in investment over 10 years to cut pollution and build a clean economy</li> </ul>	ZEETAP activities aligned to HEHE include: <ul style="list-style-type: none"> <li>• Convening and strategy on medium and heavy-duty vehicles</li> <li>• Development of new financial tools may align to Canada Infrastructure Bank lending, especially on retrofits</li> </ul>



## Lessons from 10 years in the green economy

When Vancouver's Greenest City Action Plan was first under development in 2009, every level of input – from Council, to staff, to community members – was adamant that the plan's success relied on a well-integrated economic development function. The Green Economy Goal focused on building Vancouver's reputation as a global leader in green enterprise. This goal area therefore included targets to double both the number of green jobs and the number of businesses greening their operations.

In the decade that VEC worked on those goals, the number of businesses greening their

operations more than quadrupled in Vancouver, growing from one in every 20 businesses to one in five. Importantly, this occurred within VEC's existing limited resources and involved no increase for the agency's funding over the entire decade of operation. The numbers prove the vibrancy of Vancouver's economic potential to address climate change – and the readiness of many players in the economy to capitalize on climate action. From 2011 to 2021, VEC undertook numerous projects, programs and initiatives to grow the green economy. As a result, the organization has gained valuable insights into challenges and best practices along the way.

**Table 3 A History of VEC's Work in the Green Economy**

VEC Program or Initiative	Description	Key Lessons
<b>Small Business Engagement</b>	<p>Numerous types of workshops, consultation processes, seminar programs, and otherwise.</p> <p>Notable initiatives include:</p> <ul style="list-style-type: none"> <li>• Thriving Vancouver</li> <li>• Measure What Matters (pre-B Corp Certification workshop)</li> <li>• COP21 Climate Pledges</li> <li>• Other events related to business operations and scaling</li> </ul>	<ul style="list-style-type: none"> <li>• Many businesses lacked the fundamental knowledge to start sustainability work – even those that state it as a core value</li> <li>• When fully resourced, businesses can often move far faster than governments on climate action</li> <li>• Successfully supporting businesses taking any form of climate action requires direct aid, such as coaching, workshops, and ongoing points of contact</li> </ul>
<b>Green and Digital Demonstration Program (GDDP)</b>	<p>A unique platform that VEC built for the City of Vancouver that created a process for cleantech companies to demonstrate their technologies on city-owned assets.</p> <p>This has since been expanded into Project Greenlight, a regional program underpinned by large, institutional asset owners and managers of large-scale infrastructure, including cities.</p>	<ul style="list-style-type: none"> <li>• Challenge-based calls for technology from large institutions like City of Vancouver and TransLink are excellent ways to unearth novel approaches and solutions that can be piloted by institutions and subsequently shared to the wider economy</li> <li>• A healthy mix of asset owners (e.g. cities, ports, transit providers) is needed for innovators to have a range of potential demonstration opportunities suitable to catalyze systemic change</li> <li>• Major asset owners are generally used to incremental change and change management is needed to speed up the pace of new technology adoption</li> </ul>

<b>Green Enterprise Zone</b>	A plan to develop an innovative policy zone in the False Creek Flats to support cleantech adoption.	<ul style="list-style-type: none"> <li>• Many hurdles exist for creating enterprise zones where regulations differ from other parts of the city</li> <li>• The costs of creating enterprise zones may outweigh the benefits, particularly if there's not a clear pathway to scale regulatory changes across the whole city</li> <li>• Multi-stakeholder coalitions or working groups may fulfill most of the outcomes of a specially created enterprise zone with lower costs</li> </ul>
<b>Investment Attraction</b>	Ongoing work to attract world-class companies to Vancouver that support the transition to a clean economy	<ul style="list-style-type: none"> <li>• Vancouver's globally recognized green brand and commitment to climate action is a large contributor to its success in attracting foreign-direct investment</li> <li>• Vancouver's green initiatives play a large role in its livability, which in turn is a significant driver of people wanting to do business in the city</li> </ul>
<b>Research and Market Forecasting</b>	Various projects, from the original <a href="#">Vancouver green jobs study</a> in 2011 to the 2019 <a href="#">Green Buildings Market Forecast</a> , to quantify and illuminate opportunities in the green economy	<ul style="list-style-type: none"> <li>• Bold goals, specific policies, and the regulations to achieve them have catalyzed new, multibillion-dollar markets, particularly in green buildings and electric vehicles</li> <li>• Market intelligence is a crucial component for companies to develop and profit from long-term, effective decarbonization</li> </ul>
<b>Capital Mentorship Program(s)</b>	<p>Ongoing programming to support early-stage startups and investors in preparing for investment rounds, with numerous cohorts in cleantech and climate startups.</p> <p>In recent years, program managers made efforts to diversify founder and investor cohorts to increase the participation of people from underrepresented groups.</p>	<ul style="list-style-type: none"> <li>• Significant amounts of investment capital exist for quality startups and innovators</li> <li>• Many investors are unsure of how to best assess environmental startups for long-term profitability</li> <li>• Significant capacity-building work is needed for climate-oriented startups to facilitate a smoother flow and larger volume of capital</li> <li>• Inclusive prosperity meant taking extra steps to ensure strong outreach and uptake of participation of entrepreneurs and investors from underrepresented communities, including newcomers, women, LGBTQ2SIA+ and neurodiverse applicants</li> </ul>



## Engaging to build an innovative economic decarbonization plan

ZEETAP is the product of a highly engaged and collaborative process. The ZEETAP project team identified stakeholders through an assessment of existing climate change policy reports impacting Vancouver. The ZEETAP team conducted more than 30 interviews with local stakeholders to ensure a diversity of scale and profile.

Those consulted included industry associations to small and medium sized enterprises and global thought-leaders, who collectively helped shape a shared understanding of the needs of Vancouver's economy through the transition towards a net zero future. The ideating and planning process for ZEETAP was conducted through a roundtable discussion with the ZEETAP External Advisory Group (EAG) consisting of a wide representation from the public, private and nonprofit sectors.

Additionally, presentations and workshops were made to an array of stakeholders including (but not limited to) the City of Vancouver's Climate and Equity Group, Vancouver District Labour Council, and Metro Vancouver Regional District. City of Vancouver staff also facilitated dialogue from a variety of perspectives on proposed ZEETAP action areas and outcomes.

VEC's ZEETAP team was advised not to seek out a specific Indigenous engagement process or focus at this stage. The project team will instead engage with the Musqueam, Squamish, and Tsleil-Waututh First Nations as part of a structured procedure developed by the Host Nations and the City for planning processes. VEC has instead outlined interests and potential areas for Host Nations collaboration within ZEETAP and offered a standing invitation to connect more generally on any activities related to decarbonization, reconciliation, and economic development.

### ZEETAP Engagement Overview

30	<b>interviews</b> with local stakeholders
10	<b>engagement sessions</b> with stakeholders
10	<b>workshops</b> with stakeholders
3	<b>engagement reports</b> were synthesized

VEC anticipates a response by the Nations in mid-2022 and will continue to engage in project-level consultations while developing and delivering ZEETAP actions and activities.

For more information about ZEETAP project method, partners engaged, and related VEC publications, refer to [Appendix 1](#).

## 2. Goals and Theory of Change

The high-level intended outcomes of ZEETAP were clear from the initial direction in the 2020 CEAP report to Vancouver City Council: 1) to develop a plan that can support a prosperous and just transition to a zero-carbon economy while 2) accelerating the speed at which the city moves towards that economy. VEC staff developed more specific goals to provide scope and boundaries for ZEETAP, which were subsequently altered and validated through the External Advisory Group, internal discussions with City of Vancouver staff, and engagement with both groups and individuals as part of the plan's engagement process.

### Goals guiding the Zero Emissions Economic Transformation Action Plan

- › Maximize opportunities for businesses and workers created by climate action
- › Minimize barriers and challenges associated with climate action
- › Accelerate voluntary action to decarbonize the economy
- › Pursue and enhance justice, equity, and inclusion in every aspect of decarbonizing the economy

ZEETAP is a groundbreaking plan in both its approach and scope. Beyond being created by a municipal economic development agency, the plan is unique in that it attempts to address the relatively limited powers of a municipality when compared to the jurisdictional power of a provincial or federal government. As there is no effective blueprint, ZEETAP required a theory of change.

Policy now sets our economy on a net zero trajectory. However, these regulations are designed to directly target carbon emissions; they only indirectly account for economic transformation. Any economic aspects from net zero policies are peripheral to the goal of reducing emissions.

Since these policies drive additional market responses to regulations and work, that effectively makes them the new economic foundation – or operating environment – for businesses.

The theory of change behind ZEETAP is to treat the net zero regulatory environment as the new foundation for business, and to solve problems for businesses and workers arising as a natural effect of regulation. These are no longer climate problems they face; they are economic problems. **Solve these problems and we can remove some of the largest barriers to climate action and building a more resilient economy.**



## Developing the theory of change

A theory of change is a comprehensive description and illustration of how and why a desired change is expected to happen in a particular context.

It is focused on mapping out or “filling in” what has been described as the “missing middle” between what a program or change initiative does (its activities or interventions) and how these lead to desired goals being achieved.

From [Center for Theory of Change](#)



A theory of change for a zero-emissions economic transformation for Vancouver emerged organically through ZEETAP’s engagement process. As such, it includes the insights of those working at a high level in the economy (e.g. industry associations, senior policymakers) and those working on-the-ground to implement solutions (e.g. individual business owners, business improvement associations, etc.).

The theory of change effectively combines three key insights synthesized from internal VEC reflections and the engagement work during the plan’s development:

### 1. Policy can build markets

Policy and regulations identified in CEAP and other climate policies are rapidly evolving, building new markets, and spurring innovation that existing businesses and workers can significantly benefit from, if they have sufficient support

### 2. Help businesses with their projects

Many businesses – particularly small and medium enterprises (SMEs) – face problems around decarbonizing at different points along the lifecycle of a project (e.g. finding enough information to plan effectively, knowing who to buy from, etc.). Solving these problems could unlock significantly more decarbonization across the economy

### 3. Collaborating at scale

With limited resources and a three-year timeline, ZEETAP must leverage partnerships across the region and address problems at the largest scale possible to maximize its impact and support the transition for 2030

## Policy can build markets

VEC's experience with measuring jobs for the City of Vancouver's *Greenest City Action Plan* (GCAP) demonstrated the importance of policy and regulation in shaping markets. In particular, the development of specific, actionable, and phased regulations in green buildings is one of the reasons green jobs have grown so spectacularly in that sector.

Policies like the Zero Emissions Building Plan (ZEBP) and its forthcoming companion on retrofits have catalyzed spectacular growth in the construction industry – and they are not alone. BC Hydro's original calls for Independent Power Producers (IPPs) were some of the first big catalysts to develop BC's cleantech sector. The most recent legislative moves from the BC Government on zero emissions vehicles (ZEVs) and clean fuel standards are generating new and dynamic interest in manufacturing, fuel production, maintenance, and infrastructure installation. The \$2.5 billion of public and private investment envisioned within CEAP will be part of a rising tide of economic development.

If the policy and regulatory changes being rolled out are clear, set a reasonable timeline for implementation, and are done in partnership with the private sector, they will build new and different markets for climate solutions. **ZEETAP will interface with these policies and regulations when they require input from an economic perspective and provide support and guidance for economic stakeholders as they work to meet these long-term goals.**

Figure 2 ZEETAP as Policy-Business Nexus



### CASE STUDY

#### Forward-looking green building policy accelerates job growth



Jobs in Green Building and Construction Services have grown by 146% since 2010, demonstrating sector growth and a greening of the workforce



Key informant interviews consistently pointed to the BC Energy Step Code and the VBBL as policies driving uptake of green building services; however, the supply of workers and expertise to meet demand are lacking



"Operations are getting more sophisticated, more digitized, which demands a different set of skillsets. What trades look like now, less about hands dirty and more about planning and design" says a key interview participant

Source: Green Jobs ....., 2020



## Help businesses with their projects, not just their sectors

During ZEETAP's consultation process, economic stakeholders throughout the region frequently commented that it was difficult to apply or translate the high-level actions in CEAP and similar climate policies into their everyday operations. This was particularly true of small businesses. Furthermore, even sector-wide overviews of emissions will not capture the complex natures of various business operations, which frequently include emissions related to buildings, transportation, and supply chains.

This insight completely refreshed the way actions for the economic transition to zero emissions could serve businesses and the wider economy: instead of trying to get businesses to take on more climate work, the focus had to be on eliminating business challenges that limited the ability to take climate action. One of the most tangible ways to do this was to think in terms of the "project lifecycle," which is how many businesses plan and undertake much of their day-to-day work.

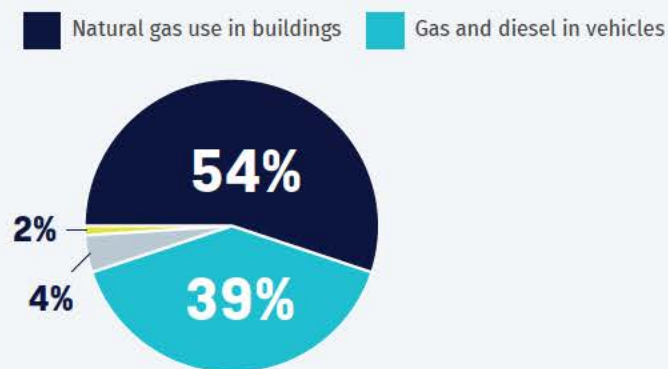
The project level is where SMEs face the most challenges when taking on decarbonization and future-proofing their business against climate change. Furthermore, a project-level view can also highlight the multiple decarbonization benefits associated with certain actions. Delivering EV-readiness in a building to support fleet-electrification, for example, is best undertaken when also working to decarbonize the building and balance its internal energy usage more effectively. Win-wins like this are more possible when the broad decarbonization goal is understood, but tactical, project-level supports are provided.

**ZEETAP's Directions and Actions are developed to solve pain-points that were heard along the project lifecycle. Applying these solutions at-scale is felt to provide the greatest possible level of effectiveness for VEC's activities going forward.**

### Different ways of representing and attributing emissions

Emissions are often looked at from a fuel-source, or sectoral, level but both of these perspectives are often inaccessible for individual businesses

#### CEAP's "Policy View" of Emissions



Source: CEAP

#### SME's Sector-based Emissions



Source: Climate Smart

# Collaborating at scale

The Vancouver region’s gross domestic product (GDP) is worth more than \$151 billion (2021). This represented 60% of total provincial GDP in 2017. Decarbonizing this scale of economic activity by 45% – the target set by Metro Vancouver’s Climate 2050 plan – will require mobilization and collaboration on a scale unseen in generations, if ever.

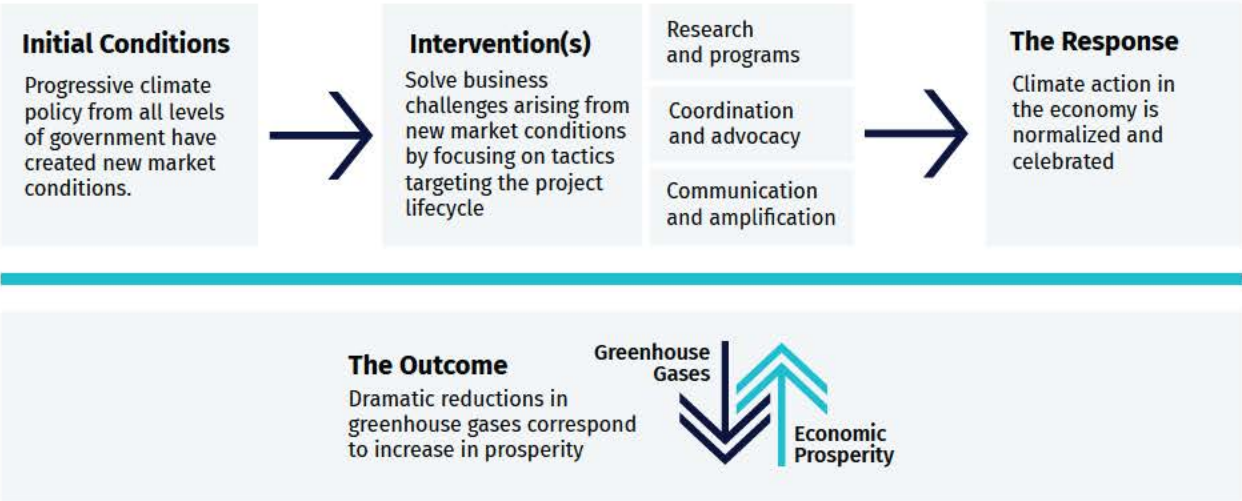
ZEETAP’s development was led through a multi-sector external advisory group with representatives from industry associations,

individual businesses, organized labour, non-profits, and community groups. These diverse perspectives were helpful in establishing the wide-ranging needs of the economy to achieve not only effective decarbonization, but to do so with equity and justice at the forefront. **Delivering ZEETAP will require deploying resources beyond VEC, including collaborations with numerous actors across the ecosystem, in order to create cascading, systemic change.**

# A theory of change for ZEETAP

These insights shaped the final broad theory of change that ZEETAP operates upon:

Figure 3 ZEETAP's Theory of Change





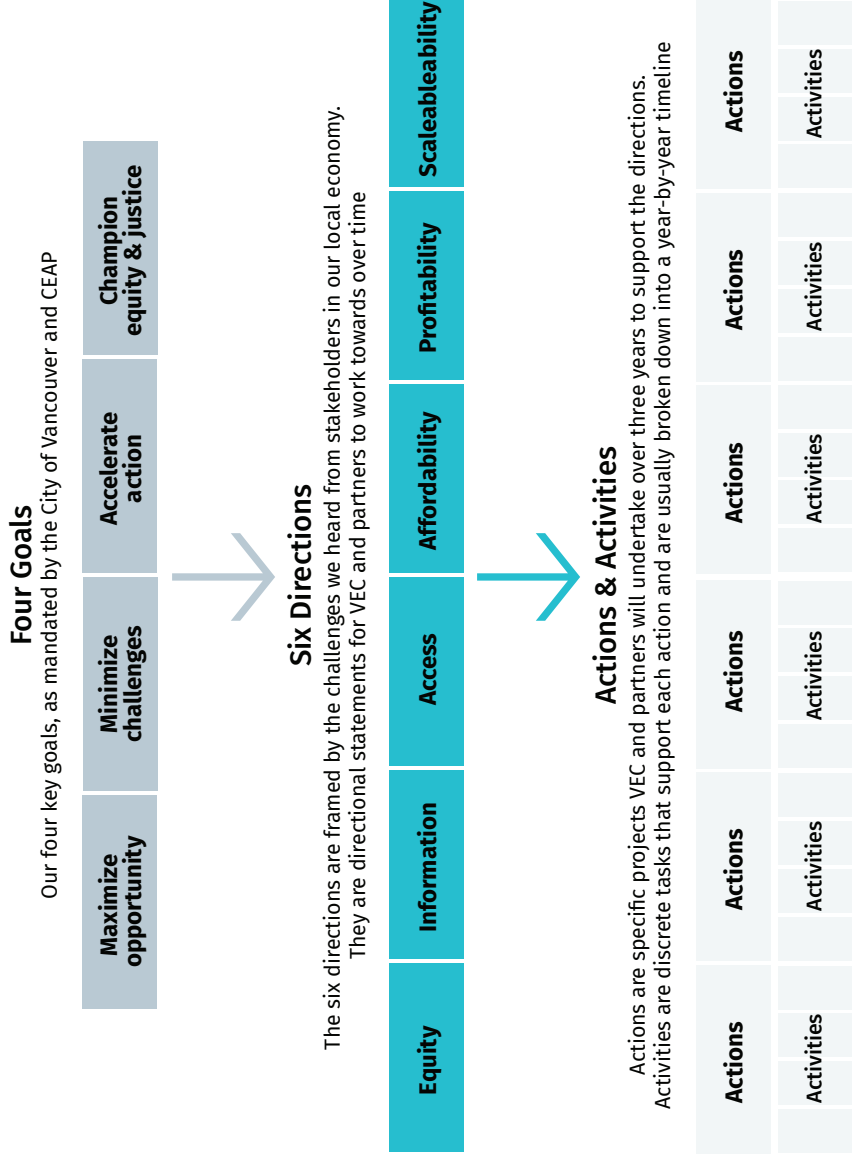
### 3. Action Plan

The Zero Emissions Economic Transition Action Plan is a three-year plan (to 2025) for the Vancouver Economic Commission to help Vancouver’s businesses decarbonize and workers transition justly while we reduce our carbon emissions by 50% by 2030.

It builds on the Climate Emergency Action Plan (CEAP) and numerous other policies and plans at all levels of government, but with its unique, economically-oriented theory of change, it will support businesses and workers in ways that traditional climate policy cannot, and drive forward climate action at an even faster pace, and in more equitable ways.

Figure 4 ZEETAP Structure

The Action Plan is structured through four “layers,” which guide and shape the plan at the strategic level, down to the year-by-year work to be undertaken by VEC and its partners:



## **Direction 1**

### **Make climate solutions and their impacts more just and equitable**

#### **What this direction means**

It is clear to anyone that our current economic model is failing our planet and many residents. The economy is an inequitable system in which many face significant barriers to thriving in Vancouver because of their ethnicity, gender identity or expression, sexuality, ability, age, and other factors. Vancouver is one of the most diverse cities in Canada, in which half its populations are “visible minorities,” according to the 2021 Census – and yet, despite this proportion, many racialized Vancouverites face **significant challenges** to a stable economic life.

More broadly, most Vancouverites of any background are underpaid compared to other cities and face a high cost of living that is only growing more difficult. We must value Vancouver’s diverse population, and actively identify and address systemic barriers in our economy, so that anyone of any background can expect to benefit in both environmental and economic terms from climate action. As such, we must ensure that future climate solutions and their impacts are always working towards justice and equity – principles at the heart of ZEETAP.

Direction 1 develops specific justice-oriented activities at three scales: activities for individuals, businesses, and the whole of the economy:

1. By working with local JEDI practitioners, ZEETAP proposes to support the development of a local BIPOC sustainability practitioners’ network, which will advance diversity across all sustainability-related jobs.
2. By building in-house experience in translation and cross-cultural programming, climate-action materials will be developed for specific language and cultural communities to make it easier for them to get started, or grow, their climate action.
3. Finally, we propose an innovative new institution to support the just transition in the form of a regional Just Transition Council – the first of its kind in Canada.

#### **How will we know this direction is working?**

VEC will tentatively rely on a variety of synthesized jobs-related metrics for these actions, including:

##### **HEADLINE INDICATOR**

### **Diversity**

% of people of diverse backgrounds in green jobs

##### **SUB-INDICATOR**

### **Wages**

Average salary of green jobs

##### **SUB-INDICATOR**

### **Growth**

% growth rate of green jobs



## The Actions

<div> <div>DIRECTION</div> <div>1</div> </div> <b>Just and equitable climate solutions</b>				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D1A1</b>	<b>Evaluation of ZEETAP actions through an equity framework</b>			
	Apply relevant equity frameworks and approaches, such as the City of Vancouver's, in all subsequent implementation of actions in the plan.	Equity leaders in the community	Identify tools for an equity assessment	Ensure all future projects, programs, and initiatives under ZEETAP apply an equity lens
<b>D1A2</b>	<b>Just Transition Council</b>			
	Implement the findings of VEC's 2021 Just Transition study and develop a regional Just Transition Council	Local labour groups, City departments, community groups, subject matter experts, think tanks, financial institutions	Continue community consultations and develop a work plan to launch the council by Q4 of 2022	VEC serves as secretariat to the Council on a temporary basis through to 2025, and supports relevant projects, especially a regional labour market assessment of skills needs in 2023 and beyond
<b>D1A3</b>	<b>Diversity in sustainability</b>			
	Work with local justice, equity, diversity, and inclusion (JEDI) practitioners to broaden representation within sustainability-related careers	Community groups, local advocates	Explore BIPOC inclusion and network-building activities with leading groups	Co-develop further supports and programming in consultation with local groups
<b>D1A4</b>	<b>Translation of climate materials</b>			
	Work with community groups and ethno-cultural business associations to translate relevant climate information materials (especially from CI-A3)	City departments	Continue to engage with City of Vancouver's Climate and Equity Working Group to better understand translation and other equity-oriented communication needs for businesses	Understand ideal programmatic offerings to communicate translated guides and other resources  Translate resources on an ongoing basis

## **Direction 2**

### **Make it easier to get climate information**

#### **What this direction means**

While there is an increasing wealth of information and resources available to economic stakeholders to take action on climate change, many of its intended audience find it difficult to navigate. Throughout the consultation process, the ZEETAP project team was repeatedly told that businesses and workers who have few resources find it challenging to locate relevant, trustworthy or applicable information, whether it be a guide, dataset, or general information they can trust. This barrier is often the fundamental hurdle keeping people from action.

To address these problems, the actions envisioned under Direction 2 aim to make it easier for anyone to find high-quality and trustworthy business-related climate resources and information. Additionally, Direction 2 attempts to target outreach to groups (e.g. high-impact economic sectors, such as tourism) where the information can be put to the greatest use.

#### **How will these actions improve equity and justice?**

Individual projects will undergo equity reviews as part of their development. Potential considerations for the projects noted below include ensuring diverse viewpoints are included in existing resources and embedding them in new ones developed for amplification. The goal is a slate of targeted, equity-centered sharing of – and cultural sensitivity (per JE-A4) to – resources for businesses.

#### **How will we know this direction is working?**

VEC is exploring the following engagement-related metrics for these actions, including:

##### **HEADLINE INDICATOR**

**TBD**

TBD

##### **SUB-INDICATOR**

**PARTICIPATION**

# of attendees to VEC and partnered programming

##### **SUB-INDICATOR**

**ACCESS**

# of downloads or views on relevant resources



## The Actions

<div> <div>DIRECTION</div> <div>2</div> <div>Climate information</div> </div>				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D2A1</b>	<b>Curate business climate resources</b>			
	Work with partners to centralize relevant local information, incentives, and other resources in one place, and ensure connectivity between resource offerings for businesses across all relevant communications	Small businesses, federal government, post-secondary institutions, industry associations	Compile relevant local business support programs, incentives, and resource hubs (e.g. ZEBx) in Vancouver  Publish list on VEC and other websites	Revamp VEC and others' resources on an ongoing basis  Collaborate with relevant organizations to ensure ongoing updates for information distribution platforms and processes
<b>D2A2</b>	<b>Regional Business Energy and Emissions Profile (BEEP)</b>			
	Undertake a regional inventory of business-focused emissions using NAICS Codes and other relevant data	Regional governments, small businesses	Scope out relevant data needs into BEEP request for expressions of interest (RFEI) in early 2023	Scope and undertake wrap-up BEEP in 2025
<b>D2A3</b>	<b>Sector-focused business decarbonization guides</b>			
	Develop and share sector-specific decarbonization guides for businesses (e.g. for storefront retail, small industrial business, etc.)	Industry associations, business improvement associations (BIAs), regional government stakeholders, business capacity building organizations	Identify existing guides / resources through CI-A1 and mark out gaps  Develop 1-2 guides, in partnership with industry associations and/or BIAs	Develop and promote 1-2 guides per year to 2025
<b>D2A4</b>	<b>Green economy training</b>			
	Create professional development materials for educators on opportunities in the green economy	Teacher associations, education reform groups, post-secondary institutions, training regulators	Exploratory conversations with relevant partners	Develop materials and teaching units and do two trainings for teachers per year  Look to expand beyond VSB if possible
<b>D2A5</b>	<b>Sectoral forecasting and market intelligence</b>			
	Develop market demand forecasts for critical sectors to show upcoming demand and market transformation opportunities vis-à-vis climate action	Provincial government ministries, regional governments, climate non-profits	Continue to scope and refine the proposed Metro Vancouver Clean Transportation Market Forecast	Work with BC Building 2 Electrification (B2E) Coalition to explore BC-wide green building market demand forecast  Identify other forecasting needs on an ongoing basis

## **Direction 3**

### **Make it easier to access and buy climate solutions**

#### **What this direction means**

Even if businesses and other organizations know the broad strokes of what must be done, they still face numerous challenges as they navigate the path from knowledge to action. Climate solutions come in many forms, and the best solution is not always readily at hand – a sentiment frequently echoed during the engagement process. Whether the solution to decarbonize is to find the most suitable model of heat pump or an available model of electric vehicle, even those who already committed to fighting the climate crisis need help. Whereas Direction 2 aids them in identifying these solutions, Direction 3 facilitates access.

Direction 3 works on several fronts to help businesses access and buy the climate solutions they find. By developing industry groups and buyers' clubs, this direction leverages collective intelligence and action to bring the right products to the right people. Furthermore, addressing procurement challenges for major institutions can make it easier for innovative solutions to scale across the whole market over

time. And by creating a “scouting” function for equipment purchasers, fulfilling Direction 3 has the potential to put Vancouver on the global map as a solution-provider’s market for everything climate related.

#### **How will these actions improve equity and justice?**

Individual projects will undergo equity reviews as part of their development.

Potential considerations for the projects noted below include:

- Ensuring diverse representation of program participants
- Looking for co-benefits in removing barriers to decarbonization in policy or regulation that also limit equity
- Developing procurement solutions that simultaneously ease workforce bottlenecks, increase diversity and equity, and create greater shared prosperity

#### **How will we know this direction is working?**

VEC will rely on engagement-related metrics for these actions, including:

##### **HEADLINE INDICATOR**

### **SENTIMENT**

Sentiment data on the availability and accessibility of climate solutions

##### **SUB-INDICATOR**

### **PARTICIPATION**

# of attendees to VEC and partnered programming

##### **SUB-INDICATOR**

### **ACCESS**

# of downloads or views on relevant resources



## The Actions

<div> DIRECTION 3 Access and buy </div>				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D3A1</b>	<b>Industry working groups</b>			
	Work with industry associations and regional government to support development of sectoral working groups on decarbonization	Local governments, industry associations	<p>Work with Metro Vancouver to explore development of regional industry emissions working group and a discussion and coordination forum</p> <p>Continue to support work of Vancouver Maritime Centre for Climate (VMCC), as well as the B2E Coalition</p>	Work with industry associations to explore further sector-specific working group needs
<b>D3A2</b>	<b>Identify regulatory barriers to climate action</b>			
	Develop annual “climate action regulatory barriers” reports on regulatory challenges identified in conversations with business, and supply these to relevant decision-makers	City departments, regional governments, industry associations, provincial government	Summarize feedback on regulatory barriers in annual reports, and share findings with relevant decision-makers at close of year	Develop and share annual summary
<b>D3A3</b>	<b>Streamline procurement</b>			
	Work with industry associations and major institutional procurers to research and advocate for more environmentally, socially, and financially effective (e.g. “agile”) and just procurement structures	Industry associations, institutional procurers	<p>Work with associations and institutional buyers to understand, and advocate for, more just and agile procurement styles</p> <p>Collaborate with Buy Social Canada and the City of Vancouver Community Benefit Agreement (CBA) Committee to explore contracting barriers to social procurement in the region</p>	Share and advocate on learnings in procurement barriers with relevant actors
<b>D3A4</b>	<b>Strengthen supply chain resilience</b>			
	Develop plans and activities to close supply chain gaps, including technology “attraction strategies” for key decarbonization technologies	Regional governments, BC trade industries, post-secondary industries	<p>Finalize the development of the BC Heat Pump Attraction Strategy and work with B2E to implement the activities therein between 2022-2025</p> <p>Explore further technology attraction strategy needs out of research and convenings in CIA5 and ABA1</p>	Develop further supply-chain activities on an as-needed basis to 2025 and work to embed these within Invest Vancouver and BC Trade Commissioner’s Service work going forward



## **Direction 4**

### **Make climate solutions more affordable**

#### **What this direction means**

Climate action fundamentally represents both an opportunity and a cost. While the long-term benefits of climate action can be quantified on the basis of something broad – such as a social cost of carbon, or through improving a businesses’ risk profile – immediate resources also matter. Making climate solutions more affordable for businesses is key to their successful action, particularly when taking action will become mandatory through new policy or regulations, as in the Climate Emergency Action Plan.

Direction 4 addresses this need by building on industry relationships, developing bulk-buying and aggregation platforms and doing so in partnership with C40 Cities Climate Leadership Group and CDP through their Cities and Business Climate Alliance. Additionally, new financing tools will be explored and advocated for. Finally, VEC’s flagship program, Project Greenlight, will continue to operate and be expanded to ensure effective technology de-risking and help drive down costs of new technologies.

#### **How will these actions improve equity and justice?**

Individual projects will undergo equity reviews as part of their development. Potential considerations for the projects noted below include developing programmatic solutions that specifically target – and perhaps provide additional support to – businesses from equity-deserving communities.

#### **How will we know this direction is working?**

VEC will rely on engagement-related metrics for these actions, including:

##### **HEADLINE INDICATOR**

### **SENTIMENT**

Sentiment data on the availability and accessibility of climate solutions

##### **SUB-INDICATOR**

### **PARTICIPATION**

# of attendees to VEC and partnered programming

##### **SUB-INDICATOR**

### **ACCESS**

# of downloads or views on relevant resources

## The Actions

<div> <div>DIRECTION</div> <div>4</div> </div> Affordable climate solutions				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D4A1</b>	<b>Bulk buying and aggregation</b>			
	Utilize existing industry coalitions and working groups, and other methods, to pursue bulk-buying of technologies, and create new ones where necessary	Industry associations and business alliances, regional governments, utilities companies, international and local think tanks, local climate change non-profits	Support nascent fleets-oriented bulk-buying work through Green Industrial Innovation District (GRIID)  Leverage the C40 Cities and Business Climate Alliance (CBCA) to develop scope of work around retrofit accelerator	Provide ongoing support for bulk-buying activities in retrofits and fleets  Explore potential aggregation needs for small industrial businesses through D2A1
<b>D4A2</b>	<b>New financing tools</b>			
	Research and advocate for financing solutions that can advance business decarbonization	Utilities, city departments, local think tanks, local financial institutions	Continue to participate in the development of a provincial PACE program  Work with City of Vancouver to develop a retrofit finance framework for CEAP	Explore future financing needs for transport decarbonization and nature-based solutions, and, where relevant, other sectors
<b>D4A3</b>	<b>Technology de-risking</b>			
	Leverage Project Greenlight (PGL) membership to share case studies on the innovative technologies they have piloted and share that information out across the economy	PGL members	Continue to share successful PGL pilots with the ecosystem	Work to identify “high potential” decarbonization technologies with PGL members and other institutions that, if piloted, could help catalyze more widespread decarbonization



## **Direction 5**

### **Make climate solutions more profitable**

#### **What this direction means**

A successfully decarbonized economy will only be realized when climate-related business actions are considered standard practice and unavoidable. Buyers of climate solutions will need stable and affordable prices if they are to make definitive investments. Moreover, both producers and purchasers of solutions must see positive outcomes for their balance sheets in the long-term, whether it be achieved via direct revenue or reduced risk.

Direction 5 responds to this need by attempting to work at the systems level to clarify any long term risks – especially in the financial sector – represented by the negative impacts of climate change as well as the transition to a zero-carbon economy. The Climate and Economy Hub is a concept being developed by VEC with various financial system partners. Such a hub broadly aims to better prepare financial policy and practice in BC to take advantage of the value of climate action, and hedge against the risks of inaction. Valuation research will be developed

– especially around nature-based solutions  
– to create mechanisms for players to accrue additional value for climate-positive investments they make.

#### **How will these actions improve equity and justice?**

Individual projects will undergo equity reviews as part of their development. Potential considerations for the projects noted below include:

- Developing financing solutions that are available to all, including some that have specific benefits for equity-deserving businesses
- Developing new valuation forms that benefit those who have historically been excluded from wealth-generation

#### **How will we know this direction is working?**

VEC will rely on engagement-related metrics for these actions, including:

##### **HEADLINE INDICATOR**

**TBD**

TBD

##### **SUB-INDICATOR**

**PARTICIPATION**

# of attendees to VEC and partnered programming

##### **SUB-INDICATOR**

**ACCESS**

# of downloads or views on relevant resources

## The Actions

<div> DIRECTION 5 Profitable climate solutions </div>				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D5A1</b>	<b>BC Climate and Economy Hub</b>			
	Work with public and private sector stakeholders to develop a clearing house for climate finance and risk challenges, and work towards a provincial roadmap of regulatory changes and capacity building initiatives to make BC's financial system more climate-resilient	Local financial institutions, financial regulators, financial services, and climate change non-profits	Scope and develop Hub concept further with key stakeholders, with aim to launch by Q2 of 2022	Develop a roadmap of activities to 2030 for Hub, with ongoing training and annual convening
<b>D5A2</b>	<b>Climate-aligned valuation</b>			
	Work with industry and regulators to adjust valuation practices in real estate and corporate finance to ensure fullest range of climate finance and other considerations are integrated into financial models	Local financial institutions, financial regulators, researchers	Explore new opportunities to integrate natural capital valuation into corporate finance	<p>Explore and launch research project related to natural capital and valuation protocols</p> <p>Work with BC Financial Services Authority (FSA) and industry associations to explore better valuation approaches in corporate finance</p>



## Direction 6

### Make climate solutions scale

#### What this direction means

Vancouver and BC's economy are made up of small businesses. Ninety-eight percent of all businesses are small or medium enterprises (SMEs), with roughly **one in 10 people** in the whole of the province working for themselves. Decarbonizing the economy, therefore, means decarbonizing businesses. And that means that business models, services, and products that work must be available to all the tens of thousands of SMEs that call Vancouver home.

Direction 6 will work to address this by focusing on amplifying the activities that already work across the entirety of the economy. By developing a showcase to create more awareness of leading businesses, ZEETAP aims to foster more excitement and momentum for the business decarbonization opportunity.

The concept of a Youth Green Economy Corps offers young residents of Vancouver even more pathways to support climate action, build their own skills, and help create the future economy they want to work in.

Investment promotion in collaboration with Invest Vancouver, destination development in support of Destination Vancouver's work, and an internal international engagement strategy

for VEC will all ensure that Vancouver's work and our story will be available to people around the world, and ensure we remain on the cutting edge of the global movement to address climate action.

#### How will these actions improve equity and justice?

Individual projects will undergo equity reviews as part of their development. Potential considerations for the projects noted below include:

- Establishing mechanisms for equity-deserving businesses to be profiled in specific and beneficial ways
- Ensuring that equity considerations are well-addressed in any youth programming, such as through additional supports for historically marginalized populations, and via culturally sensitive approaches to training
- Any destination development work must also take place in the context of collaborations with all Indigenous Nations in the region, including any specific Indigenous tourism organizations

#### How will we know this direction is working?

VEC will rely on engagement-related metrics for these actions, including:

##### HEADLINE INDICATOR

### **UPTAKE**

# of businesses greening their operations

##### SUB-INDICATOR

### **PARTICIPATION**

# of attendees to VEC and partnered programming

##### SUB-INDICATOR

### **ACCESS**

# of downloads or views on relevant resources

## The Actions

<div> <div>DIRECTION</div> <div>6</div> <div>Climate solutions scale</div> </div>				
Code	Action	Potential Partners	2022 Activities	2023-2025 Activities
<b>D6A1</b>	<b>Amplify climate leaders</b>			
	Develop and support ways of celebrating businesses that are climate leaders	Local financial institutions, trade institutions, think tanks	Explore showcasing models and map existing awards/pledges/local certification landscape	Launch and/or strengthen showcase(s) by Q4 of 2023
<b>D6A2</b>	<b>Climate-aligned valuation</b>			
	Work with local youth organizations and climate leaders to develop training and/or programs to support youth acting as ambassadors	Local youth engagement, empowerment, and climate change non-profits	Explore programming and training needs with youth organizations	Develop, fundraise for, and implement programmatic ideas
<b>D6A3</b>	<b>Investment promotion</b>			
	Work with Invest Vancouver and other partners to package and promote investment opportunities in Vancouver's zero-emissions economic transition	Invest Vancouver	Use leading tools in partnership with Invest Vancouver to assess the global competitiveness of Vancouver's green economic sectors, with the aim of positioning Vancouver to capture a greater share of green international investment	Develop a process for organizations to submit promising decarbonization investment opportunities to Invest Vancouver
<b>D6A4</b>	<b>Destination for sustainability</b>			
	Work with Destination Vancouver and other partners to continuously promote Vancouver as a global destination for thought leadership in sustainability, and a convening location of choice for major conversations and events around climate action	Destination Vancouver	Develop strategic conversations with Destination Vancouver around high-priority events (e.g. future COPs, C40 Mayoral Summit) that would support broader decarbonization needs, especially in line with D2A1 & D2A4	Support Destination Vancouver's destination development activities on an ongoing basis
<b>D6A5</b>	<b>International engagement</b>			
	Use international networks, such as C40, and climate action events such as the UNFCCC's Conferences of Parties (COPs), to share Vancouver's successes and economic opportunities	Regional governments, tourism associations	Develop an International Engagement Strategy as part of VEC's Corporate Plan for 2023  Accredit VEC for relevant international forums, such as UNFCCC	Implement international engagement strategy



## Metrics and Indicators

As part of the development of the CEAP Indicators Framework, VEC collaborated with City of Vancouver staff to develop a series of metrics and indicators related to the economic impacts of CEAP, working in tandem with metrics under development for ZEETAP. Some of these indicators – particularly the headline indicator

related to the growth rate ratio of green jobs to non-green jobs – will be integrated into ZEETAP, as below. However, others that are more specific to programmatic CEAP activities will not be carried over. The CEAP economic indicators are summarized in Table 4.

**Table 4 CEAP Economic Indicators**

Economic Outcomes and Headline	Target	Data Source?*
<b>Big Move 2: By 2030, two-thirds of trips in Vancouver will be by active transportation and transit</b>		
\$ Transportation cost (average, household/business)	Decrease	Y
\$ Local consumer spending by active transportation and transit users	Increase	P
<b>Big Move 3: By 2030, 50% of the kilometers driven on Vancouver's roads will be by zero-emissions vehicles</b>		
\$ Transportation cost (average, household/business)	Decrease	Y
% Commercial vehicle replacements (fossil-fuel to zero emissions)	Increase	P
<b>Big Move: 4 By 2030, the carbon pollution from buildings will be cut in half from 2007 levels</b>		
# Green jobs related to green building and construction	Increase	Y
# Number of practitioners trained in green building retrofits (by relevant organizations in Vancouver, e.g. VRCA, HAVAN, ZEBx)	Increase	Y
<i>TBD: indicator of regional economic value generated by green building policies (e.g. GDP contribution of green buildings sector)</i>	<i>Increase</i>	<i>TBD</i>
<b>Big Move 5: By 2030, the embodied emissions from new buildings and construction projects will be reduced by 40% compared to 2018 baseline.</b>		
\$ Investment in permitted mass timber and other key low-carbon construction materials and projects	Increase	P
# Number of practitioners trained in low embodied-carbon design (e.g. LAC/ECN training)	Increase	P
<b>Economy Headline: Vancouver has a resilient economy that creates prosperity, opportunity, and decent work for all, within planetary boundaries</b>		
% Growth rate ratio: green jobs vs. all jobs (community-wide)	Increase	Y

\*Y = yes, P = possible



The proposed ZEETAP indicators, to be refined in preparation for the next CEAP reporting period in 2023, are listed in Table 5.

In early 2023, VEC will undertake a prioritization exercise to confirm and move forward with its ZEETAP metrics, in alignment with other related economic research and data tracking efforts that will be underway.

**Table 5 Proposed ZEETAP Indicators**

Level of Indicator	Category	Metric
<b>Direction 1 – Make climate solutions and their impacts more just and equitable</b>		
Headline indicator:	Diversity	% of people of diverse backgrounds in green jobs
Sub-indicators:	Wages	Average salary of green jobs
Sub-indicators:	Growth	% growth rate of green jobs
<b>Direction 2 – Make it easier to get climate information</b>		
Headline indicator:	TBD	TBD
Sub-indicators:	Participation	# of attendees to VEC and partnered programming
Sub-indicators:	Access	# of downloads and views on relevant resources
<b>Direction 3 – Make climate solutions easier to access and buy</b>		
Headline indicator:	Sentiment	Sentiment data from businesses on the availability and access to climate solutions
Sub-indicators:	Participation	# of attendees to VEC and partnered programming
Sub-indicators:	Access	# of downloads and views on relevant resources
<b>Direction 4 – Make climate solutions more affordable</b>		
Headline indicator:	Sentiment	Sentiment data from businesses on the costs of climate solutions
Sub-indicators:	Participation	# of attendees to VEC and partnered programming
Sub-indicators:	Access	# of downloads and views on relevant resources
<b>Direction 5 – Make climate solutions more profitable</b>		
Headline indicator:	TBD	TBD
Sub-indicators:	Participation	# of attendees to VEC and partnered programming
Sub-indicators:	Access	# of downloads and views on relevant resources
<b>Direction 6 – Make climate solutions scale</b>		
Headline indicator:	Uptake	# of businesses greening their operations
Sub-indicators:	Participation	# of attendees to VEC and partnered programming
Sub-indicators:	Access	# of downloads and views on relevant resources

## 4. Conclusion

Vancouver – its people, its land, and its economy – stands on the uncertain ground between promise and peril.

The economic impacts of the COVID-19 pandemic continue. National economic conditions grow more uncertain with the rise of inflation, and the risk of asset-bubbles is growing. Addressing these challenges, and the longer-standing scourge of poverty and inequality, is an essential part of our region's economic agenda. But it is clear, as restated again and again by every major institution – financial, scientific, professional, and otherwise – that the future of our way of living, and its economy, depends on whether we can address the ecological crisis we have created.

The pathway out of these challenges, however, does not represent a binary choice: sluggish national productivity can be addressed through investments in cleaner, more efficient production and distribution modes; crumbling physical assets can be reinvested in, generating good jobs and spurring innovation; and changing global markets can be navigated with a strong collective vision and brand. These are all possible for Vancouver to achieve.

**We know because we've done it before.**

The once sleepy mill-town that Vancouver was prior to Expo '86 was transformed into a globally dynamic economy that – despite struggling with inequality – has also generated innumerable new products, services, and investments founded on values of sustainability, equity, reconciliation, and inclusion.

Despite predicted headwinds, the race to a zero-carbon economy remains Vancouver's to lose. And we know Vancouverites want to win.

With the completion of the Zero Emissions Economic Transition Action Plan, the Vancouver Economic Commission enters a new phase of its work: to not only green, but transform, our economy.

### **Going beyond climate action**

Because of its relationship to CEAP, ZEETAP necessarily holds to an ambitious but conceptually narrow scope of supporting short-term reductions in GHGs and business resilience. There are nonetheless longer-term challenges and opportunities that VEC will initiate and continue to participate in.

### **Circular economy**

VEC is active in many activities supporting the circular economy, and will work to develop a circular economy strategy in 2022. This will build on VEC's suite of existing circular economy initiatives.

### **Commercialization and innovation**

VEC's activities through Angels for Climate Solutions and other related programs will support early-stage innovators who are developing technologies that can help further support decarbonization and other environmental action beyond 2025 and 2030.

### **An economy-wide transformation strategy**

As part of the follow-up to the Vancouver Plan, VEC will develop an economic development strategy for the City of Vancouver, within which ZEETAP's actions and activities will be integrated, and wherein the longer-term issues of innovation and overall economic transformation will be addressed.



With our internal strengths of research, convening, and programming, VEC will continue to sharpen our focus on integrated, intersectional work that addresses the core needs of our economy. More importantly, it is through ZEETAP and all our broader work – through collaboration and partnership with the leaders across the region – that we know a more just, inclusive, dynamic, prosperous, and truly zero-carbon and circular economy is possible.

**We can't wait to work with you to show the world how.**

## 5. What now? A Call to Climate Action for Vancouver Businesses and Workers

As small businesses and workers throughout Vancouver, where can you fit into the activities that will emerge from systems-wide plans and policies? Like other ambitious, large-scale strategies, the scale of this Zero Emissions Economic Transformation Action Plan may be inaccessible to many.

VEC will continue to create spaces for everyone in the economy to reach out and work with us on initiatives within ZEETAP, but in many cases, action is easiest to start on your home turf.

### So, where to start?

From our engagement with SME representatives, we have heard that businesses face challenges at various points along the lifecycle of implementing a project. We think it is important to start with a view as to how you will deal with each step of the process, and have compiled some resources for each stage below.

**Figure 5 The Project Lifecycle**





# 6 Steps to Embedding Climate Action into your Business

1

**Understand the context:** Review summaries or overviews of the climate plans relevant to you, to understand both the climate context you work within, and the regulations or other changes you may experience soon.

- **City of Vancouver**  
[Climate Emergency Action Plan](#)
- **Metro Vancouver Regional District**  
[Clean Air Plan](#)
- **Province of British Columbia**  
[CleanBC](#)
- **Government of Canada**  
[Healthy Economy and Healthy Environment](#)

2

**Develop your rationale:** Work internally to develop a rationale for why you want to take climate action: is it about getting in front of competition? Compliance with future regulations? Attracting the next generation of talent? This will help you determine where you want to act. Resources to consider:

- **Deloitte**  
[Consumer Business: Merging climate and business strategy to benefit the bottom line](#)  
Learn from a leading global consultancy group on the first steps toward meeting the triple bottom line (social, environmental, financial)
- **Task Force on Climate-related Financial Disclosures (TCFD)**  
[Manifest Climate: Climate-related Financial Disclosure](#) | The TCFD was created to improve and increase reporting on climate-related financial information. Michael R. Bloomberg is the chair – a renowned businessman and former mayor of New York City.

3

**Identify your opportunities:** Leverage internal capacity, look to hire consultants or use student programs to identify where you can take action to reduce (or prevent) emissions of carbon pollution. Try to think in terms of how you can avoid emissions, reduce them through better operational processes, replace them through electrification or fuel-switching, and offset those that you can't. Useful guides and toolkits:

- **Vancity**  
[Planet Wise Business Guide for Climate Action](#)  
A simple and effective guide designed to help your business respond to the climate crisis by taking actions that reduce, or avoid generating, greenhouse gas emissions
- **Manitoba Chambers of Commerce**  
[Climate Action Toolkit](#) | Helpful information, resources, case studies and more to help SMEs get started on their climate action journey
- **SME Climate Hub**  
A global [resource and tool hub](#) with numerous resources to help you decarbonize

4

**Plan:** Once you have identified your opportunities, you need to rank them based on where the most impact can be felt. Key considerations here are:

- What will I be required to do by regulation and what I can get a head-start on?
- What reduces costs and increases profits?
- What would help me differentiate my business to consumers and employees?

5

**Execute:** Use one of the many excellent service providers – or develop your own internal capacity – to take on climate action and get the job done.

6

**Maintenance:** Maintain steps listed above. Ensure to stay connected with the most updated climate action policies and ZEETAP.

# Appendices

## Appendix 1: Engagement

ZEETAP was developed on a strong foundation. Ten years of economic analysis and engagement on the green economy from VEC augment the innumerable public engagement sessions, commissioned research, and other inputs that went into the City of Vancouver's Climate Emergency Action Plan, Climate 2050, and CleanBC. The ZEETAP team followed a blended method of secondary and original research and engagement to complement the wealth of information already on hand from those prior processes. This included:

- Reviewing all major climate policies and plans at the local, regional, provincial, and national level
- Developing a diverse, strategic ZEETAP External Advisory Group (EAG) which included representatives from the public, private, and nonprofit sectors
- Over 30 individual interviews with local stakeholders and global thought-leaders
- Attending major events, workshops, and engagement processes at the local, regional, provincial, and global levels
- Reviewing and iterating on modelling done for CEAP and CleanBC
- Integrating findings, insights, and recommendations from prior VEC research, programs, and activities

### A. Engagement overview

ZEETAP team members first reviewed the original CEAP consultation and engagement summary to synthesize specific economic takeaways:

- **Workforce gaps** – More workers and trained professionals are needed to meet the needs of some basic CEAP-related activities, are not available in either sufficient quantity or quality.
- **Payback/amortization periods** – Many businesses identified challenges in the payback or amortization periods for various measures, such as heat pumps or ZEVs. Long periods, even those greater than five years, were identified as significant barriers for major decarbonization projects.
- **Coordination and planning** – The sequencing of many of the types of investments envisioned in CEAP, especially for private fleet and landowners, is still uncertain, as different CEAP and other actions interact with one another.
- **Ecosystem knowledge and capacity** – There are many widespread ecosystem knowledge and capacity gaps throughout the Vancouver business ecosystem. Facilities and fleet planning, for example, is generally not advanced and creates barriers to planning for implementing CEAP activities over time.

Building on this, and the advice of the External Advisory Group, VEC then conducted numerous interviews and focus groups, attended community session and working groups, and otherwise observed and explored findings across numerous green economy and decarbonization efforts across the economy.

**Table 6 Engagement Summary**

Types of Engagement		
<ul style="list-style-type: none"> <li>• 30 interviews</li> <li>• 10 focus groups</li> <li>• CDP business scan</li> </ul>		<ul style="list-style-type: none"> <li>• 3 engagement reports</li> <li>• Preparing for MST engagement in 2022</li> </ul>
Organization Types Engaged	Sectors Engaged	
<ul style="list-style-type: none"> <li>• Industry associations</li> <li>• Businesses</li> <li>• Business support organizations</li> <li>• Academia</li> <li>• Governments</li> </ul>	<ul style="list-style-type: none"> <li>• Transportation</li> <li>• Energy</li> <li>• Buildings</li> <li>• Finance</li> <li>• Cleantech</li> </ul>	<ul style="list-style-type: none"> <li>• Labour</li> <li>• Social equity</li> <li>• SMEs</li> </ul>

## B. External Advisory Group (EAG)

VEC developed a ZEETAP External Advisory Group (EAG) to guide the development of the plan. The participants were strategically selected across business, government, and community organizations that would have insight both on existing plans and policies, and where new opportunities could be seized. They were consulted in three major sessions to review the milestones of the plan, and consulted individually on an ongoing basis.

**Table 7 ZEETAP External Advisory Group Members**

Sector	Organization
Finance	Vancity
Labour	Vancouver District Labour Council
Social Enterprises	Buy Social Canada
Climate Justice	City of Vancouver Climate and Equity Working Group
Education	BCIT
Tourism	Destination Vancouver
Transportation	Seventh Generation Capital
Transportation	BC Trucking Association
Cleantech	Fuel Cell Association
Buildings	Vancouver Regional Construction Association
Local Government	City of Vancouver
Regional Government	Metro Vancouver Regional District



## C. Indigenous engagement

VEC recognizes the importance of including Indigenous peoples when discussing future economic impacts of future climate policies. Justice and equality, a goal of ZEETAP, will not be achieved without proper and inclusive engagement of Indigenous peoples.

Because ZEETAP is embedded within City of Vancouver's Climate Emergency Action Plan, engagement with the Host Nations – the Musqueam, Squamish, and Tsleil-Waututh – will commence as a part of the City's engagement process on all CEAP actions. Urban Indigenous leaders are also being contacted for specific projects on an individual basis.

At the time of publication, VEC has put forward a formal submission, along with other City departments, to engage the Host Nations and understand their interest in the work proposed in ZEETAP, or work that they wish to see included. Due to the limited capacity and high volume of requests of the Nations, there is a possibility that ZEETAP will not fit their current intentions or priorities.

VEC commits to engaging sensitively around these issues and, on a project level, will work to mobilize resources (e.g. honouraria, cultural advising services, and so on) to support this work effectively, and to help increase resources available to Indigenous communities in Vancouver to codevelop and share in green economy work.

## D. Summarized feedback and SWOT analysis

Feedback from the EAG, interviews, past research reports, and previous engagement processes were all integrated into a high-level strengths, weaknesses, opportunities, and threats (SWOT) analysis. This analysis, summarized below, informed subsequent research and stakeholder engagement.

*The SWOT analysis continues on the next page.*

**Table 8 Summarized SWOT Analysis for Climate Action and the Economy in Vancouver**

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Already the most decarbonized economy in North America</li> <li>• Strong, multi-sector (i.e. business, consumer, government) demand for and interest in climate action</li> <li>• Regulatory backstops are creating a relatively clear (though imperfect) baseline for market action (e.g. Carbon Tax, BC Energy Step Code)</li> <li>• Existing cross-sectoral partnerships (e.g. tech and green buildings) with growing demand for more: “green” is not just its own industry anymore</li> </ul>	<ul style="list-style-type: none"> <li>• Conflicting regulations (e.g. urban design and energy efficiency) creating headaches and increased costs for businesses</li> <li>• Significant labour deficit across most of the economy (especially in trades)</li> <li>• Payback on many critical-path decarbonization technologies (e.g. fuel-switching retrofits, heavy-duty electric vehicles) is either very long, or non-existent</li> <li>• Relatively small size of the Vancouver/BC market</li> <li>• Fragmented governance in key issue areas (e.g. land-use, materials, and energy use in buildings)</li> <li>• Intersecting crises and economic pressures, especially in affordability of housing and commercial spaces and stagnant economic productivity</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Existing work in some sectors (e.g. light-duty vehicles, new construction, etc.) creates significant transferable learnings to new areas of climate action (e.g. retrofits, heavy duty vehicles)</li> <li>• Early movers across industries are already building case studies of action; further government investment will accelerate work, especially in buildings</li> <li>• Aggressive climate action leverages consumer and resident concerns; further brand differentiation and strengthening opportunity for all Vancouver businesses</li> <li>• Significant amounts of federal infrastructure and economic stimulus funding is rolling out, and likely to continue for the next 3-5 years</li> <li>• Federal backstop carbon price and climate accountability will create overall business climate to motivate voluntary behavior</li> <li>• Most of the policy and regulatory actions, at all levels of government, are highly jobs-intensive, offsetting any concerns about significant negative employment impacts</li> <li>• Many activities (programs, policies, and regulations) have widely dispersed co-benefits (e.g. transit investments ease goods movement)</li> </ul>	<ul style="list-style-type: none"> <li>• Senior governments’ fossil fuel investments (e.g. TMX, LNG in Canada, etc.) may reduce funding for already low-carbon jurisdictions like Vancouver; also creating consumer confusion</li> <li>• As climate change worsens, funds will be increasingly needed for both mitigation and adaptation needs — a low-carbon resilience perspective will be critical</li> <li>• Industry could become confused as various policies and regulations either directly overlap, or are perceived to (e.g. BC Energy Step Code and Zero Emissions Building Plan)</li> <li>• Province’s / BC Hydro’s debt load may mean rising price of electricity in coming years</li> </ul>



## Appendix 2: Research and Economic Analysis

The results of this combined work are developed below in the following sections:

- Overview of the Vancouver economy and its green potential
- Economic modelling of CEAP
- Synthesized research
- Sector-specific SWOT analysis

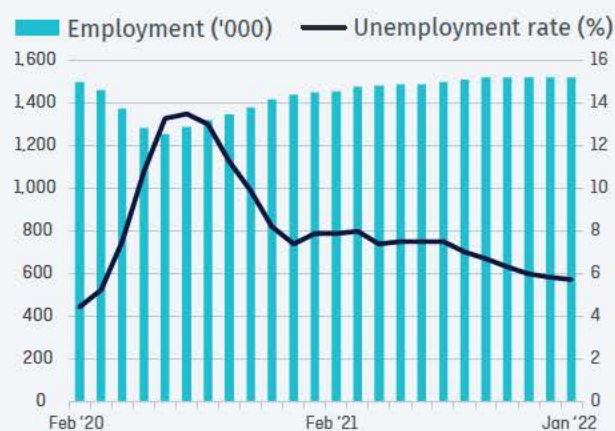
### A. The state of vancouver's green economy today

The city of Vancouver is home to over 662,000 people and over 99,000 businesses. More than 85% of those businesses have less than 10 employees (pre-COVID levels). As of 2017, the GDP of Metro Vancouver was equal to approximately \$135.6 billion. Even as some sense of normalcy begins to return, the economic impacts of COVID-19 continue to ripple through the economy. While employment levels have returned to 2019 levels, uneven job impacts are still being felt for women, people of colour, young people, and low-income wage earners.

#### According to VEC's Spring 2022 Vancouver Economy Report, Metro Vancouver employment has fully recovered in absolute terms

Total employment increased steadily from June 2020 through to the end of 2021, with a small decline at the beginning of 2022 (down 2,400; -0.2%). This dip is attributable to the severe floods in the region and continued global supply chain challenges. Among Canada's four largest cities, Vancouver held the lowest unemployment rate for most of the last year.

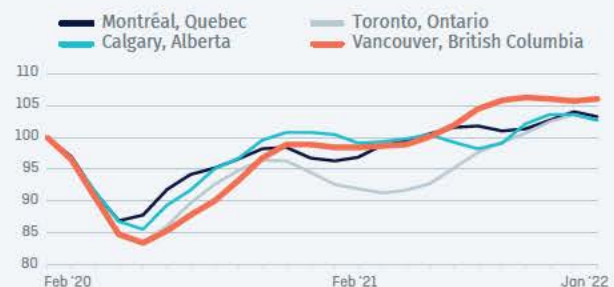
**Figure 5 Metro Vancouver Employment**



Source: VEC Analysis; Labour Force Survey, Statistics Canada

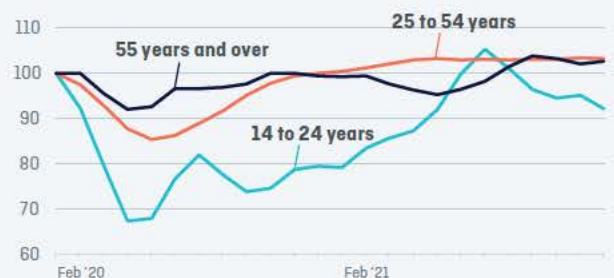
While full employment has recovered, there are still many lingering impacts from the economic dislocations that have been caused and continue to be felt because of COVID-19.

**Figure 6 Employment Indexes**  
February 2020 = 100



Source: VEC Analysis; Labour Force Survey, Statistics Canada

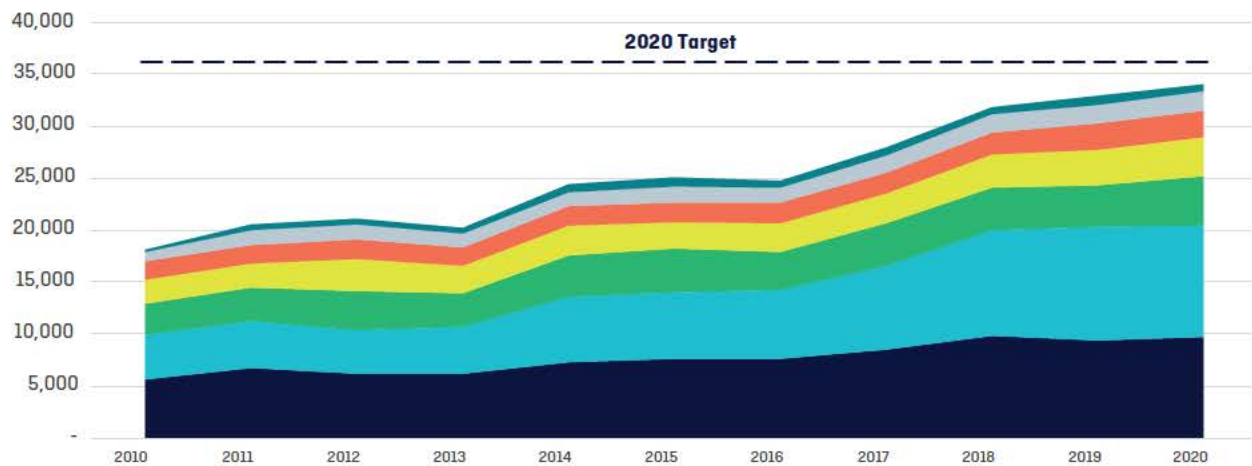
**Figure 7 Metro Vancouver Employment Indexes**  
By age group, February 2020 = 100



Source: VEC Analysis; Labour Force Survey, Statistics Canada



**Figure 8 Green and Local Food Job Growth**  
By sector, 2010-2020



Source: Vancouver Economic Commission, Delphi Group, 2021

- Legend**
- Materials Management & Recycling
  - Land & Water Remediation
  - Sustainability Services
  - Infrastructure & Transportation
  - Cleantech & Building Products
  - Green Building & Construction
  - Local Food

The green economy in Vancouver grew faster than that of any other city in Canada between 2010 and 2017. In 2018, 30% of Vancouver businesses delivered products or services that help to restore or preserve the environment. Today, one in 12 Vancouverites works in the green economy.

In early 2021, VEC undertook two surveys of the local business community to ascertain the growth of green jobs and how businesses are greening their operations. When businesses were asked what trends and drivers have affected their green jobs and services over the past four years, the three largest responses were government policies (50%), market forecasts (47%) and consumer demand (25%), highlighting the importance and interdependence of governments, businesses and individuals when working towards the goals of a zero-carbon

## B. Original CEAP modelling

As part of the development of CEAP, the City of Vancouver undertook extensive greenhouse gas (GHG), energy, and some economic modelling. The intention was to understand both the efficacy of proposed policy measures towards reaching the 50% emissions reduction goal by 2030, as well as to understand potential economic implications of these actions.

**Figure 9 Total Emissions Baseline Year-Target Year**

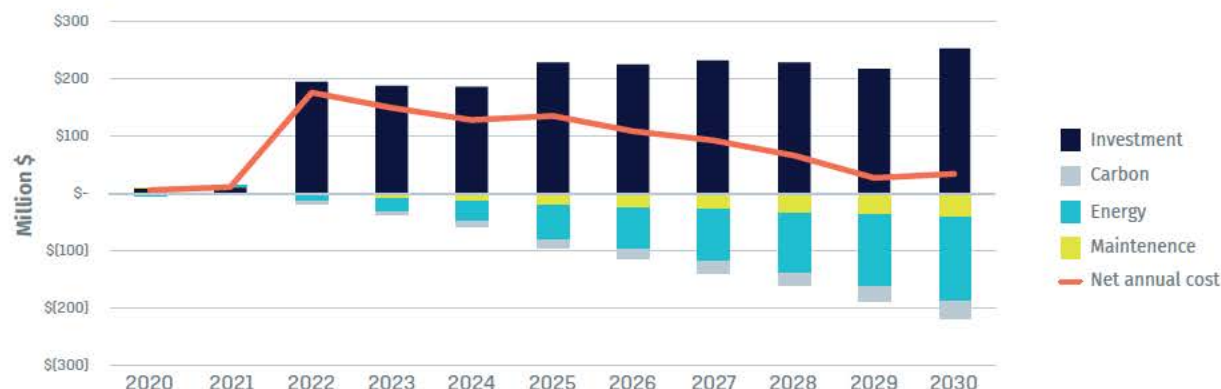


Successfully halving emissions by 2030 will not be easy, but an integrated approach that links activities by the City of Vancouver, Metro Vancouver Regional District, the Province of British Columbia, and the Government of Canada, can get us – just – to that goal.

On an economic basis, the integrated approach taken in CEAP has been shown in modelling to result in significant cost reductions compared to business as usual. Total resident and business investments in climate action solutions between 2021 and 2030, in response to both CEAP and CleanBC, are estimated at \$1.27B.

**Figure 10 Annualized Net Cost of CEAP Big Moves and CleanBC**

Assuming 1.5% interest rate



Those investments generate \$2.25 billion over the life of the investments for net resident and business savings of \$980 million. This does not include the secondary and tertiary economic benefits of reduced congestion, cleaner air, and increased resilience – some of which will be captured in future ZEETAP research.



## C. Sectoral research overviews

To deepen the understanding of these impacts across the economy, VEC did a finer-grained analysis across different sectors and two cross-cutting themes – workforce and finance – to understand key challenges, opportunities, and relevant initiatives that ZEETAP would want to engage with or at least be aware of. Key sectors analyzed included:

1. Buildings
2. Transportation
3. Energy
4. Circular economy

Additional research was also concluded on the workforce and finance as part of related projects that were integrated into the final plan.

**Table 9 Sectoral Research Overview: Buildings**

<h2>Overview</h2> <p>Buildings represent the largest single source of emissions in the City of Vancouver, and, inclusive of the construction and real estate sectors, are the single largest part of our economy.</p> <h2>Challenges</h2> <ul style="list-style-type: none"><li>• Building owners are facing intersecting challenges around industry capacity, rising land prices, and needed capital investments</li><li>• Many building owners, and builders themselves, lack the financial and technical capacity to undertake decarbonization retrofits</li><li>• The construction sector faces immense workforce shortages</li></ul> <h2>Opportunities</h2> <ul style="list-style-type: none"><li>• Energy-efficiency investments can generate considerable returns</li><li>• Innovative construction methods could help reduce wastage and increase timeliness of project delivery</li></ul> <h2>Key Initiatives</h2> <ul style="list-style-type: none"><li>• BC Building to Electrification (B2E) Coalition and Road Map</li><li>• Home Performance Stakeholder Council (HPSC)</li></ul>	<h2>Metrics</h2> <p><b>\$12.2 Billion</b> in regional GDP in 2016</p> <p>Statistics Canada</p> <p><b>98,000</b> jobs in the region in 2016</p> <p>Statistics Canada</p> <p><b>784,000</b> tonnes of city-wide GHGs in 2019</p> <p>SSG Consulting</p>
<h2>Relevant VEC Work</h2> <div><ul style="list-style-type: none"><li>• <b>Green Buildings Market Forecast</b></li></ul></div> <div><ul style="list-style-type: none"><li>• <b>PACE for Resilience</b></li></ul></div> <div><ul style="list-style-type: none"><li>• <b>Sustainable Mortgage-backed Securities (SMBS) Overview</b></li></ul></div>	




**Table 10 Sectoral Research Overview: Transportation and Logistics**

<p><b>Overview</b></p> <p>From urban freight to curbside delivery, transportation and logistics are rapidly changing industries that represent a significant share of local emissions, and, next to construction, are one of the largest employers in the region.</p> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Zero-emissions medium- and heavy-duty vehicles (M/HDVs) are often still significantly more expensive than their conventional alternatives</li> <li>• Significant supply-chain limitations have prevented faster uptake</li> <li>• Technology gaps exist for certain vehicle categories, especially for HDVs</li> <li>• Significant infrastructure investments are still needed to ensure effective charging capacity</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Vancouver already has one of the highest rates of EV market penetration anywhere in North America</li> <li>• Vancouver has a plethora of zero-emissions companies, from biking to hydrogen, working to decarbonize transportation</li> </ul> <p><b>Key Initiatives</b></p> <ul style="list-style-type: none"> <li>• CleanBC Commercial Vehicle Pilots Program</li> <li>• PlugIn BC (via the Fraser Basin Council)</li> </ul>	<p><b>Metrics</b></p> <p><b>\$9.4 Billion</b> in regional GDP in 2016</p> <p><small>Statistics Canada</small></p> <p><b>74,000</b> jobs in the region in 2016</p> <p><small>Statistics Canada</small></p>
<p><b>Relevant VEC Work</b></p> <ul style="list-style-type: none"> <li>• Preparatory study on a Clean Transportation Market Forecast</li> </ul>	

**Table 11 Sectoral Research Overview: Energy**

<p><b>Overview</b></p> <p>The domestic use of energy in BC is dominated by the two utilities, FortisBC and BC Hydro, which supply almost all energy used in the City of Vancouver. The decisions made by these entities will have enormous influence on shaping future business decisions and potential GHG reductions.</p> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Most Vancouver buildings still rely on gas for the majority of their heating and despite FortisBC's growing use of renewable natural gas (RNG), future supply challenges remain</li> <li>• Electricity supplied by BC Hydro is clean (98% renewable), but costs more than gas (sometimes 2x) and often requires sub-station upgrades that can be expensive for a single project</li> <li>• On-site renewable energy is expensive to install, sometimes because of design regulations, and can have difficult payback periods if it is replacing gas</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Renewable energy is politically popular and highly desired by consumers and businesses alike</li> <li>• Efforts in alternative fuels, such as hydrogen, have a strong baseline of industry support and new initiatives, like a Vancouver Hydrogen Hub, are emerging all the time</li> </ul> <p><b>Key Initiatives</b></p> <ul style="list-style-type: none"> <li>• BC Hydro Electrification Plan</li> <li>• FortisBC 30x30 Carbon Reduction Plan</li> <li>• BC Centre for Innovation and Clean Energy</li> </ul>	<p><b>Metrics</b></p> <p>VEC is actively working towards measuring jobs, GDP, and GHGs from the energy sector and hopes to be able to report on these as part of future planning and research exercises</p>
<p><b>Relevant VEC Work</b></p> <ul style="list-style-type: none"> <li>• Participation in the BC B2E Coalition</li> </ul>	

**Table 12 Sectoral Research Overview: Circular Economy**

<p><b>Overview</b></p> <p>Transitioning to a circular economy will result in significant direct and indirect community- and industry-based carbon reductions. Circular business models include designing for disassembly and remanufacture, closed-loop processes that retain the inherent value of material at its highest and best use, and Product As A Service offerings. Circularity disrupts the inherently wasteful linear model of production and consumption and vast dependence on virgin materials.</p> <p><b>Challenges</b></p> <ul style="list-style-type: none"> <li>• Cultural, consumer, and behavioural shifts are necessary to build the market for circular options</li> <li>• Truly circular processes can only be achieved with collaboration between firms and supply chain actors, a process that is often mired in liability, risks to IP, and inertia</li> <li>• In tight markets with very slim margins, business operators justifiably prioritize business continuity over experimentation and innovation</li> <li>• Education, training, property zoning, taxation, permitting, etc. reify the existing linear economy and must be reconceived to enable circular economy activities</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Circular options (such as replacing virgin materials with byproducts of another industrial process) often represent cost savings and additional revenue for the firms involved</li> <li>• Transitioning to a circular economy creates numerous employment opportunities in material handling, separation, repair, developing novel applications, zero-carbon transportation and delivery methods, and more</li> </ul> <p><b>Key Initiatives</b></p> <ul style="list-style-type: none"> <li>• International and national standards in development to certify circular economy processes, products, and services</li> <li>• National and provincial Consumer Protection Acts making progress to include Right To Repair provisions</li> </ul>	<p><b>Metrics</b></p> <p>VEC is actively working towards measuring jobs, GDP, and GHGs from the circular economy and hopes to be able to report on these as part of future planning and research exercises</p>
<p><b>Relevant VEC Work</b></p> <ul style="list-style-type: none"> <li>• <b>A “Right to Food” Framework for a Just Circular Economy of Food in Vancouver</b></li> </ul> 	<ul style="list-style-type: none"> <li>• <b>Greater Vancouver Circular Economy Network</b></li> <li>• <b>Centre of Excellence for Circular Economy and the Green Industrial Innovation District (GrIID)</b></li> </ul>



## Cross-cutting analyses

Distinct from the sectoral analyses above, VEC also synthesized research in two important cross-cutting dimensions: labour markets and financial systems.

### Labour Markets

The global pandemic has created tight labour-market conditions in Canada particularly as immigration laid stagnant. British Columbia was the most impacted province by unfilled positions, with the accommodation and food services industries facing a rate of 6.7% vacancy. [A result of ongoing high job-vacancy rates](#) can have a significant impact on economic growth as businesses who are unable to find enough workers may be forced to operate at a reduced capacity and face upward pressure on wages.

**Table 13 Unemployment in BC and Vancouver**  
As of December 2021

	British Columbia	Vancouver
<b>Unemployment Rate</b>	5.3%	5.7%
<b>Participation Rate</b>	64.9%	N/A

Concerns with tight labour market conditions are exacerbated with an aging workforce in British Columbia. The 2021 BC Labour Market Outlook projects that, in 2019–2029, there will be 861,000 job openings in BC with an annual average growth of 3.2% in job openings. Approximately 69% of future job openings will be to replace workers leaving the labour force. As the population and the labour force continue to age, 598,000 job openings are anticipated mainly because retiring workers will need to be replaced. The growing gap between retiring workers and young people entering the labour force raises concerns for a “grey tsunami” that will impact many industries and leave it difficult for them to fill all needed roles effectively. An aging population points to slower growth in BC’s labour force and an acceleration towards issues of labour scarcity and skills gap.

The British Columbia Labour Market Outlook (2019) predicts that the gap will be easily filled and automation could contribute to closing the gap by reducing the number of job openings, which is a tenuous assertion at best.

## Deep Dive: The Just Transition

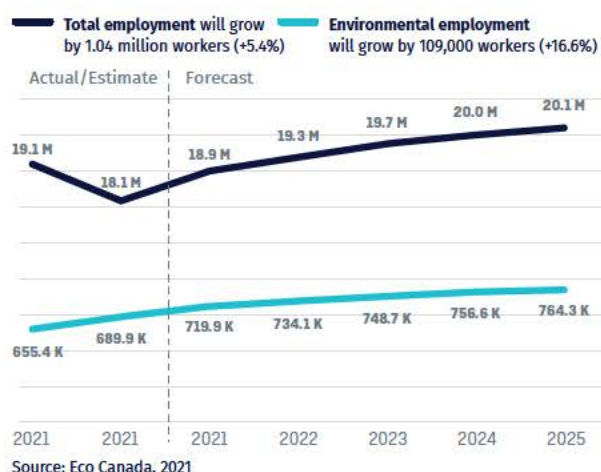


As part of the development of ZEETAP, a parallel project was run over the summer of 2021 to understand the current labour market conditions in Vancouver at a high level, and to understand emerging best practices in defining and delivering a just transition within those. For a more in-depth analysis and recommendations, [please see that report](#).

Additionally, the BC Labour Market Outlook does not adequately account for the existing labour and skills shortage many sectors are currently facing.

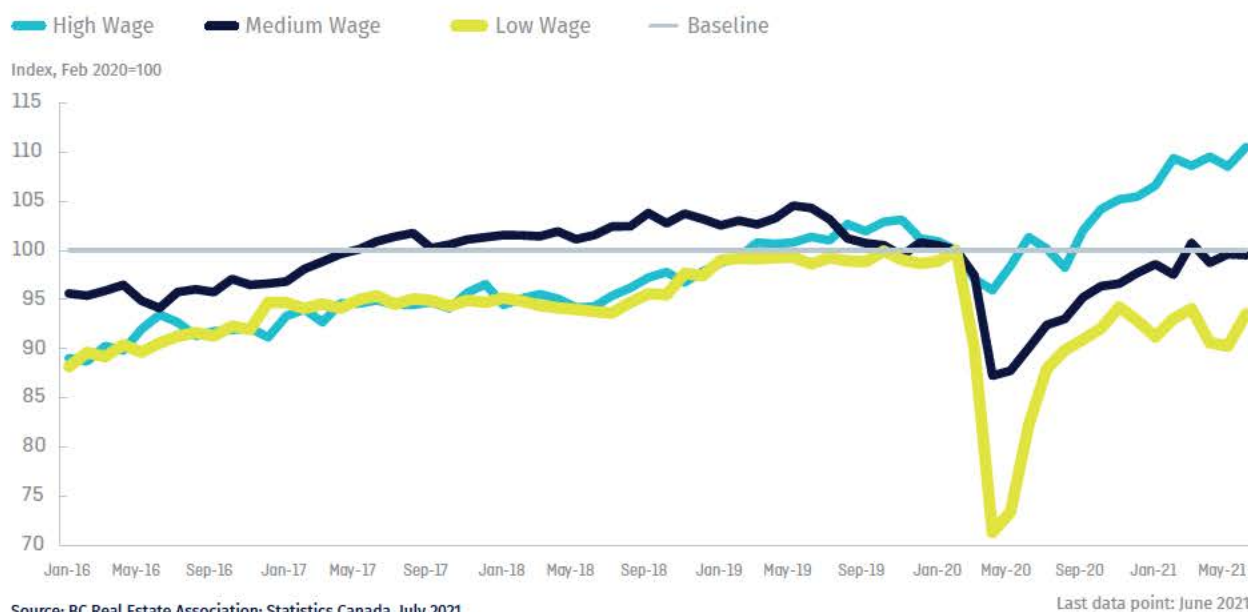
Projections for future labour markets have also inadequately accounted for the impact of new green jobs. Eco Canada projects that nationally, job growth and retirements will account for 173,000 net environmental job openings by 2025 (Figure 11 below displays the projected trajectory of environmental employment by 2025 in Canada). Green jobs have grown over 85% in Vancouver from 2010–2020, averaging to around 6% per year. This exceeds national growth rates, as outlined by EcoCanada, but is in line with the overall trajectory towards a significantly greener workforce.

**Figure 11 Total Employment vs Environmental Employment in Canada**  
2019 - 2025





**Figure 12 Employment Levels by Wage Tier  
British Columbia**



Lastly, and most importantly, is the consideration of the pervasiveness of inequality within Vancouver's workforce. Vancouver's [workforce is globally regarded](#) as one of the most innovative, skilled, culturally diverse, and, concerning, best value-for-price in North America. While this is most present in high-paid, white-collar jobs, like the tech industry, this is a part of a broader trend of Vancouver being Canada's third-worst city for economic inequality, behind Toronto and Calgary. This is particularly important to consider when economic inequality has actually fallen throughout the rest of BC since the 1980s, with Vancouver serving as the lone exception.

Lower income and socially marginalized populations have fewer resources to protect themselves when natural disasters occur. They are also the first to face job losses and other setbacks in unstable economic conditions. This is illustrated by the pandemic, which disproportionately impacted those in low-income communities and communities of colour.

Figure 12 above showcases BC-wide employment levels by wage tier on the onset of the global pandemic. At a national level, those within visible minority groups faced an unemployment rate of 16.3% in comparison to non-visible minority groups (9.3%). In large part, this is due to the fact that visible minorities are over-represented in hospitality and other sectors that were amongst the hardest hit. Women in visible minority groups remain persistently lower paid than men.

For Vancouver and Canada to bridge labour force inequities moving forward, it is essential to ensure future transition towards a green economy is inclusive and just. ZEETAP will aim to address this with work in its scope, and continuously call upon all relevant actors to increase their efforts in this space.

### Financial Markets

Over the decade of the Greenest City Action Plan, VEC played a core role in helping mobilize private capital to invest in cleantech companies and other ventures working towards environmental goods. In 2021, building on the incredible global momentum to address gaps in so-called “climate finance,” VEC is both continuing to support venture-level finance through programs like Angels for Climate Solutions, and through more systemic interventions like the climate-resilient economy workshop hosted in partnership with many organizations in October of 2021.

Pinpointing specifics about financial markets at the local level is a difficult exercise. Beyond Vancouver’s overreliance on real estate as an asset class, granular analysis around risk exposures and opportunities for Vancouver’s financial sector are difficult to make. In the framing of the Task Force on Climate-related Financial Disclosures (TCFD), wherein organizations and economies face both physical and “transition”-related risks, Vancouver and BC have broad features of both. From a physical risks

### Related Work: Climate Finance and Risk in BC



As part of the development of ZEETAP, a parallel project has been operating since June of 2021 to convene and engage with financial system actors. That culminated in a workshop in October of 2021 with these actors, who undertook a high-level evaluation of BC’s readiness for climate finance imperatives, and, as a follow-up, are developing work to help advance coordination on climate action in the financial sector and across the entire real economy.

perspective, Vancouver is better prepared than many cities, and the municipal government’s annual TCFD disclosures do an excellent job of summarizing key risks.

**Table 14 Examples of Projected Climate Impacts to Vancouver**  
Adapted from the City of Vancouver Financials, 2021

Impacted Area	Impacts to the City of Vancouver	Timeframe	Key Economic Risks
Human Systems (Community)	Increased health and safety risks for frontline communities including, those in lower quality housing, homeless population and seniors	Short-to medium-term	Public health; emergency management
	Increases in private property sewer back-ups in combined sewer areas due to high rainfall volume in sewer system and increased costs for response actions and clean-up after heavy rain events	Short-term	Residential, commercial, industrial, institutional damage and inoperability
	Water supply shortages in late summer due to a decreased spring snow pack and higher summer temps could result in increased costs for water and imperative conservation measures	Medium-term	Water supply and sanitation; public health; operational stoppages

Table continues on the next page



**Table 14 Examples of Projected Climate Impacts to Vancouver**  
Continued

Impacted area	Impacts to the City of Vancouver	Timeframe	Key economic risks
<b>Natural Systems</b>	Increase in impacts to urban forests, green spaces and trees from temperature extremes and wind storms resulting in increased maintenance and replacement costs and changes to aesthetics and use	Medium-term	Operational stoppages; increased maintenance costs; decreased aesthetic value.
<b>Built Environment (Buildings and Infrastructure)</b>	New and existing buildings may be maladapted as the climate changes in terms of thermal comfort, water ingress, wind durability, rain and snow loads, and require additional investment or early retirement	Short-to Medium-term	Residential, commercial, institutional damage and operational inoperability; public health challenges
	Increase in landslide risk affecting public infrastructure and private property	Medium-term	Loss of life; property damage; supply chain breakages.
	Increased volume of third-party liability claims against the city from major rain events	Medium-term	Decreased

These are only the implications of physical risks. And while they are conceptually well laid out, the potential costs have yet to be fully expressed or identified. Most clearly are those laid out in the connection to sea-level rise (SLR) and flooding. As they note in the Coastal Flood Risk Assessment:

“With one metre of sea level rise and a major storm surge event (1:500 (0.2% AEP) storm surge event), approximately 13 sq. km of land and buildings valued at CAD \$7B (2013 land value assessment) are vulnerable to flooding in Vancouver. Included in this is City infrastructure such as waterfront parks and seawalls, as well as a number of the City’s facilities currently located in low-lying areas (e.g. City service yards located by the Fraser River and in the False Creek Flats). To protect vulnerable areas, an estimated \$1 billion of flood management infrastructure will be needed in Vancouver by 2100.”

Transition risks are even more difficult to ascertain. In the VEC-led October 2021 workshop on a climate-resilient economy for BC, it was noted that no comprehensive risk analysis for BC has been undertaken, but several core risk areas do stand out:

- Metallurgical coal production is an important industry in BC (worth approximately [\\$3.9 billion in 2020](#)), with many of the headquarters and significant financing take place in Vancouver. With recent efforts like [Industrial Deep Decarbonization by the UNIDO](#), it is under increasing pressure;
- The recent IEA report on net zero by 2050 highlights the dangers of further investment in fossil fuels, wherein the authors note that “[no new oil and natural gas fields are needed](#)” in their 1.5°C pathway. BC continues to invest in LNG and other forms of fossil fuels, representing a significant on-balance risk for many BC and Canada-wide financial institutions that are investing in these projects;

- The Bank of Canada and Office of the Superintendent of Financial Institutions (OSFI)'s most recent climate scenario analysis has shown that Canada's financial institutions are exposed to **\$239.3 billion in credit risk** across 10 industries likely to be negatively impacted by climate action. In a scenario where the world limits warming to less than 2C, the oil and gas sector could face **revenue losses of up to \$20 billion annually**;
- The Canadian Institute for Climate Choices (CICC) has indicated that BC is one of the least-exposed provinces to transition risks on a comparative basis nationally, though, even still, **2.8% of BC workers are at risk of job losses due to climate action**. The changes in these sectors could have ripple effects throughout BC's financial system, further cementing the need for a just transition.

There is no conclusive risk analysis of BC's financial system that has been completed. VEC and others' work highlights the need for a coherent, province-wide strategy to align financial regulators, institutions, professionals, and other participants in financial systems and the real economy. ZEETAP addresses this directly in its direction around profitability, and the first action therein to develop a Climate Finance Hub, to further understand and plan for the needs of our financial system vis-à-vis climate change.



# ZEETAP **Zero Emissions Economic Transition Action Plan**

## Connect with us

For more information about the zero emissions economic transition in Vancouver, visit our website:

→ [www.vancouvereconomic.com](http://www.vancouvereconomic.com)



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## Contact us

Speak to a member of our team to learn more about the Zero Emissions Economic Transition Action Plan:

**George P.R. Benson,**  
Manager, Economic Transformation  
[gbenson@vancouvereconomic.com](mailto:gbenson@vancouvereconomic.com)

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VEC respectfully acknowledges that it is located on the traditional, ancestral and unceded territory of the Skwxwú7mesh (Squamish), Səlilwətaʔ/Selilwitulh (Tsleil-Waututh) and xʷməθkʷəy̓əm (Musqueam) Nations.