Zero-Emission Vehicle Awareness, Education, and Engagement

Advancing diversity, equity, and inclusion

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February 2022

Zero-Emission Vehicle Awareness, Education, and Engagement: Advancing diversity, equity, and inclusion.
M144-313/2022E-PDF
978-0-660-43562-6

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Contents

List of Tables

Executive summary

Organizations in Canada offer a suite of zero-emission vehicle (ZEV) awareness, education, and engagement activities that are diverse in both practice and mission. However, our research indicates that while some organizations are actively focused on engaging underrepresented communities,[1] the conversation surrounding diversity, equity, and inclusion (DEI) in ZEV awareness is nascent. For the purpose of this report, NRCan has defined underrepresented communities as including, but not limited to: Indigenous peoples and communities; racialized communities; rural and northern communities; and youth. Incorporating DEI into NRCan's Zero Emission Vehicle Awareness Initiative (ZEVAI) and other awareness programming furthers the federal government's goal to make zero-emission mobility accessible to all Canadians, thereby accelerating the decarbonization of transportation in all regions of the country.

This report outlines DEI criteria, conducts a literature review of best practices, and brings together lessons learned and insights from Canadian and U.S. mobility subject matter experts, in order to help deliver successful zero-emission mobility solutions for underrepresented communities. The report concludes with a new evaluation framework and recommendations on how NRCan could enhance its ZEV Awareness Initiative Program.

Overview of findings

Personal electric vehicles are becoming more popular due to a broader array of models being offered from automakers, as well as policies and incentive programs which make them increasingly economic and convenient. However, stakeholder interviews identified that, for some consumers, it can be overwhelming, confusing, and at times intimidating to navigate the myriad sources of information: purchasing plug-in or hybrid electric vehicles, including applying for rebates; setting up charging equipment at home or finding charging stations nearby; and knowing how the charging station network will expand in the future to meet their needs. People need more accessible and reliable third-party resources that easily explain the total cost of EV ownership, what kind of

[1] The term "communities" is used broadly in this report, and in this context is intended to act interchangeably, applying to both smaller neighbourhood communities, as well as larger geographic, socio-cultural, and socio-economic communities.

financial incentives are available, the lifetime costs relative to internal combustion engine vehicles in their jurisdiction, and in general, which other zero-emission mobility options are available aside from electric vehicles.

Based on this report's findings, programs that set out to increase awareness of ZEVs, without being sufficiently informed by community engagement, would not necessarily meet the needs of all underrepresented communities across the country. ZEV awareness and education initiatives that are informed by a DEI lens and consider intersectionality, partnerships with civil society, and diverse mobility options are likely better positioned to influence EV adoption and broader mobility electrification. The most prominent theme that emerged from this research is that substantial financial commitments, from government and other funders interested in promoting electrified mobility, are needed to carry out resource-intensive community engagement activities.

To inform policy, investment and program design most accurately, well-funded community engagement at a local level needs to be prioritized wherever possible by government as part of its national ZEV strategy. To incorporate DEI into NRCan's ZEVAI, as well as respond to the federal government's goal of making zero-emission mobility accessible to all, underrepresented communities need opportunities to provide input to mobility policy. Nonetheless, in cases where local engagement is out of scope, national campaigns remain important in promoting specific forms of zero-emission transportation, and there are concrete actions projects can take to resonate with more diverse audiences: translating public materials, using intersectional images, advertising alternative mobility options, and securing non-governmental organization (NGO) partnerships are the most notable.

The society-wide response to address the climate crisis brings with it a shifting zeitgeist, challenging the notions of community space, roadways, consumption, and travel altogether. An equitable transition to net-zero in the transportation sector will require efforts beyond mass adoption of electric personal vehicles. Mobility policies and infrastructure decisions should be informed by what best fits with citizen needs, considering geography, income, race, gender, and so on. More comprehensive engagement practices are required by policymakers and decision-makers to "meet communities where they are at" and co-design zero-emission solutions that address multi-faceted accessibility needs (e.g., financial, physical, etc.). Complementary to supply-side policy that increases EV availability in Canada, investing in greater awareness, education, and engagement is necessary. Without this, Canada will miss the realities on the demand side and slow Canada's zero emission mobility transition.

Recommendations for program design

We recommend that NRCan continue to administer the ZEV Awareness Initiative, as this will help accelerate the adoption of EVs and reduce transport-related GHG emissions in Canada. We recognize that ZEVAI program recipients will have different capacities to deliver projects, and therefore recommend that NRCan focus on identifying how the federal government can support projects to incorporate DEI, rather than just require it of them.

As a condition of program support, ZEV awareness project proponents should, wherever possible, be supported to integrate elements of the DEI framework into project development, and build the costs of the following actions into their budget when applying:

1. Demonstrate how core project team members will combat implicit bias and demonstrate an understanding of intersectionality.
2. Translate public-facing English communications materials into languages relevant to target audiences.
3. Demonstrate partnerships with non-governmental organizations, community-based organizations, and where relevant, local decision-makers, to deliver high-impact projects.
4. Remove financial barriers that may prevent the most vulnerable community members from participating in a project.
5. Contribute to, or complete, a transportation needs assessment.
6. Create open and accessible feedback mechanisms for participants, with commitments to adjust the project based on the feedback received.
7. Measure and report on DEI-related key performance indicators to understand project impacts and outcomes.

1. Introduction

Zero-Emission Vehicle Awareness, Education, and Engagement: Advancing diversity, equity and inclusion assembles insights from subject matter experts and a broad range of literature to identify an initial set of best practices. Natural Resources Canada can use these insights to inform their strategy to support prospective ZEV awareness and education projects, to ensure that they incorporate diversity, equity, inclusion (DEI) and justice into their work. Incorporating DEI into NRCan's Zero Emission Vehicle Awareness Initiative (ZEVAI)[2] and other awareness programming furthers the federal government's goal to make zero-emission mobility accessible to all Canadians, thereby accelerating the decarbonization of transportation in all regions of the country.

This research was tasked to explore: gaps in public confidence or awareness of ZEVs, across different communities in Canada; barriers preventing underrepresented communities from accessing ZEV awareness and education programs; potential solutions to gaps and barriers, including specific opportunities to effectively engage underrepresented groups; and current ZEV awareness and education programs across the country and measures taken to incorporate diversity, equity, inclusion in their work.

Based on the findings, this report focuses on best practices for community engagement as a pathway to design programs and policies that accurately respond to NRCan's goal of incorporating DEI and meeting the needs of underrepresented communities. Assessing lived realities and building consensus is necessary to clarify the policy and program actions best placed to move from awareness to adoption.

Projects of all scopes should be supported to implement what actions they can to incorporate DEI and aspire to understand the mobility needs of more specific communities through other targeted work. NRCan's focus should be on identifying how the federal government can support projects to incorporate these best practices into their work.

Though this report delivers important considerations for NRCan's ZEV policy and program design, it must be noted that only a small sample of subject matter experts were reached due to the capacity, timeline, and budget of this research project.

[2] Natural Resources Canada, "Zero Emission Vehicle Awareness Initiative." https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/electric-and-alternative-fuel-infrastructure/zero-emission-vehicle-awareness-initiative/22209

Interview insights, while informative, should not be viewed as a monolithic representation of the communities discussed. Operating in a country as broad and diverse as Canada requires longer-term research and engagement activities to accurately understand the needs and lived realities of the communities in question.

1.1 Definitions

Diversity, equity, and inclusion are complex concepts, with no singular definition or framework employed across all institutions. The Canadian Centre for Diversity and Inclusion offers a unique "glossary of terms," developed through an amalgamation of inputs from organizations across Canada, that offers the latest insight into the myriad terminology associated with DEI.[3] For this project, we use the following definitions to guide our work:

Diversity: defined as the presence of a wide range of human qualities, attributes, lived experiences and perspectives.[4] "Diversity is more than a set of categories. It extends to the principles of inclusion, the recognition and valuing of difference, and the ability to participate equitably in society."[5]

Equity: Women and Gender Equality Canada's Gender-Based Analysis Plus course describes equity as "the quality of being fair, which often requires treatment that is not the same".[6] An equitable approach requires programs and policy to be developed in an inclusive and fair manner, acting to "correct past harms"[7] and removing "barriers that

[3] Canadian Centre for Diversity and Inclusion, *Glossary of Terms: A reference tool*. 2021. https://ccdi.ca/media/3150/ccdi-glossary-of-terms-eng.pdf

[4] University of British Columbia, "Equity & Inclusion Glossary of Terms." https://equity.ubc.ca/resources/equity-inclusion-glossary-of-terms/

[5] Merli Tamtik and Melissa Guenter, "Policy Analysis of Equity, Diversity and Inclusion Strategies in Canadian Universities – How Far Have We Come?" *Canadian Journal of Higher Education* Vol. 49, 3 (2019). https://www.erudit.org/en/journals/cjhe/1900-v1-n1-cjhe05066/1066634ar.pdf

[6] Women and Gender Equality Canada, "GBA+: "Equality or Equity?" https://women-gender-equality.canada.ca/en/gender-based-analysis-plus/microlearning-videos/gbaplus-equality-equity.html

[7] Forth Mobility, *Equity in Practice: Developing a City Transportation Electrification Roadmap* (2020). https://forthmobility.org/storage/app/media/Documents/Equity_in_Practice_Report.pdf

prevent the participation of any individual or group." In engagement, equity requires "mutually beneficial opportunities for people to contribute."[8]

Other, specific forms of equity that are relevant to this research include:

- *Racial equity*: "A process of eliminating racial disparities and improving outcomes for everyone. It is the intentional and continual practice of changing policies, practices, systems, and structures by prioritizing measurable change in the lives of people of colour."[9]
- *Mobility equity*: The Greenlining Institute's Mobility Equity Framework defines mobility equity as "a transportation system that increases access to high-quality mobility options, reduces air pollution, and enhances economic opportunity in low-income communities of colour."[10]

Inclusion: Defined as "an active, intentional, and continuous process to address inequities in power and privilege."[11] Inclusion requires creating an environment where individual needs are recognized, and each person has the opportunity to contribute their ideas and experiences to the fullest. In engagement, inclusion requires the involvement of "people who reflect the demographic, attitudinal and experiential diversity of the communities that may be impacted by a decision."[12]

Intersectionality: Defined as "the interconnected nature of social categorizations… as they apply to a given individual or group."[13] A recognition that "inequities are never the result of single, distinct factors," but instead, the outcome of these intersections.[14]

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[8] Simon Fraser University's Morris J. Wosk Centre for Dialogue, *Beyond Inclusion: Equity in Public Engagement* (2020). Page 7. https://www.sfu.ca/content/dam/sfu/dialogue/ImagesAndFiles/ProgramsPage/EDI/BeyondInclusion/Beyond%20Inclusion%20-%20Equity%20in%20Public%20Engagement.pdf

[9] Race Forward, *From Seed to Harvest: A Toolkit for Collaborative Racial Equity Strategies* (2021). https://www.raceforward.org/system/files/RaceForward_RET_FromSeedsToHarvestforCollaborativeGovernance_2021.pdf

[10] The Greenlining Institute, *Mobility Equity Framework: How to Make Transportation Work For People* (2018). https://greenlining.org/wp-content/uploads/2019/01/MobilityEquityFramework_8.5x11_v_GLI_Print_Endnotes-march-2018.pdf

[11] University of British Columbia, "Equity & Inclusion Glossary of Terms."

[12] Simon Fraser University's Morris J. Wosk Centre for Dialogue, *Beyond Inclusion: Equity in Public Engagement* (2020). Page 7.

[13] University of British Columbia, "Equity & Inclusion Glossary of Terms."

[14] Olena Hankivsky, *Intersectionality 101* (The Institute for Intersectionality Research & Policy, SFU, 2014), 2. https://bccampus.ca/wp-content/uploads/2020/07/Hankivsky-Intersectionality101-2014.pdf

These factors include: language, gender, socio-economic status, digital inequality, sexuality, (dis)ability, employment status, immigration/citizenship status, education level, geography, environment, religious beliefs, culture, history of incarceration, and more.[15]

1.2 Outline

This report begins with a review of the DEI best practices found in both mobility-focused organizations and inclusion-focused organizations more generally. Next, the report outlines the findings from interviews performed with leaders in underrepresented communities to glean specific insights into those communities. Bringing together the literature and interviews, we propose a DEI framework to be used by NRCan for future ZEVAI projects that are meant to engage underrepresented communities as well as recommendations for applying the framework. Finally, the appendices outline zero-emission mobility and zero-emission vehicle awareness and education activity throughout Canada and the United States.

[15] The Greenlining Institute, *Racial Equity Toolkit* (2013). https://greenlining.org/publications/2013/the-greenlining-institutes-racial-equity-framework-toolkit/

2. Best practices for equitable and inclusive engagement

Canadians across the country have vastly different mobility needs and preferences. While personal electric vehicles have promisingly grown in popularity,[16,17,18] an overemphasis on personal EVs by policy-makers can overlook the vital roles of distributed forms of electrified and active transportation (e.g., public transit, e-bike, and car-sharing, etc.). Undertaking DEI-informed engagement work can inform policy and program design to identify the zero emission transportation pathways most appropriate for each respective community across the country.

2.1 Overview of established toolkits and frameworks

A literature review was conducted to understand both how organizations apply DEI to their work and how existing ZEV awareness and education initiatives effectively engage underrepresented groups. We found that numerous organizations have developed anti-racism and/or DEI frameworks, tools, and strategies in recent years. For example, the Greenlining Institute's *Mobility Equity Framework*, NSERC's *Framework on Equity, Diversity and Inclusion*, and Cooperation Canada's *Anti-Racism Framework*. Upon further investigation, the Pembina Institute discovered a more specific set of toolkits and studies that offer best practices for community engagement with underrepresented communities, some specific to the topic of mobility and others more general. The expert knowledge holders from these organizations have already completed much of the groundwork necessary to inform an equitable approach to zero-emission mobility engagement, policy-making, and program delivery in Canada. The resources that were most influential in the development of this report are outlined in Table 1.

[16] Statistics Canada. Table 20-10-0025-01 "Zero-emission vehicle registrations, quarterly" DOI: https://doi.org/10.25318/2010002501-eng

[17] The Star, "By the Numbers: A look at electric vehicle sales in Canada." https://www.thestar.com/business/2021/12/10/by-the-numbers-a-look-at-electric-vehicle-sales-in-canada.html

[18] CTV News, "The pandemic has been great for electric car sales." https://www.ctvnews.ca/autos/the-pandemic-has-been-great-for-electric-car-sales-1.5756630

Table 1. Key literature

Resource	Mobility-focused?
Facilitating Power *The Spectrum of Community Engagement to Ownership*[19]	N
Forth Mobility *Equity in Practice Report*[20]	Y
GARE *Racial Equity Toolkit*[21]	N
Greenlining Institute *Mobility Equity Framework*[22]	Y
Greenlining Institute *Making Equity Real in Mobility Pilots*[23]	Y
Greenlining Institute *Electric Vehicles for All: An Equity Toolkit*[24]	Y
Race Forward *From Seed to Harvest*[25]	N
Simon Fraser University's Morris J. Wosk Centre for Dialogue *Beyond Inclusion: Equity in Public Engagement*[26]	N
TransForm *A Framework for Equity in Mobility*[27]	Y

[19] Rosa Gonzalez, *Spectrum of Community Engagement to Ownership* (2020). https://www.facilitatingpower.com/spectrum_of_community_engagement_to_ownership

[20] *Equity in Practice: Developing a City Transportation Electrification Roadmap*.

[21] Government Alliance on Race and Equity, *Racial Equity Toolkit: An Opportunity to Operationalize Equity* (2016). https://www.racialequityalliance.org/wp-content/uploads/2015/10/GARE-Racial_Equity_Toolkit.pdf

[22] *Mobility Equity Framework: How To Make Transportation Work For People*.

[23] The Greenlining Institute, *Making Equity Real in Mobility Pilots* (2019). https://greenlining.org/publications/reports/2019/making-equity-real-in-mobility-pilots-toolkit/

[24] Greenlining Institute, *Electric Vehicles for All: An Equity Toolkit*. https://greenlining.org/resources/electric-vehicles-for-all/

[25] *From Seed to Harvest: A Toolkit for Collaborative Racial Equity Strategies*.

[26] Simon Fraser University's Morris J. Wosk Centre for Dialogue, *Beyond Inclusion: Equity in Public Engagement*.

[27] TransForm, *A Framework for Equity in New Mobility* (2017). https://www.transformca.org/sites/default/files/A%20Framework%20for%20Equity%20in%20New%20Mobility_FINAL.pdf

2.2 Developing a strategy for zero-emission mobility community engagement

2.2.1 Overview

To identify the mobility needs of a community, it is essential to undertake equitable and inclusive engagement. Every zero-emission mobility awareness and education project will have a different "target community." Depending on the project, a community may be categorized by several different intersectional factors. Though projects are often based on geographic scope (e.g., municipal, provincial, national), if a project specifically targets underrepresented communities, it may be focused on a group of people with a common factor (e.g., gender, religion, race, socio-economic status, etc.) either within or across geographic boundaries (e.g., low-income residents in a municipality, vs. all residents in the municipality).

It is important to note that the best practices for engagement in this section will not be relevant for all projects in a monolithic way; for example, national ZEV awareness campaigns will not be able to apply some lessons that are most relevant to campaigns taking place at a community level. However, while local engagement is useful to accurately assess the mobility needs of communities, themes such as DEI-informed project planning and partnerships are relevant no matter the scope of the project.

This section distills key themes from the literature in Table 1, focusing on insights most relevant to the subject of engaging underrepresented communities on their mobility needs. Each theme contains broad lessons and criteria for funders and program administrators.

The themes identified for DEI in project development are:

- intersectionality and accessibility;
- budgeting;
- community needs assessments;
- building trust, partnerships and community ownership; and
- project evaluation and feedback.

2.2.2 Intersectionality & accessibility

The ZEVAI should consider how diversity, equity, and inclusion can be embedded throughout the initial scoping of a project and built into the budget. Depending on the target community of a project, needs may vary widely. For example, national campaigns will need to reflect the diversity of Canadians and Indigenous peoples across the country to resonate, while specific community campaigns only need to be reflective of the target audience.

Lessons

- An engagement strategy should articulate the intended audience for the project and understand relevant context such as location, and identifying statuses.
- An engagement strategy should contain steps on how they will examine intersectional aspects of their own privilege, combat implicit bias, and commit to an anti-racist approach in their work. This could include training for project team members on these topics.
- Engagement campaigns, communications materials and media should be created with intersectional images, stories, and culturally resonant references for the target audience.
- Success indicators should be co-developed with the community groups being engaged, to establish diversity, equity and inclusion goals. Project teams should evaluate the progress and impact of the project.

2.2.3 Budgeting

It is important that financial resources are allocated to support meaningful engagement and participatory planning with Indigenous peoples and communities and historically marginalized community members.

This includes both investments in the engagement team to have capacity to carry out a long project timeline, as well as investment in the community members themselves to participate and activate their fellow neighbours.

Lessons

- Investing in in-person engagement, health-permitting,[28] is an effective way to reach diverse and underrepresented communities.[29] Financial compensation, such as participant honoraria, should be considered to acknowledge the value of participant labour (and make up for possible lost wages when engaging low-income communities). Additional support costs associated with engagement could also include childcare, food, transportation to and from the engagement location, and more.
- For digital engagement (e.g., surveys, online forms, polls), the pre-planning stage and community needs assessment should identify any digital inequalities and barriers and determine whether adjustments are needed to the project's strategy. For example, additional financial resources may be needed to enable community members who lack access to digital tools to contribute.
- A study by Indigenous Climate Action indicated that Indigenous youth can be more likely to lack access to educational and financial resources that allow them to engage in climate-related activism and engagement activities.[30] Unique considerations and compensation should be allocated to meaningfully receive input from Indigenous youth.

2.2.4 Community needs assessments

Community needs assessments are well discussed in healthcare circles as a critical component of engagement project planning.[31,32,33] Where possible, projects advancing awareness of zero-emission mobility options should aspire to incorporate or contribute

[28] Exceptional considerations remain throughout the COVID-19 pandemic.

[29] *Equity in Practice: Developing a City Transportation Electrification Roadmap*.

[30] Indigenous Climate Action, *Youth Needs Assessment* (2020). https://static1.squarespace.com/static/5e8e4b5ae8628564ab4bc44c/t/5fa966e1116faf366cff2766/1604937447256/youth_report_FINAL_2020-10.pdf

[31] Center for Disease Control and Prevention, *Community Needs Assessment* (2013). https://www.cdc.gov/globalhealth/healthprotection/fetp/training_modules/15/community-needs_pw_final_9252013.pdf

[32] Canadian Mental Health Association, *Assessing Community Needs and Resources* (2017). https://ontario.cmha.ca/wp-content/uploads/2017/03/cca_roadmap_assessing_community_needs.pdf

[33] Center for Victim Research, *Quick Reference: Community Needs Assessment*. https://ncvc.dspacedirect.org/bitstream/id/1011/CVR_QuickRef_NeedsAssessment_508.pdf

to a "transportation needs assessment,"[34,35] to understand a respective community's context and lived realities related to mobility. An assessment can help to identify the gaps or barriers that a given community faces in accessing affordable mobility solutions and services, and then guide programs to accurately respond to those needs. In practice, ZEVAI projects would ideally incorporate a phase of work that solicits feedback from communities on their mobility needs, respond to this feedback by adjusting project goals, and transfer the knowledge gathered to local and federal policy makers to guide investment through evidence-based findings.[36]

Lessons

- Comprehensive needs assessments are ideally led or co-led by a government body that has planning authority, is accountable to the community and has the purview to make direct investments or take investment-enabling policy action. Creating durable trust in democracy and public engagement processes often requires a cross-sectoral approach, and a follow-up of action; particularly for communities that may already distrust, or be hesitant to engage with, government in the first place. A lack of demonstrable "next steps" could quickly erode the goodwill and trust built by engagement activities.
- ZEVAI projects that are limited in scope and/or funding may contribute to a needs assessment by creating a project phase that gathers clear feedback from community members on their mobility needs, and later transfers those recommendations to local governments (where relevant) and NRCan.
- Tactics commonly used to understand transportation needs include surveys, focus groups, canvassing, and interviews.
- Consider the following when discussing the electrification of transportation for underrepresented communities:[37]
    - Are all possible mobility options being discussed (e.g., active transportation, carpooling, public transit, carshare, bikeshare, taxis/ride-hailing)?

[34] University of Kansas Community Toolbox, "Assessing Community Needs and Resources." https://ctb.ku.edu/en/table-of-contents/assessment/assessing-community-needs-and-resources/conducting-needs-assessment-surveys/main

[35] *Equity in Practice: Developing a City Transportation Electrification Roadmap*.

[36] *Equity in Practice: Developing a City Transportation Electrification Roadmap*.

[37] *A Framework for Equity in New Mobility*.

- For each electrified mobility option, what financial, technological, and geographic barriers could be associated with them and thereby impact access for the target audience?
- How can electrified mobility options contribute to positive health outcomes for the communities in question?

2.2.5 Building trust, partnerships, and community ownership

Community engagement work that is rooted in social justice requires robust relationship-building with community-based organizations (CBOs). CBOs can be "non-profit, non-governmental, or charitable organizations".[38] To effectively reach communities that have been historically marginalized or omitted by structural oppression, a groundwork of trust-building anchored by partnerships with CBOs known in a particular community, helps legitimize the work and conversations.

Working towards local, co-developed solutions with communities creates a pathway to lasting change and prosperity. Canada's *Anti-Racism Strategy (2019-2022)* acknowledges the value of lived experience and local knowledge; that communities know themselves, their barriers, and possible solutions better than anyone else.[39]

Through these partnerships, engagement programs should aim to reach collaborative governance with coalitions. Collaborative governance models value the shared work and input of residents, CBOs, social justice practitioners and government officials to realize a common goal and help build alliances that can dismantle structural inequality[40] while in pursuit of the project's awareness and education goals. CBOs are also best equipped to keep dialogue active after an engagement campaign is concluded, and work with the relevant governance bodies to see the project through over the long run.[41] Furthermore, a proactive partnerships strategy can help identify actors that NRCan can work with when proceeding with policy and investment actions.

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[38] Community First: Impacts of Community Engagement (CFICE), "Glossary." https://carleton.ca/communityfirst/cu-glossary/community-based-organizations/

[39] Government of Canada, "Building a Foundation for Change: Canada's Anti-Racism Strategy 2019–2022," https://www.canada.ca/en/canadian-heritage/campaigns/anti-racism-engagement/anti-racism-strategy.html#a4a

[40] *From Seed to Harvest: A Toolkit for Collaborative Racial Equity Strategies*.

[41] Many modes of transport that are governed and/or invested-in at the regional or municipal level are those most relevant to low-income residents: transit, car sharing, bike sharing, etc.

Facilitating Power's "The Spectrum of Community Engagement to Ownership," highlights the principle of community ownership, building on the International Association for Public Participation's spectrum of public participation.[42] It describes five developmental stages: 1) Inform 2) Consult 3) Involve 4) Collaborate and 5) Defer To. When applying these principles to the ZEVAI program, NRCan should strive to support local awareness and education projects to reach a stage where they can collaborate actively with CBOs and community members in identifying their mobility needs. Then, the federal government can work with partners and help fund necessary work that can 'defer to' the community's recommendations.

Lessons

- Engage as many stakeholders as possible, as early as possible, to build coalitions in support of the engagement goal.
- Projects happening at a local level should aspire to partner with grassroots CBOs, to help communicate in a trustworthy and culturally appropriate manner, particularly with non-English or French speakers and multi-cultural community members. For example, this could include, but is not limited to:[43]
    - Faith-based organizations
    - Labour organizations
    - Neighbourhood houses
    - Issue/community-based advocacy organizations, such as environmental and social justice organizations
    - Affordable housing property managers
    - Amateur athletic organizations
    - Associations representing persons with disabilities and accessibility needs
- For national or regional projects that do not engage at the local level, partnerships with organizations that represent equity-seeking groups and Indigenous communities.
- Work closely with community-based organizations who hold pre-existing relationships with community members on outreach activities.
- Engage local government officials and the public service who can implement recommendations developed by community members.

[42] International Association for Public Participation, *IAP2 Spectrum of Public Participation* (2018). https://cdn.ymaws.com/www.iap2.org/resource/resmgr/pillars/Spectrum_8.5x11_Print.pdf

[43] *Equity in Practice: Developing a City Transportation Electrification Roadmap*.

- As needed, utilize stakeholder working groups as an effective way to manage different tasks of an engagement project.[44]

2.2.6 Project evaluation and feedback

Throughout the duration of a project, it is critical to ensure there are communication channels for community members to provide feedback on what is and isn't working for them. ZEVAI projects need to be able to adjust their workplan to respond to concerns that arise.

Lessons

- Provide clear, safe, accessible pathways for participant feedback. Communication channels should remain open after the formal close of the engagement project (e.g., online feedback form, phone number, direct contacts with an email).
- Evaluate success indicators defined during the pre-project planning phase, to determine progress.
- Consider how the project interacted with members of the target community. Identify what gaps prevented underrepresented community members from being shared partners in the identification of zero emission mobility solutions, and how future projects can reach the last stage of the engagement spectrum, and "defer to" participants.[45]
- Report back to the community on progress and communicate clearly how their input is being used by decision-makers.
- Identify opportunities for data collection to monitor progress and document new feedback over time (e.g., how mobility needs may be changing).

[44] *Equity in Practice: Developing a City Transportation Electrification Roadmap*, 13.

[45] Using Facilitating Power's "The Spectrum of Community Engagement to Ownership".

3. Subject matter expert interviews

3.1 Key themes conveyed by stakeholders

An important takeaway from stakeholder interviews was that underrepresented communities tend to be left out of most mainstream conversations about climate action, and equity is often bolted on to programming at the last-minute. To truly integrate diversity, equity, and inclusion, budgets for ZEVAI projects may need to be higher and NRCan will need to work collaboratively with projects to identify funding needs.

Of 22 invitees, 14 subject matter experts with expertise administering ZEV awareness and education programs and/or in zero-emission mobility were interviewed for this study. We asked about: How communities they engage with perceive ZEVs; commonly observed barriers to entry; communication methods and materials used in awareness and education projects; and work to advance inclusion. See Appendix C for a list of standard interview questions. Follow-up questions were asked as needed, based on the unique geographical and community expertise of the interviewee. Stakeholders provided insights on how ZEV education and awareness projects currently operate and how they could have greater impact, under the following themes:

- Program design
- Strategies for community engagement
- Communication methods and materials
- Building trust with the community
- Diverse mobility options
- Finding common reasons for zero-emission mobility adoption

3.1.1 Program design

- Where possible, identify opportunities to work with local subject matter experts and decision-makers to integrate community engagement, awareness, and education programming into the planning process of EV projects (e.g., installing new charging stations in a community).[46] Potential for resonance and consumer adoption could be stronger when infrastructure projects are promoted and developed in unison with community engagement projects.

3.1.2 Strategies for community engagement

- Consider as many approaches to engagement as possible: surveys and polling; interactive activities (e.g., getting people to identify problem areas for transportation by adding sticky notes to a map); working with local community members to participate in surveying; virtual community engagement events (note: virtual events open the door for some people, but can be a barrier for others); focus groups that report back on key insights; and more.

3.1.3 Communication methods and materials

- Monolithic approaches to engagement materials don't work, but they can provide a starting point. Some organizations take standard marketing materials and look at them in collaboration with communities, using focus groups to re-imagine materials in a local context and then deliver them to the wider audience.
- Many people are unaware of the long-standing programs available to help purchase a ZEV or supporting infrastructure (e.g., home charger). Many people also don't have a strong understanding of the differences in technology availability (e.g., EVs vs Plug-in Hybrid Electric Vehicles). Some underserved communities may need engagement materials that assume little-to-no pre-existing knowledge of ZEVs.

[46] North Coast Regional District, "Charge North Project." https://www.ncrdbc.com/about-us/news-notices/charge-north-project

- Offering information in multiple languages is one of the most important accessibility steps any project can take. To effectively reach diverse communities, translation services must be secured prior to the start of an engagement project, for whatever languages are relevant to the community a project is targeting (e.g., French, Mandarin, Cantonese, Punjabi, Spanish, Tagalog, and other relevant languages spoken by local Indigenous peoples and recent immigrants). However, paying a translator to do a word-for-word translation of existing materials doesn't always work. To do translation right, you need someone who can re-capture the attempted engagement message and write it in their own language. Good translation work, especially of complex technical issues, takes time and money. Many non-English or French speaking communities aren't considered in ZEV communications materials that aim to solicit interest in rebate and incentive programs, and people can tell when translated materials have not been written by someone who speaks their language fluently. This can contribute to mistrust or dismissal of the information.
- For projects local in scope, community members could be recruited as ambassadors[47] to answer ongoing questions for non-English speakers throughout the duration of the engagement project.

3.1.4 Trust

- Building trust and establishing credibility takes a substantial investment of time and money, and programming may take longer than expected.
- Decentralized engagement models that recruit and hire people from target communities can lead to higher levels of interest and build trust faster. Leaning on local mentors for design and delivery helps organizers find the most effective way to communicate new ideas (for communities that do not speak one of Canada's official languages, having organizers or ambassadors who speak the local languages leads to higher levels of trust). Some community engagement organizations rely on close personal relationships with local organizers or leaders to establish a connection from the start. For example, engagement with Indigenous communities should include plans to work with local Indigenous facilitators or advisors from the beginning, to co-create outreach materials and the communications strategy.

[47] Plug n' Drive, "The Mobile Electric Vehicle Education Trailer (MEET)." https://www.plugndrive.ca/meet/

- Local partnerships are critical for effective engagement. Delivering messages under a community brand, rather than a government or institutional brand, builds trust and allows people to ask questions they may not ask otherwise. Community-based organizations should be involved in reviewing tools and resources and should be compensated for their time (e.g., ethnic community-based organizations, faith-based groups, housing advocacy groups, disability advocacy groups, neighbourhood associations).
- Active listening is important. It takes time to build trust, and participants may have a multitude of questions related to transportation or government affairs that may be out of scope. It is important for organizers to be prepared to answer all manner of questions or know where to find answers.

3.1.5 Diverse mobility options

- The best organizing practice is to offer several mobility options for consideration throughout the needs assessment period. There will not be a one-size-fits-all solution. Rural communities need different solutions from urban communities, as do low-income communities from middle- and high-income communities.
- Some Canadians don't have a driver's license and therefore focusing on mode-shift options (e.g., e-bike) or shared mobility options (e.g., transit) are going to be more applicable for some groups.
- After completing a community needs assessment that identifies local mobility needs, engagement materials should be tailored to help community members visualize these modes of transport in a zero-emission context (e.g., snowmobiles, trucks, e-bikes, public transit, etc.).
- Support a wide range of passenger zero-emission mobility options, beyond personal car ownership. For some communities, car ownership is the best solution; for example, northern and remote communities, particularly those that deal with harsh winters, require a personal vehicle in the absence of public transportation. However, for many residents of dense urban communities, other solutions such as transit, mode-shifting and micro-mobility can not only improve material transportation outcomes (e.g., reducing car congestion and particulate air pollution), but can allow residents to reduce their transportation related costs.

3.1.6 Understanding concerns about adoption

- One of the primary motivations subject matter experts cited for EV adoption is cost savings. There are still misperceptions surrounding the affordability of EVs. Offering a chance to explain and demonstrate operational savings resonates with people from all backgrounds.
- People can also care about how their car looks. Style and substance matter, and there can be an emotional attachment to vehicles, as it may often be considered someone's most valuable asset.
- When promoting EVs, consider communicating information about daily ownership needs, such as availability and understanding of maintenance services and associated costs. Sharing information on common maintenance costs can lower driver anxiety. It may also be useful in sharing a list of mechanics nearby the community as part of the communications strategy.
- In addition to information about zero emission mobility options, resources could be developed to convey information about related policy changes that can inspire confidence in the reliability of zero emission mobility (e.g., location of charging networks, rebates for e-bikes, plans for electrified transit and usage costs, etc.).

3.2 Feedback related to specific underrepresented groups

U.S. researchers have found purchasers of EVs tend to be predominately male, high-income, and highly educated.[48] Communities differ in their baseline levels of understanding of EVs, as well as priorities and values when it comes to investing in a new or used vehicle. A survey conducted by the Center for Sustainable Energy found that respondents from disadvantaged communities in California:

- Have lower levels of initial interest in EVs
- Value saving money, increased energy independence and accessing new technology

[48] Hardman, S., Fleming, K. L., Khare, E., & Ramadan, M. M. A perspective on equity in the transition to electric vehicle. *MIT Science Policy Review* **2**, 46-54 (2021). https://doi.org/10.38105/spr.e10rdoaoup.

- Access trusted information sources that are similar to those accessed by non-disadvantaged community respondents: other EV drivers, vehicle test drive, third-party vehicle reviews, manufacturer website, dealer/salesperson.[49]

Further research is required to validate these findings in the Canadian context and identify the gaps and unique challenges related to zero emission mobility access faced by diverse communities across Canada. Although part of the interview process was designed to test some of these findings and identify lived realities for underrepresented communities in Canada, the research team was only able to reach a small sub-set of stakeholders with the given budget and timeline of this project.

The insights in this section are a summary of the feedback from stakeholder interviews, based on responses to the interview question template in Appendix C. This section has been edited for brevity and full insights for sections 3.2.1 to 3.2.4 are available in the Appendix B.

3.2.1 Recent immigrants and newcomers

- For those who are not official language speakers, programming, resources, and application forms delivered by government may not be accessible. Even if someone is interested in participating, encountering language barriers can quickly dissolve motivation.
- For some recent immigrants and newcomers, there can be a lack of understanding as to why the government is offering incentives and trying to solicit interest in EV-related programs. Sometimes, there can be distrust in government communication and financial incentives from governments for EVs may be met with skepticism and hesitancy. This could be caused by past negative experiences with a previous government, hesitancy to draw attention to themselves (perhaps out of fear of compromising an immigration status), fear of repercussions for incorrectly filling out forms and applications, among other reasons.

[49] Jamie Orose, *How are Electric Vehicle Consumers in Disadvantaged Communities Different?* Behavior, Energy, and Climate Change Conference (2018), 27 and 30.

- For newcomers in the process of applying, renewing, or updating their immigration status, there can be an overwhelming amount of information, forms, and requirements to manage. The process can generate significant amounts of anxiety, require high upfront costs, and oftentimes leave newcomers with a desire to limit interactions with government. Given this hurdle, highlighting the benefits and financial resources available to potential EV purchasers on frequently accessed websites could increase awareness (e.g., links to the government's $5,000 rebate[50] on key Immigration, Refugees and Citizenship Canada (IRCC) websites, such as those already highlighting free newcomer services[51]).
- Young recent immigrants can face identification-related barriers to driving in Canada, if they have an expired license from another country and need to go through the process of renewal in a new bureaucratic environment. For some, the prospect of navigating these hurdles, particularly when other forms of mobility such as transit and ridesharing exist in their community, makes it less appealing to consider driving.
- Because of the relatively high upfront cost of EVs, most people will have to rely on lending services to access them. However, depending on what age newcomers are arriving in Canada, some may not have a sufficiently long credit history to access affordable financing (lease or loan).

3.2.2 Youth

- Many young people may not have a credit card, relevant bank account, credit rating and/or sufficient financial literacy to consider a purchase of this magnitude. Moreover, some young people, particularly those reliant on transit in urban communities, are not aware of the complexities associated with car ownership.

[50] Transport Canada, "Incentives for purchasing zero-emission vehicles," https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles/incentives-purchasing-zero-emission-vehicles

[51] Immigration, Refugees and Citizenship Canada, "Find free newcomer services near you," https://ircc.canada.ca/english/newcomers/services/index.asp

- For some young people, more flexible and accessible forms of mobility such as transit and car share programs may dominate their interest. Youth may be interested in reducing their carbon footprint but are often looking to government to provide affordable alternatives to them (e.g., transition car-sharing services to ZEVs, electrify transit networks).
- Some young people think about consumer behaviour and consumption in the context of climate justice. Youth living in communities with reliable and affordable alternatives to vehicle ownership may view the prospect of a car purchase negatively, as part of the wider context of capitalism and consumption. If they have options, such as public transit in urban spaces, those values may affect the mobility options they choose. For example, some young people are highly aware of the implications of their purchase decisions (e.g., climate change, supply chain justice, the origin of lithium and other rare minerals, consequences associated with heavy metal manufacturing, etc.). This sub-set of young people need to see positive systemic changes in urban planning and energy systems in order to feel confident that a potential passenger EV purchase will have a net positive climate impact.
- Some young people in urban areas may not see a continuation of car culture as the best way to address the climate emergency, even with ZEVs. In urban centres, reclaiming car-dominated land (e.g., parking garages, roads) in favour of shared community spaces and alternative forms of mobility can be popular.

3.2.3 Northern and remote communities

- The most prominent concerns and barriers to entry include: a lack of ZEV availability at northern dealerships, a widespread lack of access to maintenance and repair services, lack of travel-specific charging infrastructure to enable long-distance driving, and concerns about reduced battery life in extremely cold operating conditions.[52]
- In some cases, residents of northern and remote communities may not be motivated to consider adopting EVs because the technology, approach, and charging infrastructure is unfamiliar or unavailable to them.

[52] Ollie Williams, "Our commenters aren't convinced about EVs. This guy owns one," *Cabin Radio*, July 5, 2021. https://cabinradio.ca/67064/news/environment/our-commenters-arent-convinced-about-evs-this-guy-owns-one/

- In some northern communities that deal with particularly harsh seasonal winters, there remains significant hesitancy to adopt EVs when residents are familiar with the reliability and needs of gasoline and diesel-powered vehicles in extremely cold climates. Despite the awareness of the environmental benefits associated with ZEVs, the practical realities of the need to have a proven form of transportation can outweigh interest in adoption. Residents are keenly aware that not all technologies that can reduce GHGs are proven to function reliably in cold, remote environments. This makes demonstration activities particularly important. There is a need to thoroughly demonstrate that ZEVs can function well and be maintained cost-effectively in the long run, in such conditions.
- For northern communities, the cost of living (e.g., food and groceries, rent and housing, transportation, etc.) may be relatively higher than the rest of Canada. Consequently, many residents of the North are more motivated to invest in initiatives that save them money, particularly those that offer a near-term return on investment, such as energy efficiency initiatives/rebates for light bulbs and household appliances. However, this same cost-of-living reality works against EV adoption due to the high upfront cost. All territorial rebate programs only apply to new vehicles, and there are virtually no used EV markets in the North.
- For some diverse and more remote communities in the North, a lack of time and capacity limit interaction with programs advertising new mobility options. Competing priorities (e.g., immediate needs such as health, social housing and education) limit participation in engagement activities. It can be challenging for representatives from small and remote communities to travel for meetings to provide feedback on planning and program development exercises. Covid-19 has made such travel difficult due to isolation requirements and travel restrictions.

Northern Indigenous communities

- Indigenous communities are keenly aware of the effects of climate change in the North and already engage in conservation and stewardship activities targeted at reducing emissions.[53] Some northern First Nations are particularly interested in clean energy and are taking the lead on independent power production proposals. One First Nation in the Northwest Territories expressed keen interest in securing electric buses for its public transit fleet but would require federal support to do so.

[53] Emelie Peacock, "How the NWT provides 'a little candlelight of hope' after COP26", *Cabin Radio*, November 22, 2021. https://cabinradio.ca/79635/news/environment/how-the-nwt-provides-a-little-candlelight-of-hope-after-cop26/

4. Conclusions and recommendations

The purpose of this report was to combine best practices and interview insights into a DEI framework which could help NRCan's ZEVAI program reach and engage underrepresented communities.

Designing effective policy requires an informed approach that is complemented by feedback and input of the communities that will be affected. DEI-informed community engagement allows policy makers to verify the diverse needs across Canada so that the federal government can best support provinces, territories, municipalities, and Indigenous communities to improve zero-emission mobility uptake in an equitable way. In order to understand the mobility needs of underrepresented communities across Canada, federal programs such as ZEVAI would need to support more comprehensive, local community engagement initiatives (or regional/national programs that direct funding to local projects) to do so. Local community engagement projects can help clarify the policy and program actions needed to accelerate the zero-emission mobility transition and promote widespread adoption.

It is important to acknowledge that applying a DEI lens to ZEV education and awareness work will vary from project to project. Our recommendations on how ZEVAI program recipients can incorporate DEI into their work should not impose undue hardship on organizations undertaking broad-based EV awareness, education, and promotional work. Rather, the research findings should be used as supportive guidance, to help NRCan, within reason, recognize DEI-related gaps and opportunities in their work at the planning stage, and take corrective action to close gaps and seize opportunities wherever possible. Each ZEV awareness and education project will be different in scope and size and should be supported to develop plans to incorporate as many elements as possible of the framework below. Some projects are already targeting underrepresented communities in their scope of work, while others that have historically focused on a broader range of Canadians have new opportunities to integrate DEI. In practice, there will likely need to be a spectrum of ways in which the report's recommendations are applied. We encourage NRCan to consider how projects are adequately funded to meet DEI goals.

4.1 Recommendations

As a condition of program support, ZEV awareness project proponents should, wherever possible, be supported to integrate elements of the DEI framework into project development, and build the costs of the following actions into their budget when applying:

1. Demonstrate how core project team members will combat implicit bias and demonstrate an understanding of intersectionality.
2. Translate public-facing English communications materials into languages relevant to target audiences.
3. Demonstrate partnerships with non-governmental organizations, community-based organizations, and where relevant, local decision-makers, to deliver high-impact projects.
4. Remove financial barriers that may prevent the most vulnerable community members from participating in a project.
5. Contribute to, or complete, a transportation needs assessment.
6. Create open and accessible feedback mechanisms for participants, with commitments to adjust the project based on the feedback received.
7. Measure and report on DEI-related key performance indicators to understand project impacts and outcomes.

4.2 Proposed DEI framework

The framework acts as a summary of the information contained in sections 2 and 3 of this report.

Table 2. Proposed DEI framework

Theme	Ideal Project Attributes
Intersectionality	• Organizers at minimum acknowledge all possible intersectionalities of the community members they plan on engaging: ○ Language, gender, socio-economic status, digital inequality, sexuality, (dis)ability, employment status, immigration/citizenship status, education level, geography, religious beliefs, culture, history of incarceration.

	• Organizers outline how the program will be designed to meet the most vulnerable community members "where they are at" and support them to share their lived experiences.
Accountability	• The project has clarity on which team member(s) is/are accountable for ensuring DEI goals are met. • There are clear considerations in place for how community members engaged in the project will have access to timely, accurate and relevant information from project leaders.

Budget	• A project needs to have substantial financial resourcing to complete the transportation needs assessment phase and secure partnerships with NGOs and/or CBOs.
	• A budget is allocated to compensate community participants for their time, and organizers for their labour.
	• Budget to address barriers that may prevent low-income residents from participating:
	  ○ Forgone/lost wages
	  ○ Childcare
	  ○ Food
	  ○ Transportation to and from the engagement location
	• Language translation, either by a formal translator or a local community resident, is budgeted for.

Transportation needs assessment	• An assessment period is planned, which will identify the unique transportation needs of each community that organizers are planning to engage. • The assessment includes all possible zero-emission mobility options (e.g., personal vehicles, active transportation, carpooling, public transit, carshare, bikeshare, taxis/ride-hailing, etc.), with recognition of the direct benefits, indirect benefits, negative/unintended impacts, income distributional impacts and intergenerational impacts associated with each. • The needs assessment process uses both qualitative and quantitative analysis methods, through surveys, interviews, working groups, and/or focus groups.
Partnerships/ stakeholder mapping	• A list of prospective partners and key stakeholders is outlined in the project plan and includes key CBOs, with an explanation of how each planned CBO partnership will help reach residents in a way that the projects could not otherwise. • A review of decision-makers who could have influence over the community's mobility future is included in the stakeholder map. • There are plans to subcontract a range of the engagement activities to the CBOs who hold pre-existing relationships with community members.

Communication	• Communications materials and media are being created with intersectional images, stories, and culturally resonant references for the target communities. • The person-to-person interactions throughout the project, along with communications materials, are completed with translation services necessary for whichever target community the organizers are engaging.
Community ownership	• The project identifies whether it will: 1) Inform, 2) Consult, 3) Involve, 4) Collaborate, or 5) Empower/Defer To, community members.[54] • If the project does not reach stage 5 of the spectrum, the project organizers present a list of key barriers preventing them from doing so and provide possible solutions for how those barriers may be overcome, either by the project itself, or by future projects.
Implementation	• For projects with a local scope, organizers commit to engage local decision-makers who have influence over the implementation of the community's recommendations; if this is not possible, demonstrate a recognition of institutional barriers preventing action from taking place. • Identification of the financial and human resources needed to ensure long-term participation of underrepresented community members in helping shape their zero-emission mobility future.
Feedback	• Digital and in-person feedback mechanisms are available. • Formal and informal feedback is systematically received, recorded, and responded to.
Monitoring and evaluation	• Course corrections and program design adjustments are completed on an ongoing basis, based on community feedback.

[54] *Spectrum of Community Engagement to Ownership*.

Appendix A. Cross-jurisdictional program scan

Table 3. Examples of ZEV awareness and education programs

Program	Type	Description
Canada		
Nova Scotia		
Clean Foundation EV Assist and Next Ride	Education and Awareness Campaign	EV Assist is a not-for-profit low-carbon transportation initiative acting as an all-in-one resource for electric vehicles (EVs) in Nova Scotia[55] Next Ride helps Nova Scotians learn more and get excited about EVs through test drive appointments at locations across Nova Scotia.[56]
Quebec		
Quebec Electric Vehicle Association	Education and Awareness Resource	The Quebec Electric Vehicle Association website includes a number of informational resources for EVs.[57]
Équiterre Running Electric	Education and Awareness Campaign	An information campaign launched and co-ordinated by Équiterre and supported by Quebec. Content includes an electric vehicle guide, webinars, and a catalogue of vehicle models.[58]
Ontario		
Plug'n Drive Electric Vehicle Roadshow	Education and Awareness Campaign	Plug'n Drive brings EVs to conferences, trade shows and community events across Ontario year-round to increase public awareness of EVs.[59] Plug'n Drive hosts targeted events for different ethnic and cultural communities across Canada. Local EV ambassadors that speak languages relevant to the community in question are

[55] Government of Nova Scotia "EV Assist." https://evassist.ca/

[56] "Next Ride." https://nextridens.com/

[57] Quebec Electric Vehicle Association, "AVEQ." https://www.aveq.ca/

[58] Équiterre, "Running Electric." https://www.roulonselectrique.ca/en/

[59] Plug'n Drive, "Electric Vehicle Roadshow." https://www.plugndrive.ca/ev-roadshow/

		recruited, trained on EV messaging and conduct engagement on behalf of Plug'n Drive.
eMERGE Guelph eMERGE EV Events and Ambassadors Club[60]	Education and Awareness Campaign	eMERGE host digital and in-person events year-round encouraging the adoption of EVs and dispelling myths in unique and accessible ways. In 2020, eMERGE hosted its first Women's EV Night[61] and has plans to host a second. eMERGE has also found success reaching diverse Guelph community members through engagement with local places of worship.
British Columbia		
Emotive and Province of B.C. Community Outreach Incentive Program	Funding for Education and Awareness Campaigns	Provides B.C. communities, organizations and local governments financial assistance for community-led education and outreach programs.[62] Part of the Emotive campaign, which seeks to increase EV awareness in B.C.[63] Empowers community-led organizations and local governments to deliver campaign activities that meet their community's unique needs. The 2021/2022 funding stream for the Community Outreach Incentive Program is prioritizing projects that promote EV awareness within northern, rural/small towns and indigenous communities.[64]
Community Energy Association Accelerate Kootenay #RuralEV Mobile Showcase	Education and Awareness Campaign	EVs and PHEVs were showcased across the Kootenay's and surrounding regions. Test drives were offered, and online EV education resources provided, including a "RuralEV Autumn Experience" video.[65] There was a focus on rural communities that do not have great access to EV dealerships and are more reliant on private vehicles for transportation (as opposed to public transit).
Community Energy Association	Education and Awareness Campaign	Collaborative engagement sessions with stakeholders from rural B.C. regions to develop pilot projects for their community's e-Mobility future.

[60] eMERGE, "EV Ambassadors Club." https://emergeguelph.ca/get-involved/ev-ambassadors-club/

[61] eMERGE, "Women's EV Night." https://emergeguelph.ca/event/womens-ev-night/

[62] Plug In BC, "Emotive Community Outreach Incentive Program." https://pluginbc.ca/community-outreach-incentive-program-2021/

[63] Plug In BC, "Electric Vehicle Outreach and Education." https://pluginbc.ca/outreach/

[64] Government of British Columbia, *Emotive Community Outreach Incentive Program 2021/2022*, 1. https://pluginbc.ca/wp/wp-content/uploads/2021/03/COIP-Program-Guide-2021.pdf

[65] Accelerate Kootenays, *RuralEV Mobile Showcase*. https://www.communityenergy.ca/wp-content/uploads/2020/08/Summary-Report-June-June.pdf

Regional Visions for Electric Mobility[66]		These innovative workshops targeted residents of underrepresented communities in B.C. and delivered an empowerment and shared ownership model.
Community Energy Association Level 2 Owner's Toolkit[67]	Education and Awareness Resource	Toolkit providing resources and answering FAQs for new owners of level 2 EV chargers. Developed for northern B.C. communities who have recently adopted new charging infrastructure.
Community Energy Association ZEV Story Toolkit[68]	Education and Awareness Resource	Comprehensive toolkit designed to support EV engagement and awareness work in rural and remote Canadian communities.
Community Energy Association Charge North Project[69]	Infrastructure Project	The Charge North Project is an expansive EV charging network collaboration between the Community Energy Association, North Coast Regional District, the Federation of Canadian Municipalities, Kitimat-Stikine Regional District, Regional District of Bulkley Nechako, Regional District of Fraser-Fort George, Cariboo Regional District, and Thompson-Nicole Regional District. The project is notable in that despite being an infrastructure project, it has integrated outreach with key partners, public awareness and education activities, and capacity-building in the form of an EV ambassador network into its work.
Yukon		
Yukon Transportation Museum EV Discovery Day	Education and Awareness Event	For the past two years, an EV Discovery Day has been held at the Yukon Transportation Museum to provide Yukoners the opportunity to interact with zero-emission vehicles and EV

[66] Community Energy Association, "Regional Visions for Electric Mobility." https://www.communityenergy.ca/projects/e-mobility-visioning/

[67] Community Energy Association, "Level 2 Owner's Toolkit." https://www.communityenergy.ca/level-2-owners-toolkit/

[68] Community Energy Association, "ZEV Story Toolkit." https://www.communityenergy.ca/zev-toolkit/

[69] North Coast Regional District, "Charge North Project."

		owners.[70,71] Most recent attendance for the event was estimated at 300-350.[72] Local Yukon auto dealerships, national dealerships and other businesses involved in the EV transition attend the events. The first event led to four dealerships selling BEVs and PHEVs; now six dealerships sell them.
Yukon Energy Branch EV Performance Study[73]	Demonstration	The Energy Branch has run a comprehensive study with six electric vehicles to document year-round efficiency (e.g., range reduction, heating, performance) in the North.
NWT		
Arctic Energy Alliance National Drive Electric Week[74]	Education and Awareness Event	In 2020, the Arctic Energy Alliance hosted an awareness campaign in association with national drive electric week, through the radio, Facebook and physical flyers to promote electric vehicles in the NWT.
Arctic Energy Alliance EV Pilot[75]	Demonstration Project	The Arctic Energy Alliance leased a used Chevrolet Bolt in 2015 and 2016 to document findings and dispel myths about the performance of electric vehicles in northern conditions.
U.S.		
Drive Clean Bay Area EVs for Equity[76]	Education and Awareness Campaign	Organization brings EV test drives to various communities, and hosts EV financial incentive clinics. Targets underserved communities. Meets people where they are. Offers resources in both Spanish and English.
Ecology Action Central Coast EV Purchase Guidance Program	Education and Personalized Support for EV Purchases	Offers free assistance to help low-to-middle income residents through the entire process of buying an EV or PHEV.[77] Offers assistance for free to ensure that low-income groups can access support.

[70] Government of Yukon, "Discovery Day to display electric vehicles in Yukon," April 3, 2020. https://yukon.ca/en/news/discovery-day-display-electric-vehicles-yukon

[71] Yukon Transportation Museum, "Electric Vehicle Discovery Day." https://goytm.ca/event/electric-vehicle-discovery-day/

[72] Government of Yukon, *Clean Transportation: Quarterly Energy Branch Report*, November 27, 2021.

[73] In progress.

[74] National Drive Electric Week, "Home." https://driveelectricweek.org/

[75] Arctic Energy Alliance, "Electric Vehicle Study." https://aea.nt.ca/resources/electric-vehicle-study/

[76] Drive Clean Bay Area "EVs for Equity." https://drivecleanbayarea.org/evs-for-equity/

[77] Ecology Action, "EVs for Everyone." https://www.evsforeveryone.org/

Clean Vehicle Empowerment Collaborative EV Equity Program[78,79]	Education and Personalized Support for EV Purchases	Led by the Central California Asthma Collaborative and a partnership of community-based organizations across the San Joaquin Valley, the group operates in urban, suburban, and rural low-income and disadvantaged communities across the San Joaquin Valley. Since 2019, the group has been working in partnership with the Center for Sustainable Energy to conduct EV outreach in disadvantaged communities. Through the EV Equity Program, the collaborative provides personalized support, as well as educational resources on EVs and air quality, an EV inventory, and an overview of financing opportunities. To qualify for free personalized support, individuals must be a resident of the San Joaquin Valley and fall under specific income criteria.
Liberty Hill emPOWER Outreach[80]	Personalized Support for EV Purchases	A coalition of community-based organizations across Los Angeles County making sure that the people hurt most by pollution, high heat, and increasing utility bills can access the millions of dollars provided by State and local agencies to combat climate change. This includes providing support to help individuals access the financial assistance they may need to transition to an EV or hybrid vehicle.
Veloz Electric for All[81]	Education and Awareness Campaign	Veloz's 40 Million Reasons to Go Electric campaign is a "cultural campaign" that spotlights Mark Ruffalo, Chloe Bennett and local superheroes as "agents of change fighting for social, economic and environmental justice, celebrating California's many cultures, and underscores the reasons each and every Californian should go electric."[82] The "local superheroes" include individuals from a wide range of cultural backgrounds, income levels, genders, ages and abilities. These superheroes share their personal stories and reasons for why environmental justice and electric vehicle access for all is so important to them. The campaign features a range of different types of communications materials, including personal written stories, videos, and social media posts. "Elements of the campaign are designed to reach Californians where they are."

[78] Central California Asthma Collaborative "Clean Vehicle Empowerment Collaborative." http://cencalasthma.org/cvec/

[79] Clean Vehicle Empowerment Collaborative, "EV Equity Program." https://evequity.com/evequity/

[80] Liberty Hill, "empower Outreach." https://www.libertyhill.org/how-we-work/campaigns/empower-outreach/

[81] Veloz, "Electric For All – 40 Million Reasons to Go Electric." https://www.electricforall.org/campaign/

[82] Veloz, "Electric For All – 40 Million Reasons to Go Electric."

EV Noire Women in E-Mobility[83]	Education and Awareness Campaign	EV Noire's Women in E-Mobility is a public awareness series highlighting diverse female leaders in the e-mobility industry.
EV Noire Drive the Future[84]	Education and Awareness Campaign	The Drive the Future campaign includes demonstration, engagement and awareness activities that raise the profile of EVs and other e-mobility solutions in underrepresented communities. The initiative has a direct focus on gathering input from, and creating stories relevant to, underrepresented communities in the United States.

Table 4. Examples of clean mobility programs focused on equity

Program	Type	Description and DEI considerations
U.S.		
California		
Clean Mobility Options Voucher Pilot Program (CMO) [85]	Voucher	CMO delivers funding directly to traditionally underserved communities in California for the purchase and increased adoption of alternative zero-emission mobility solutions, including carpooling, bike/scooter-sharing, transit and on-demand ridesharing. The program is designed to directly support underserved communities. Projects must be in located in either: an officially designated "disadvantaged community" according to the CalEnviroScreen methodology; tribal land; or serving deed-restricted affordable housing facilities located in a designated 'low-income community'. Applicants must also conduct a 'community transportation needs assessment' in collaboration with local residents.
Sustainable Transportation Equity Project[86]	Grants	STEP provides grants for both capacity building and implementation to increase transportation equity in communities most disadvantaged by climate change.

[83] EV Noire, YouTube. https://www.youtube.com/channel/UCpzr4NJh1vCTFcig52fc0gg/videos

[84] EV Noire, YouTube.

[85] Clean Mobility Options, "About." https://www.cleanmobilityoptions.org/

[86] California Air Resources Board, "Sustainable Transportation Equity Project (STEP)." https://ww2.arb.ca.gov/our-work/programs/low-carbon-transportation-investments-and-air-quality-improvement-program-1

Transformative Climate Communities Program[87]	Grants	TCC puts money directly into community-led projects to enable local organizations most affected by environmental injustice to develop their own climate solutions.
Clean Vehicle Assistance Program[88]	Grants	The program provides pre-purchase grants to low-income disadvantaged communities in California, for the purchase of new or used EVs/PHEVs.

Table 5. Examples of municipal e-mobility strategies with equity considerations

Program	Description and DEI Considerations
U.S.	
City of San Jose *Emerging Mobility Action Plan*[89]	The city's new mobility plan is centered around equity and focuses on creating more affordable and reliable modes of transportation for underrepresented communities.
City of Seattle *Clean Transportation Electrification Blueprint*[90] and *Transportation Electrification Strategy*[91]	Seattle's electrification blueprint builds on previous groundwork laid by the city's Transportation Electrification Strategy and its Race and Social Justice Initiative. Seattle's electrification plans center climate justice. Robust consultations with community leaders on racial equity and environmental justice were underway for years, leading to commitments in the blueprint that focus on communities disproportionately impacted by pollution.
City of Denver *A Neighborhood-Based Approach to Equitable E-Mobility*[92]	A comprehensive, equity-focused pilot study focusing on Denver's Montebello neighbourhood. The study outlines best practices for equitable community engagement and the development of community-led pilot projects.

[87] California Strategic Growth Council, "Transformative Climate Communities Program." https://www.sgc.ca.gov/programs/tcc/

[88] Beneficial State Foundation and the California Air Resources Board, "Clean Vehicle Assistance Program." https://cleanvehiclegrants.org/

[89] City of San Jose, "Emerging Mobility Action Plan." https://www.sanjoseca.gov/your-government/departments-offices/transportation/projects-planning/emerging-mobility-action-plan

[90] City of Seattle, *Seattle's Clean Transportation Electrification Blueprint: Electrifying Our Transportation System* (2021). https://www.seattle.gov/Documents/Departments/OSE/ClimateDocs/TE/TE%20Blueprint%20-%20March%202021.pdf

[91] Lynn Daniels and Brendan O'Donnell, Seattle City Light: Transportation Electrification Strategy (2019). https://rmi.org/insight/seattle-city-light/

[92] Guidehouse, *A Neighborhood-Based Approach to Equitable E-Mobility: Denver's Montbello Neighborhood* (2020). https://www.denvergov.org/files/assets/public/climate-action/documents/denver-vehicle-electrification-equitable-e-mobility-final-report.pdf

City of Berkeley *Electric Mobility Roadmap*[93]	In 2020, Berkeley adopted an EV Roadmap that outlines the city's ambitions to create "to create a fossil fuel-free transportation system".[94] The roadmap is centered around equity and mode-shifting, with a focus on ensuring the electric mobility transition creates material benefits for underserved communities.
Canada	
City of Vancouver *Climate Emergency Action Plan*[95]	The City of Vancouver's Climate Emergency Action Plan implementation strategy is supported by a climate and equity working group. Forthcoming work on equity includes: the "Climate Justice Charter, the Equity Framework, the Reconciliation Framework, the Healthy City Strategy, Vancouver's Housing Strategy, and the Women's Equity Strategy."[96] The city's action plan sourced equity-focused feedback from its working group, as well as from with two organizations: Toronto Environmental Alliance ("An Equity-Focused Review Of The City Of Vancouver's Draft Climate Emergency Action Plan"), and Hua Foundation ("The Climate Emergency Action Plan: Review Summary").
City of Toronto *Electric Vehicle Strategy*[97]	Toronto's Electric Vehicle Strategy was informed by the Electric Mobility Strategy Assessment Phase,[98] which included a social vulnerability mapping analysis that identified barriers to electric-mobility adoption for low-income and underrepresented communities.
City of Surrey *Surrey Electric Vehicle Strategy*[99]	While the strategy focuses solely on passenger vehicles, an equity section documents feedback from the community engagement process which described the mobility and accessibility needs of underrepresented communities in Surrey.
City of Edmonton	The City of Edmonton engaged in thorough and comprehensive community engagement activities to inform its electric vehicle strategy.

[93] City of Berkeley, *Electric Mobility Roadmap* (2019). https://www.cityofberkeley.info/uploadedFiles/Planning_and_Development/Level_3_-_Commissions/Commission_for_Energy/EC%202019-07-24_Item%204_Electric%20Mobility%20Roadmap%20Update.pdf

[94] *Electric Mobility Roadmap*, 4.

[95] City of Vancouver, "An equitable plan." https://vancouver.ca/green-vancouver/an-equitable-plan.aspx

[96] City of Vancouver, "An equitable plan."

[97] City of Toronto, *City of Toronto Electric Vehicle Strategy: Supporting the City in achieving its TransformTO transportation goals* (2019). https://www.toronto.ca/wp-content/uploads/2020/02/8c46-City-of-Toronto-Electric-Vehicle-Strategy.pdf

[98] Pollution Probe and The Delphi Group, *Electric Mobility Strategy Assessment Phase* (2018). https://www.toronto.ca/wp-content/uploads/2021/12/932d-Toronto-Electric-Mobility-Strategy-Assessment-Phase-Report.pdf

[99] City of Surrey, *Surrey Electric Vehicle Strategy* (2021). https://www.surrey.ca/sites/default/files/media/documents/SurreyElectricVehicleStrategy.pdf

Electric Vehicle Strategy[100]	

Table 6. Examples of Indigenous communities with electric mobility programs or projects

Nation	Activity description
Osoyoos Indian Band[101]	In 2020, in partnership with FortisBC, Osoyoos Indian Band opened the first set of public electric vehicle charging stations within a B.C. First Nation.
Bearspaw First Nation[102]	As part of ATCO's "Peaks to Prairies" investment project, the Bearspaw First Nation now hosts a set of EV chargers in their community.
T'Sou-ke First Nation[103]	T'Sou-ke has installed solar panels, level 2 electric vehicle charging infrastructure, and other renewable energy infrastructure in place for several years.
Musqueam Indian Band[104]	The Musqueam Indian Band received provincial funding to develop education and awareness activities that promote the benefits of purchasing an EV. In 2020, two level 2 charging stations were built in front of Musqueam's administration building.

[100] City of Edmonton, *Electric Vehicle Strategy* (2020). https://www.edmonton.ca/sites/default/files/public-files/assets/PDF/EdmontonElectricVehicleStrategy.pdf?cb=1645235836

[101] Shelby Thom, "Osoyoos Indian Band, FortisBC open first electric vehicle charging stations within a B.C. First Nation," *Global News*, July 30, 2020. https://globalnews.ca/news/7237366/osoyoos-indian-band-electric-vehicle-charging-stations/

[102] CTV News Calgary, "Bearspaw First Nation opens electric vehicle charging stations along Trans-Canada," *CTV News*, November 4, 2019. https://calgary.ctvnews.ca/bearspaw-first-nation-opens-electric-vehicle-charging-stations-along-trans-canada-1.4669475

[103] T'Souke First Nation, "T'Souke Shines in another Solar first." http://www.tsoukenation.com/355-2/

[104] Government of British Columbia, "Funding helps promote electric vehicle uptake in B.C." https://news.gov.bc.ca/releases/2022EMLI0001-000013

Table 7. Examples of ZEV incentives for low-income communities

Program	Type	Description	DEI considerations
Canada			
Quebec *Roulez Vert Program*[105] Prince Edward Island *Universal EV Incentive*[106] Nova Scotia *Electrify Nova Scotia Rebate Program*[107] Newfoundland and Labrador *Electric Vehicle Rebate Program*[108] New Brunswick *Electric Vehicle Rebate Program*[109] Plug'n Drive *Used Electric Vehicle Incentive*[110]	Rebate	All these programs offered in provinces across Canada offer rebates of varying amounts ($1,000 to $5,000) towards the purchase of a used EV.	Financial incentives are capped to subsidize only lower-cost models. Incentives for used EVs can help make the switch more affordable for low-income residents.

[105] Government of Quebec, "Used Vehicle Rebate." https://vehiculeselectriques.gouv.qc.ca/english/rabais/ve-occasion/programme-rabais-vehicule-occasion.asp

[106] Prince Edward Island, "Electric Vehicle Incentive." https://www.princeedwardisland.ca/en/information/environment-energy-and-climate-action/electric-vehicle-incentive

[107] EV Assist, "Electrify Nova Scotia Rebate Program." https://evassist.ca/rebates/

[108] Newfoundland Labrador Hydro, "Electric Vehicle Rebate Program." https://nlhydro.com/electricvehicles/ev-rebate/

[109] NB Power, "Plug-In NB – Electric Vehicle Rebates." https://www.nbpower.com/en/products-services/electric-vehicles/plug-in-nb/

[110] Plug'n Drive, "Used Electric Vehicles." https://www.plugndrive.ca/used-electric-vehicles-incentive/

Appendix B. Full insights from section 4.2

Appendix B was requested by NRCan, to shorten the length of section 3.2: *Feedback related to specific underrepresented groups*.

B.1 Feedback related to specific underrepresented groups

B.1.1 Recent immigrants and newcomers

- For those who are not official-language speakers (English, French), programming, resources, and application forms delivered by government may not be accessible. Even if someone is interested in participating, encountering language barriers can quickly dissolve motivation.
- For some recent immigrants and newcomers, there can be a lack of understanding as to why the government is offering incentives and trying to solicit interest in EV-related programs. Sometimes, there can be distrust in government communication and financial incentives from governments for EVs may be met with skepticism and hesitancy. This could be caused by past negative experiences with a previous government, hesitancy to draw attention to themselves (perhaps out of fear of compromising an immigration status), fear of repercussions for incorrectly filling out forms and applications, among other reasons.

- For newcomers in the process of applying, renewing, or updating their immigration status, there can be an overwhelming amount of information, forms, and requirements to manage. The process can generate significant amounts of anxiety, require high upfront costs, and oftentimes leave newcomers with a desire to limit interactions with government. Given this hurdle, highlighting the benefits and financial resources available to potential EV purchasers on frequently accessed websites could increase awareness (e.g., links to the government's $5,000 rebate[111] on key Immigration, Refugees and Citizenship Canada (IRCC) websites, such as those already highlighting free newcomer services[112]).
- Some multi-cultural communities are not familiar with the brands of their local utilities and/or other crown-corporations, despite their prominence in mainstream media. Community partnerships to deliver information about energy savings and rebates are critical for this reason.
- Young recent immigrants can face identification-related barriers to driving in Canada, if they have an expired license from another country and need to go through the process of renewal in a new bureaucratic environment. For some, the prospect of navigating these hurdles, particularly when other forms of mobility such as transit and ridesharing exist in their community, makes it less appealing to consider driving.
- Because of the relatively high upfront cost of EVs, most people will have to rely on lending services to access them. However, depending on what age newcomers are arriving in Canada, some may not have a sufficiently long credit history to access affordable financing (lease or loan).

[111] Transport Canada, "Incentives for purchasing zero-emission vehicles," https://tc.canada.ca/en/road-transportation/innovative-technologies/zero-emission-vehicles/incentives-purchasing-zero-emission-vehicles

[112] Immigration, Refugees and Citizenship Canada, "Find free newcomer services near you," https://ircc.canada.ca/english/newcomers/services/index.asp

B.1.2 Youth

Accessibility

- It is important when engaging with young people to set realistic financial assumptions about the type of vehicles or mobility options they can access. More tailored information about low-cost forms of electric mobility (transit, scooters, e-bikes, etc.) is needed in zero-emission mobility awareness and education campaigns.
- Many young people may not have a credit card, relevant bank account, credit rating and/or sufficient financial literacy to consider a purchase of this magnitude. Moreover, some young people, particularly those reliant on transit in urban communities, are not aware of the complexities associated with car ownership.
- Most young people won't have the ability to purchase vehicles new. This makes awareness and education efforts that promote government incentives less effective. For the few programs that do provide a rebate on used vehicles, there can be a lack of awareness.
- Financial accessibility for youth may also be framed in terms of multi-generational wealth (e.g., inheritance and/or support through parents); many families do not have the ability to support their children with a vehicle purchase.
- Housing and its intersections with mobility also matter for young people. For the majority of whom live in Multi-Unit Residential Buildings (MURBs), basement suite dwellings, or other forms of housing without specified areas to charge their vehicles, it seems laborious to access charging infrastructure.

Connections to lived realities

- For some young people, more flexible and accessible forms of mobility such as transit and car share programs may dominate their interest. Youth may be interested in reducing their carbon footprint but are often looking to government to provide affordable alternatives to them (e.g., transition car-sharing services to ZEVs, electrify transit networks).

- Some young people think about consumer behaviour and consumption in the context of climate justice. Youth living in communities with reliable and affordable alternatives to vehicle ownership may view the prospect of a car purchase negatively, as part of the wider context of capitalism and consumption. If they have options, such as public transit in urban spaces, those values may affect the mobility options they choose. For example, some young people are highly aware of the implications of their purchase decisions (e.g., climate change, supply chain justice, the origin of lithium and other rare minerals, consequences associated with heavy metal manufacturing, etc.). This sub-set of young people need to see positive systemic changes in urban planning and energy systems in order to feel confident that a potential passenger EV purchase will have a net positive climate impact.

How young people see the mobility future

- Some young people in urban areas may not see a continuation of car culture as the best way to address the climate emergency, even with ZEVs. In urban centres, reclaiming car-dominated land (e.g., parking garages, roads) in favour of shared community spaces and alternative forms of mobility can be popular.

B.1.3 Northern and remote communities

Interest in adoption

- In the North, there is generally excitement about the potential adoption of technologies that can reduce GHGs, particularly in urban areas such as Yellowknife and Whitehorse that operate electricity grids primarily though reliable hydroelectricity. However, even in the urban areas but particularly in remote communities, residents of the north are more commonly subject to power outages and will be sensitive to what impact that may have on their vehicles in the winter.

- The benefits of driving ZEVs, in terms of cost savings for operations and maintenance, are understood by a select group of people.[113] In one respect, this has led to relatively promising uptake in the new NWT EV rebate and Yukon ZEV rebates. However, there remains a large populace of Northern residents that are unconvinced and unaware of the merits of ZEV adoption.
- Partnerships with local non-profits for the delivery of ZEV messaging and awareness campaigns can potentially generate greater impacts in Northern and remote communities. There is a greater sense of familiarity with the organizations that do grassroots work in small towns, and this can create an improved sense of trust with regards to communications materials.

Barriers to entry

- The most prominent concerns and barriers to entry include: a lack of ZEV availability at northern dealerships, a widespread lack of access to maintenance and repair services, lack of travel-specific charging infrastructure to enable long-distance driving, and concerns about reduced battery life in extremely cold operating conditions.[114]
- Residents who semi-regularly commute or travel between other northern communities or southern provinces have no reliable charging infrastructure to depend on, which makes them reluctant to buy a vehicle that would serve solely for local trips.
- In some cases, residents of northern and remote communities may not be motivated to consider adopting EVs because the technology, approach, and charging infrastructure is unfamiliar or unavailable to them.

[113] Liny Lamberink, "EVs meet needs of these N.W.T. drivers, but stop short of long-distance travel," *CBC News*, January 11, 2022. https://www.cbc.ca/news/canada/north/cold-weather-electric-vehicles-nwt-1.6310194

[114] Ollie Williams, "Our commenters aren't convinced about EVs. This guy owns one," *Cabin Radio*, July 5, 2021. https://cabinradio.ca/67064/news/environment/our-commenters-arent-convinced-about-evs-this-guy-owns-one/

- In some northern communities that deal with particularly harsh seasonal winters, there remains significant hesitancy to adopt EVs when residents are familiar with the reliability and needs of gasoline and diesel-powered vehicles in extremely cold climates. Despite the awareness of the environmental benefits associated with ZEVs, the practical realities of the need to have a proven form of transportation can outweigh interest in adoption. Residents are keenly aware that not all technologies that can reduce GHGs are proven to function reliably in cold, remote environments. This makes demonstration activities particularly important. There is a need to thoroughly demonstrate that ZEVs can function well and be maintained cost-effectively in the long run, in such conditions.
- In the Yukon, central messaging to the public is focused on demonstration pilots to prove that EVs work in the winter. The Yukon government is currently conducting a pilot project with data loggers on 6 EVs, tracking energy usage, range, and more. Similarly, in 2015 and 2016, the Yellowknife-based Arctic Energy Alliance tested a Chevrolet Volt Electric vehicle (EV) and prepared a publicly accessible report to summarize the performance of the vehicle.

Accessibility

- For northern communities, the cost of living (e.g., food and groceries, rent and housing, transportation, etc.) may be relatively higher than the rest of Canada. Consequently, many residents of the North are more motivated to invest in initiatives that save them money, particularly those that offer a near-term return on investment, such as energy efficiency initiatives/rebates for light bulbs and household appliances. However, this same cost-of-living reality works against EV adoption due to the high upfront cost. All territorial rebate programs only apply to new vehicles, and there are virtually no used EV markets in the North.
- For some diverse and more remote communities in the North, a lack of time and capacity limit interaction with programs advertising new mobility options. Competing priorities (e.g., immediate needs such as health, social housing and education) limit participation in engagement activities. It can be challenging for representatives from small and remote communities to travel for meetings to provide feedback on planning and program development exercises. Covid-19 has made such travel nearly impossible due to isolation requirements and other travel restrictions.

- Car ownership faces different realities in some northern communities. When faced with significant maintenance issues, some people scrap vehicles and buy new ones rather than repair them, due to high costs of labour. In response to this reality, as well as the limited supply of EVs in the North to-date, the Yukon government created a rebate that covers shipping cost of a used EV. However, the program has seen limited uptake.

Alternative mobility options

- In urban centres, where geography makes it easier to switch to active transportation, there is strong interest in electric mobility options beyond EVs. The Yukon Government offers rebates for electric snowmobiles, e-assist bikes and more. So far, the government reports that interest in e-assist bikes has far exceeded projections, and there is an opportunity to realize seasonal transportation emissions reductions with mode-switching.
- Snowmobiles are a popular form of transportation for many northern communities in the winter.

Infrastructure

- For many northern communities, identifying where to install charging infrastructure is limited to locations with adequate ties to the grid. Electrical infrastructure realities are different in the North,[115] and remote locations outside of bigger cities such as Yellowknife and Whitehorse have severely less capacity than southern Canadian cities.

Government capacity

- The budget and capacity for Northern governments to deliver education and awareness programming has been limited. As a result, most of the focus is on installing charging infrastructure and delivering purchase rebates. In the current programming that exists, some officials have leaned on third-party messaging to deliver education materials but aim to have more messaging that addresses Northern-specific concerns and regional benefits of switching to an EV.
- To date, the GNWT has not engaged extensively on ZEVs, partly due to the challenges associated with Covid-19.

[115] Liny Lamberink, "N.W.T. government investigating network of electric vehicle charging stations," *CBC News*, January 17, 2022. https://www.cbc.ca/news/canada/north/ev-charging-infrastructure-nwt-1.6313828

- For smaller governments, the current bureaucracy and reporting regime for federal funding can be labour-intensive and dissuade prospective applicants.
- Federal funding for localized awareness campaigns could help improve outcomes in small jurisdictions with relatively restricted revenue sources like the NWT.

Northern Indigenous communities

- Indigenous communities are keenly aware of the effects of climate change in the North and already engage in conservation and stewardship activities targeted at reducing emissions.[116] Some northern First Nations particularly interested in clean energy are taking the lead on independent power production proposals. One First Nation in the Northwest Territories expressed keen interest in securing electric buses for its public transit fleet but would require federal support to do so.

[116] Emelie Peacock, "How the NWT provides 'a little candlelight of hope' after COP26", *Cabin Radio*, November 22, 2021. https://cabinradio.ca/79635/news/environment/how-the-nwt-provides-a-little-candlelight-of-hope-after-cop26/

Appendix C. Interview questions

Table 8. Standard questions

Topic	Questions
Perception of ZEVs	• How do the communities you serve perceive technology changes that reduce GHGs? How about EVs, specifically? • Do any specific themes tend to motivate the communities you engage with to pursue EV adoption or other related actions associated with reducing personal GHGs (e.g., health, safety, cost savings, climate benefits)? • In your experience, what common myths about ZEVs are particularly pervasive?
Barriers to entry	• What are some of the key barriers that diverse and hard-to-reach communities face when attempting to access information about ZEVs? • What do the communities you work with commonly identify as key barriers preventing them from adopting ZEVs?
Communication	• How do community members you engage with describe the quality of information they encounter about ZEVs (e.g., advertisements from utilities, industry, radio etc.)? • Do community members you engage with understand where to find information about ZEVs (e.g., incentives, etc.), prior to you providing support? • Based on your work, what engagement practices create greater trust in the information community members receive about ZEVs? Do these practices lead to greater or lesser trust over time in the common institutions that convey information about ZEVs (e.g., government, utilities)?
Participation and inclusion	• Do the communities you engage with have opportunities to meaningfully participate in consultations on planning actions that have environmental goals (e.g., education campaigns, EV or retrofit strategies, development of funding programs)? • In your experience, does input from underrepresented communities get meaningfully incorporated into climate-focused programming? • In your opinion, what are some of the common barriers preventing underrepresented communities from participating in planning and program development exercises, broadly?