



The Zero Carbon Step  
Code: An Introduction

ZERO CARBON  
**STEP**CODE

# CNW Building Code Acceleration Proposal

Leya Behra, P.Eng, Manager of Climate Action

20-Jun-2023



NEW WESTMINSTER

# Recommendation

## *July 10<sup>th</sup> Council Report:*

- THAT staff be directed to amend Building Bylaw No 8125, 2019 to require a two-option framework for Part 9 Buildings requiring Step 5 of the Energy Step Code or Step 4 with a Strong Carbon Performance of the Zero Carbon Step Code beginning January 1st, 2024
- THAT staff be directed to require a Measure Only Carbon Performance for Part 3 Buildings beginning January 1st, 2024
- THAT staff be directed to engage with interested parties on the proposed timeline to reach the highest steps of the Energy Step Code and Zero Carbon Step Code
- THAT staff be directed to explore policy, regulatory and incentive options to require electric heat pumps over electric resistive baseboard in new construction

# The Approach

- Climate Action team, in consultation with development and buildings divisions, is proposing an implementation schedule for the Energy and Zero Carbon Step Codes to reach highest level of each code.
- Benefits of the proposal
  - Long term plan will provide market certainty and support market readiness
  - Parallel adoption will reduce GHG emissions while also focusing on electricity conservation.
- Engagement will identify the needs of the builder community for each phase of implementation.
  - Climate action team will use this information to develop ongoing capacity building initiatives to improve compliance and acceptance rate.

# Proposed Schedule

<i>Building Type Part 9 Residential</i>	<i>BCBC min Requirement May 1, 2023</i>	<i>New West Requirement May 1<sup>st</sup>, 2023</i>	<i>Proposed Jan 1<sup>st</sup>, 2024</i>	<i>Proposed Jan 1<sup>st</sup>, 2025</i>	<i>Proposed Jan 1<sup>st</sup>, 2027</i>	<i>Proposed Jan 1<sup>st</sup> 2030</i>
<i>Single or Two Family Dwellings</i>	<i>Step 3 Opt in Zero Carbon Step Code</i>	<i>Step 3</i>	<i>Step 5 Measure <b>OR</b> Step 3, Strong</i>	<i>Step 5 Moderate <b>OR</b> Step 4 Zero Carbon</i>	<i>Step 5 Zero Carbon</i>	<i>Step 5 Zero Carbon</i>
<i>Laneway and Carriage Dwellings</i>						
<i>Townhomes and Apartment Buildings up to three floors</i>						
<i>Part 3 Multi-Family Residential</i>						
<i>Group C Residential Occupancies 6 stories or less and combustible construction</i>	<i>Step 2 Opt in Zero Carbon Step Code</i>	<i>Step 3</i>	<i>Step 3 Measure</i>	<i>Step 4 Measure <b>OR</b> Step 3 Strong</i>	<i>Step 4 Zero Carbon</i>	<i>Step 4 Zero Carbon</i>
<i>Group C Residential Occupancies over 6 stories or non-construction</i>						
<i>Hotels/Motels</i>						
<i>Part 3 Commercial</i>						
<i>Offices (Business and Personal Services)</i>	<i>Step 2 Opt in Zero Carbon Step Code</i>	<i>Step 2</i>	<i>Step 2 Measure</i>	<i>Step 3 Moderate</i>	<i>Step 4, Measure <b>OR</b> Step 3, Strong</i>	<i>Step 4 Zero Carbon</i>
<i>Other Group D and E Occupancies (Mercantile)</i>						

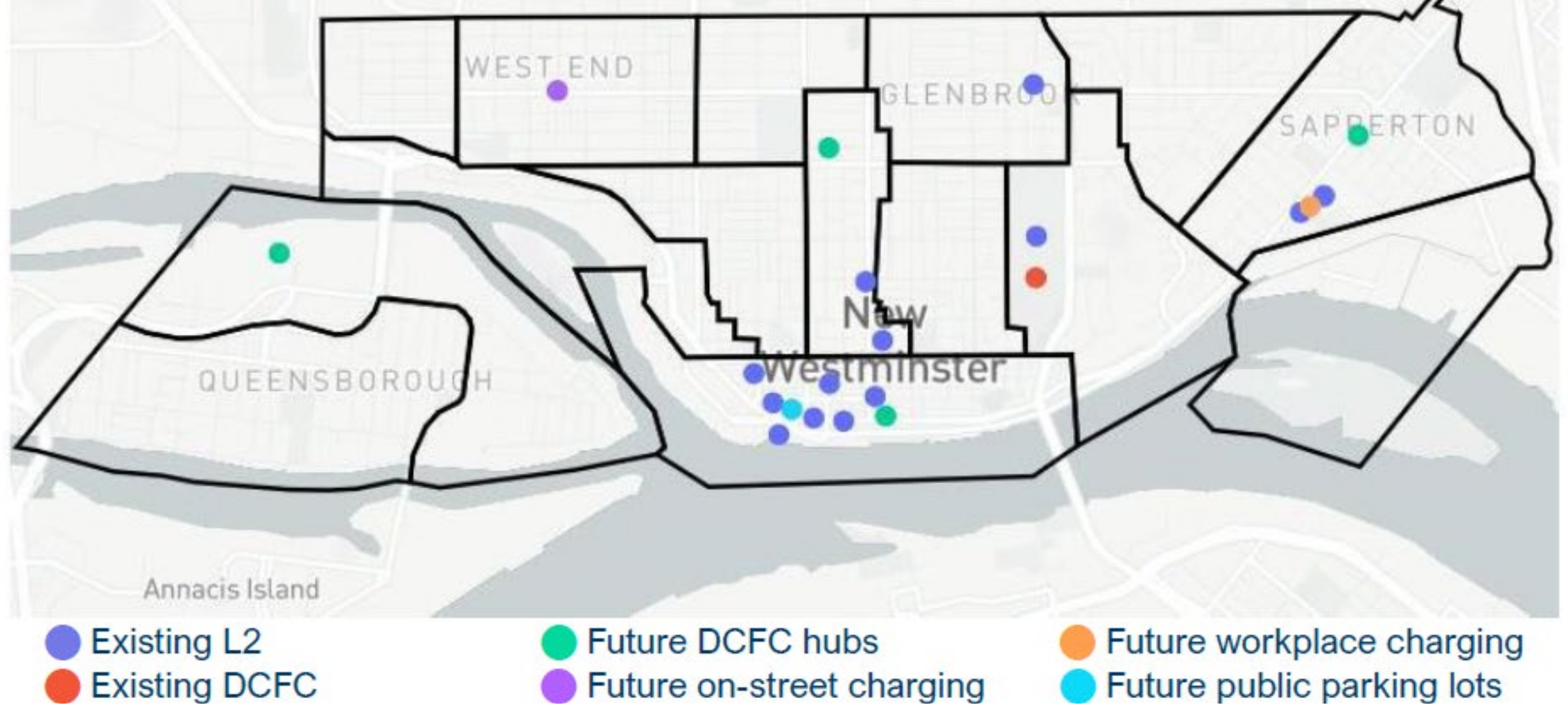
# Proposed Schedule

<i>Building Type Part 9 Residential</i>	<i>BCBC min Requirement May 1, 2023</i>	<i>New West Requirement May 1<sup>st</sup>, 2023</i>	<i>Proposed Jan 1<sup>st</sup>, 2024</i>	<i>Proposed Jan 1<sup>st</sup>, 2025</i>	<i>Proposed Jan 1<sup>st</sup>, 2027</i>	<i>Proposed Jan1<sup>st</sup> 2030</i>
<i>Single or Two Family Dwellings</i>	<i>Step 3 Opt in Zero Carbon Step Code</i>	<i>Step 3</i>	<i>Step 5 Measure <b>OR</b> Step 3, Strong</i>	<i>Step 5 Moderate <b>OR</b> Step 4 Zero Carbon</i>	<i>Step 5 Zero Carbon</i>	<i>Step 5 Zero Carbon</i>
<i>Laneway and Carriage Dwellings</i>						
<i>Townhomes and Apartment Buildings up to three floors</i>						
<i>Part 3 Multi-Family Residential</i>						
<i>Group C Residential Occupancies 6 stories or less and combustible construction</i>	<i>Step 2 Opt in Zero Carbon Step Code</i>	<i>Step 3</i>	<i>Step 3 Measure</i>	<i>Step 4 Measure <b>OR</b> Step 3 Strong</i>	<i>Step 4 Zero Carbon</i>	<i>Step 4 Zero Carbon</i>
<i>Group C Residential Occupancies over 6 stories or non-construction</i>						
<i>Hotels/Motels</i>						
<i>Part 3 Commercial</i>						
<i>Offices (Business and Personal Services)</i>	<i>Step 2 Opt in Zero Carbon Step Code</i>	<i>Step 2</i>	<i>Step 2 Measure</i>	<i>Step 3 Moderate</i>	<i>Step 4, Measure <b>OR</b> Step 3, Strong</i>	<i>Step 4 Zero Carbon</i>
<i>Other Group D and E Occupancies (Mercantile)</i>						

# Discussion on Recommendation

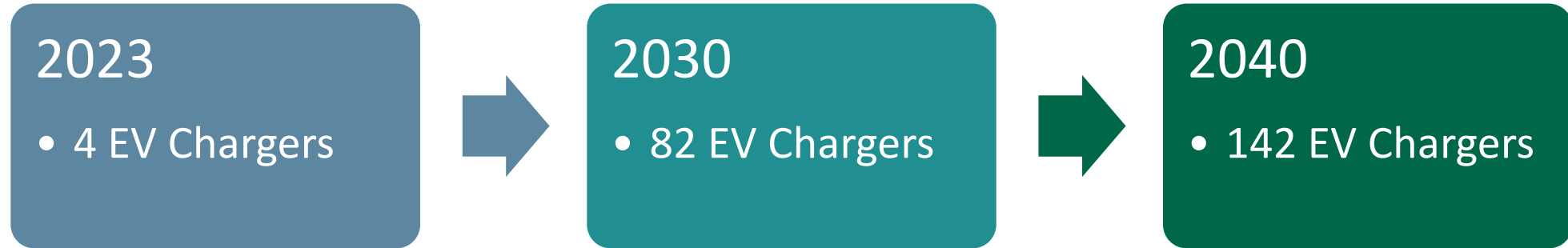
## *July 10<sup>th</sup> Council Report:*

- THAT staff be directed to amend Building Bylaw No 8125, 2019 to require a two-option framework for Part 9 Buildings requiring Step 5 of the Energy Step Code or Step 4 with a Strong Carbon Performance of the Zero Carbon Step Code beginning January 1st, 2024
- THAT staff be directed to require a Measure Only Carbon Performance for Part 3 Buildings beginning January 1st, 2024
- THAT staff be directed to engage with interested parties on the proposed timeline to reach the highest steps of the Energy Step Code and Zero Carbon Step Code
- THAT staff be directed to explore policy, regulatory and incentive options to require electric heat pumps over electric resistive baseboard in new construction



# Fleet, Home and Public EV Charging Projections

# Fleet EV Charging Projections

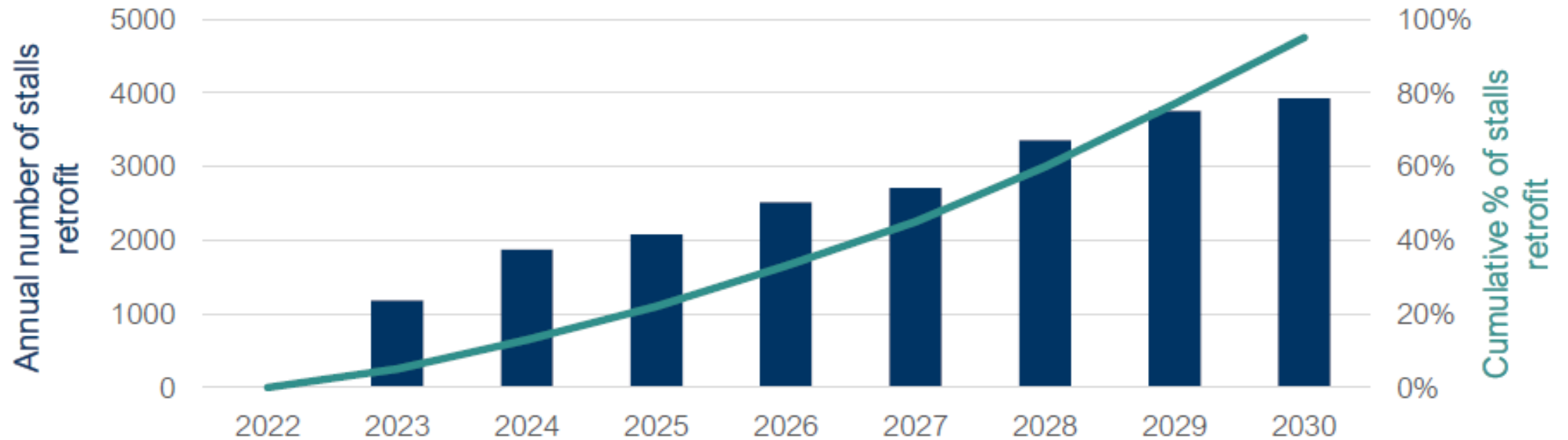


- Civic facility challenges
  - Understanding of building capacity lacking
- Funding challenges
  - Significant cost implications if capacity limited
- Intention to hire a PM on a term basis to get this off the ground



# Home EV Charging – eMobility Strategy

Figure 9 Trajectory to reach EV Ready in 95% of stalls in MURBs with annual number of stalls retrofit



# Public and Workplace EV Charging – eMobility Strategy

Figure 10: Public Level 2 charging stations needed by 2030

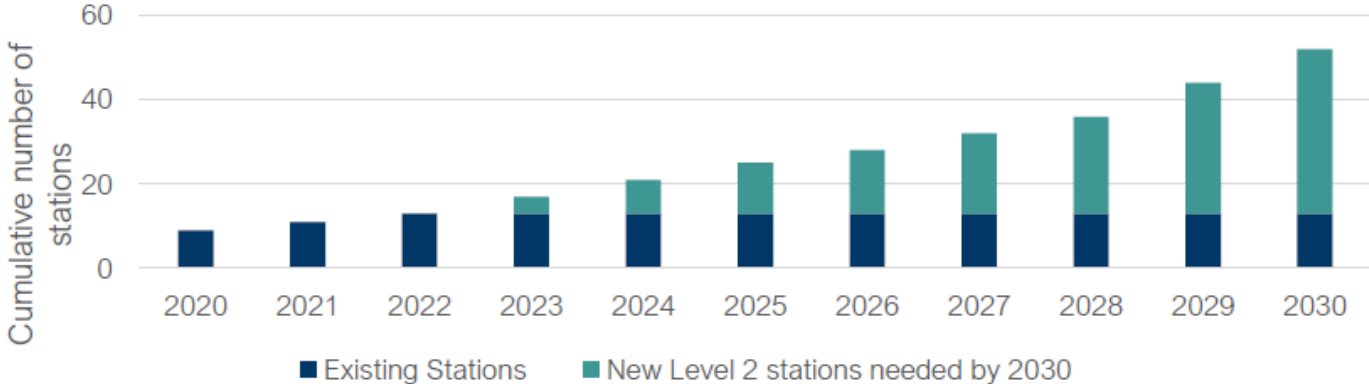
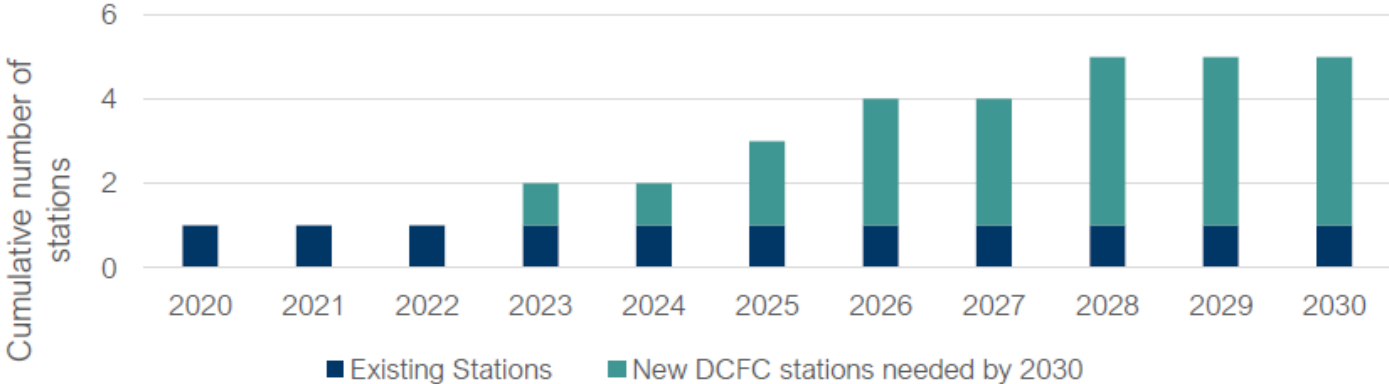


Figure 11: Public DCFC charging stations needed by 2030



# Climate Action Team Next Steps

- Mapping study to identify EV infrastructure gaps
  - Collaborations with other jurisdictions
    - Metro Vancouver mapping review
    - BC Hydro collaborations / Pilot programs
    - City of Victoria (particularly aggressive public charging network plan)
- Siting Guidelines
- Shared fleet operator coordination
- Ongoing review of cost recovery models

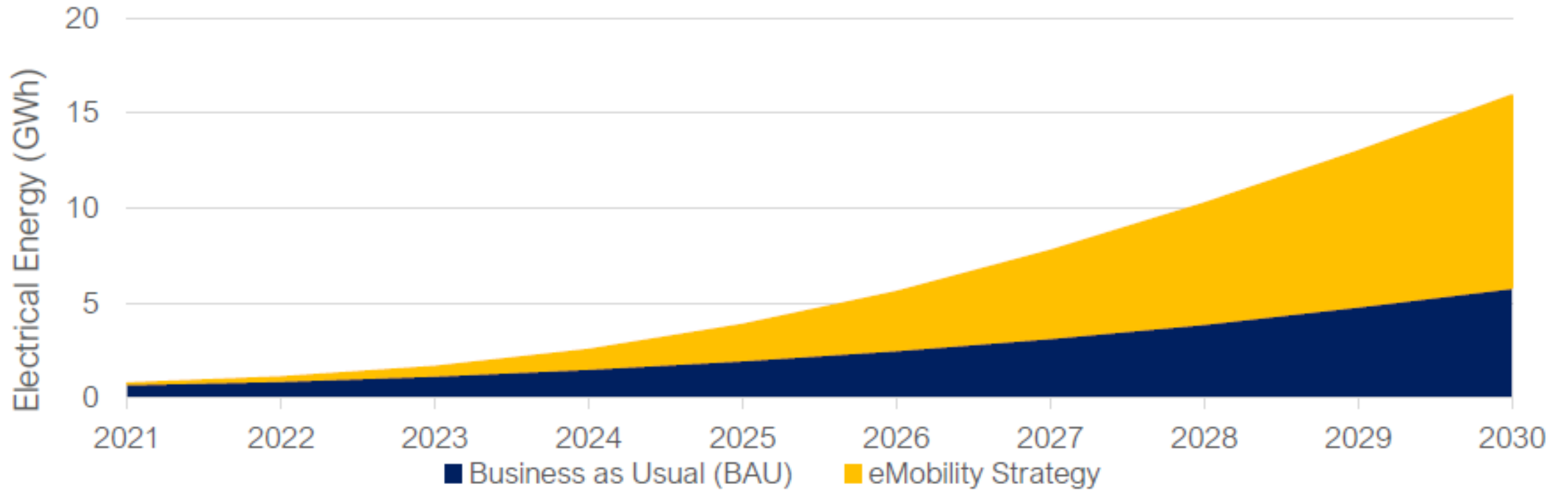
# Discussion

- Does the Utility Commission envision being a champion who enables public EV charging (i.e. BC Hydro model), with planning and policy support from the Climate Action Team?
- What does the Utility Commission need from Climate Action, as it relates to EV Charging, to best support utility operations (i.e. strategy, distribution capacity, load forecasting, etc.)?

# **Appendix Slides – Utility Energy and Demand Impacts**

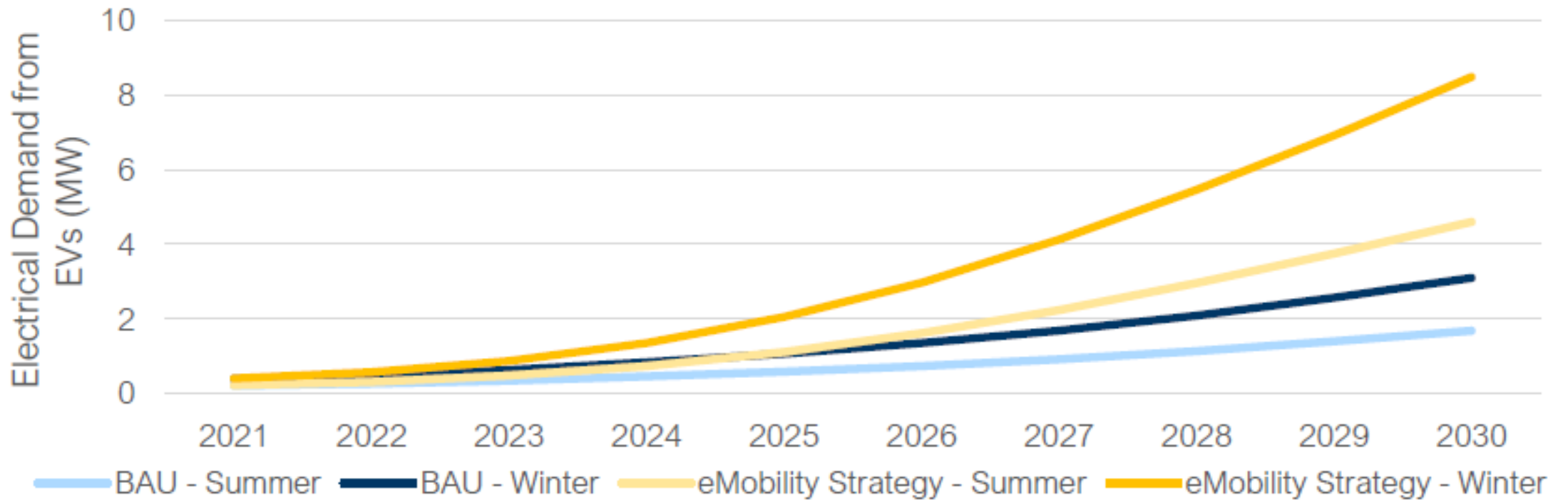
# NWEU Energy Impacts - eMobility Strategy

Figure 12: Annual electrical energy consumption by EVs over time



# NWEU Demand Impacts – eMobility Strategy

Figure 13: Peak 2030 electricity demand (MW) from EVs in winter evenings



# NWEU Neighbourhood Impacts – eMobility Strategy

Figure 14: Peak electricity demand (MW) in 2030 from EVs in winter evenings by neighbourhood

