Fleet Electrification: Key Steps to Get Started

Presented by:

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Western Canada MHD Fleet Electrification Workshop
March 2025

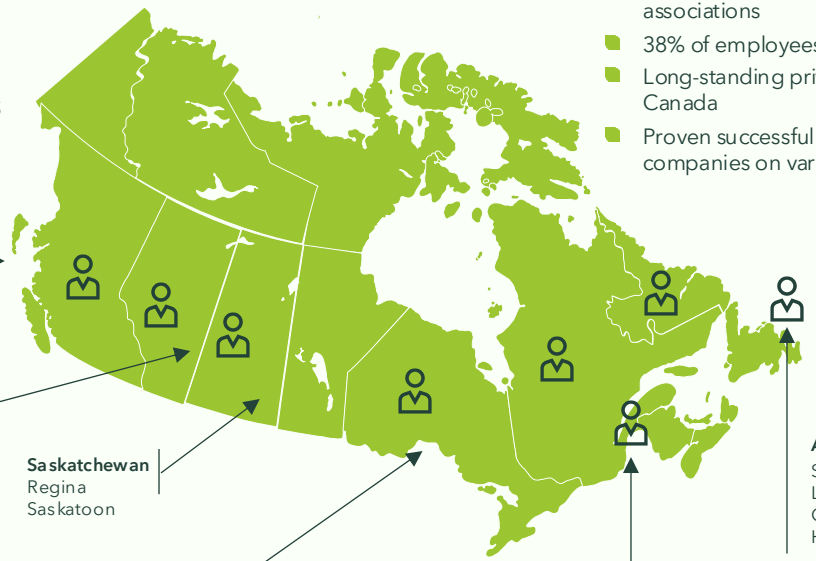
ABOUT CIMA+

Sectors

- Energy and resources
- Transportation
- Buildings
- Infrastructure
- Operational and Digital Technologies
- Project Management
- Earth and Environment

What Defines Us
An **employee-owned**, Canadian firm.
An **agile and multidisciplinary** approach.
An **entrepreneurial culture** that supports **innovation.**
A **socially responsible** firm.
A leader in sustainable and responsible engineering.

Coast-to-Coast presence regrouping 3,400+ professionals



British Columbia
Victoria
Kelowna
West Kootenays
Terrace
Vancouver

Alberta
Calgary
Edmonton

Saskatchewan
Regina
Saskatoon

Atlantic
St. John's
Labrador City
Clarenville
Halifax

Ontario

Burlington
Kitchener
Bowmanville
Red Lake
Barrie
Toronto
Ottawa
London
Mississauga
Thunder Bay
Guelph

Québec

Laval (Head office)
Montréal
Baie-Comeau
Longueuil
Sherbrooke
Granby
Gatineau
Rimouski
Ville de Québec
Lévis
Saguenay
Rivière-du-Loup
Rouyn-Noranda
Sept-Îles
Sorel-Tracy

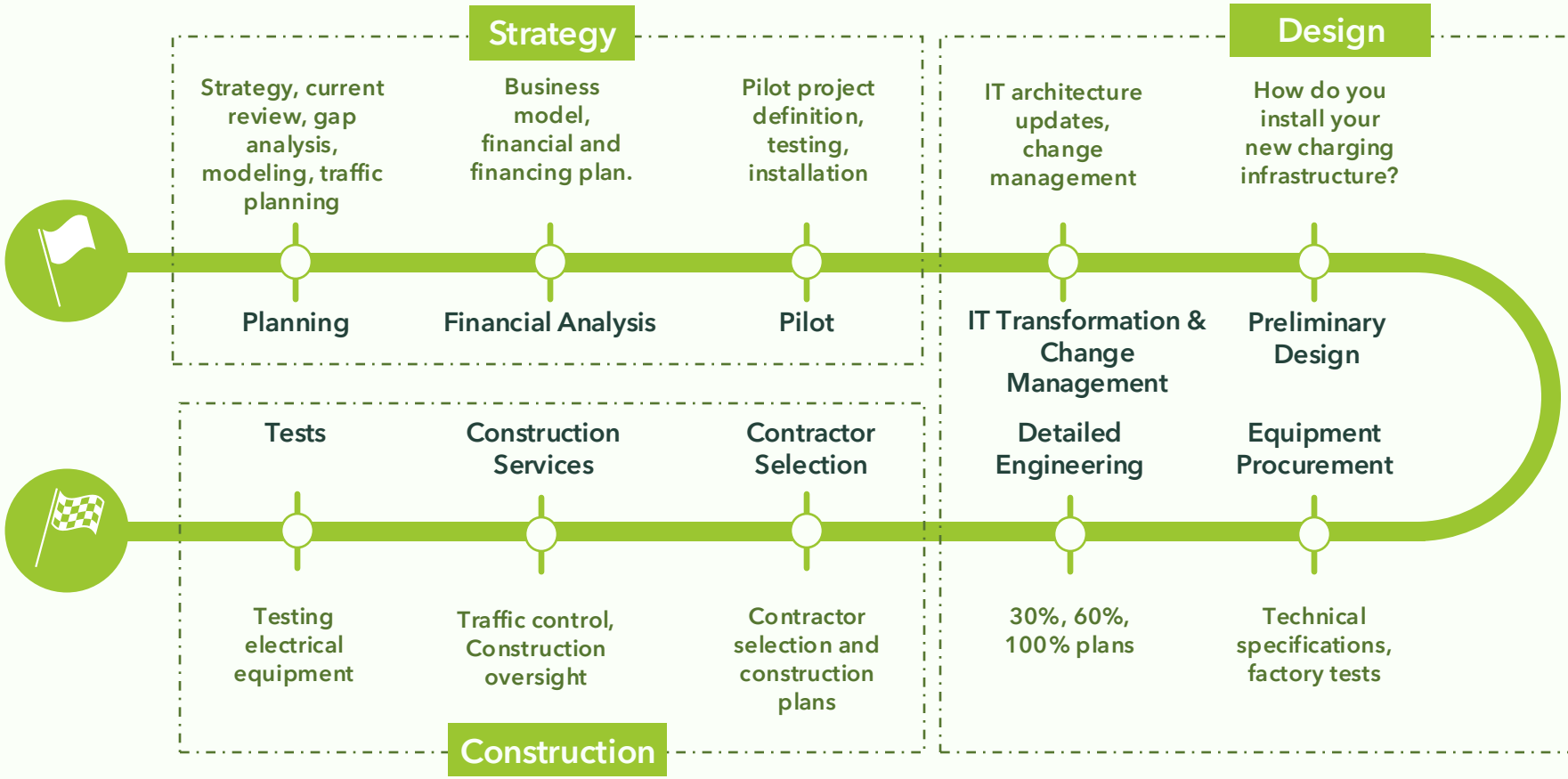
Key Facts

- Founded in 1990, among the largest employee-owned consulting engineering firms in Canada
- Sales of $429M in 2023, 11% annual growth since 2016
- Focused on sustainable development and responsible engineering
- Won many awards with Canadian engineering associations
- 38% of employees with us for over 5 years
- Long-standing private and public clients across Canada
- Proven successful collaboration with other companies on various projects

Canadian Council for ABORIGINAL BUSINESS

KINCENTRIC Best Employer CANADA 2023

TRANSPORTATION ELECTRIFICATION SUPPORT SERVICES



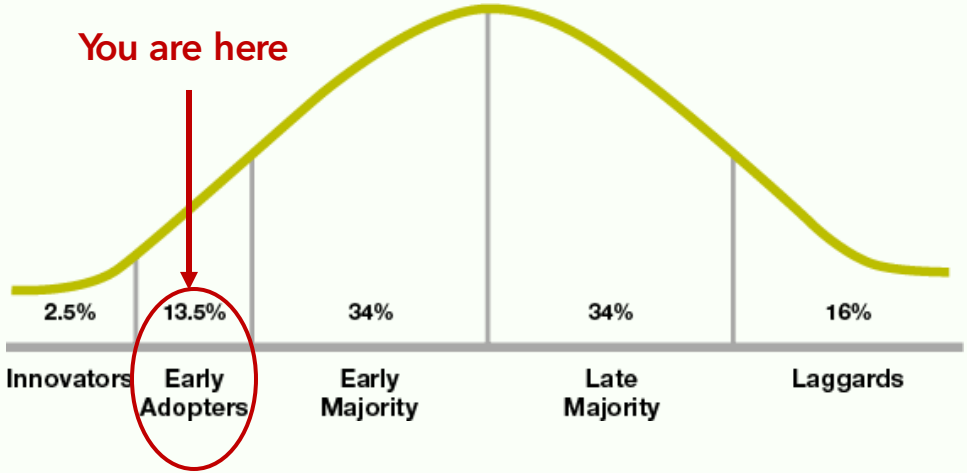
GET STARTED

FLEET DECARBONIZATION: Now is the Right Time to Get Started

As an 'Early Adopter', you benefit from:

- Leverage lessons learned from early innovators
- Strengthen your brand image–what is innovative today will be standard in 5–10 years
- Take advantage of financial incentives before they disappear

(General) Innovation Adoption Curve



To Get Started:

1. **Current State Assessment & Gap Analysis**
2. **Operations Review & Modelling**
3. Feasibility & Fleet Decarbonization Strategy
4. Roadmap & Action Plan

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CURRENT STATE ASSESSMENT & GAP ANALYSIS

Facility Retrofit Planning & Design

Construction phasing, resilience, and contingency planning

Approach:

- Building Assessment
- Understanding no-go zones for equipment and assessing operations requirements
- Conduct a gap analysis to inform Electrical, Mechanical, Structural, Civil, and Architectural design
- Implement a phased approach to minimize service disruptions

Lessons Learned

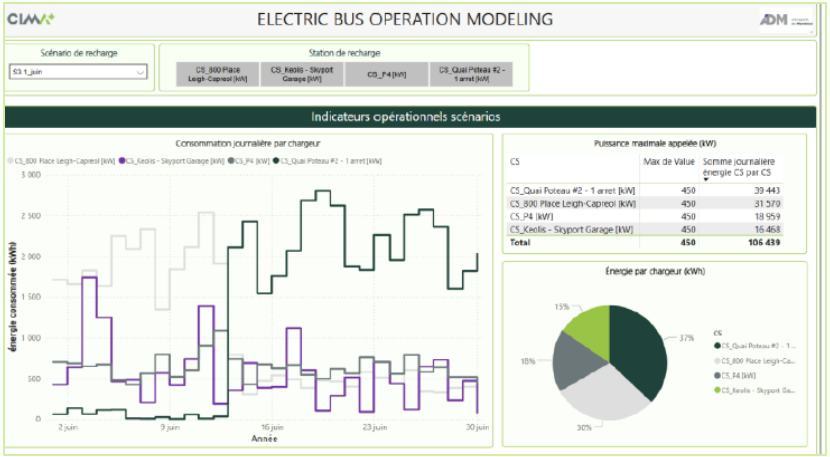
Effective stakeholder engagement from the outset is crucial for a successful design and securing internal support. In past projects, we've encountered inherited designs that overlooked operational realities, resulting in costly issues.

OPERATIONS REVIEW & MODELLING

Gaining operational insights into vehicle utilization

Approach:

- Collect several months of telematics data to analyze operational variability
- Model battery capacities over time, considering degradation and technological advancements
- Formulate a phased electrification strategy, including depot charging, on-route charging, charger types, and inductive charging.
- Evaluate peak energy demand
- Assess resilience thresholds and model operations within a garage



Lessons Learned

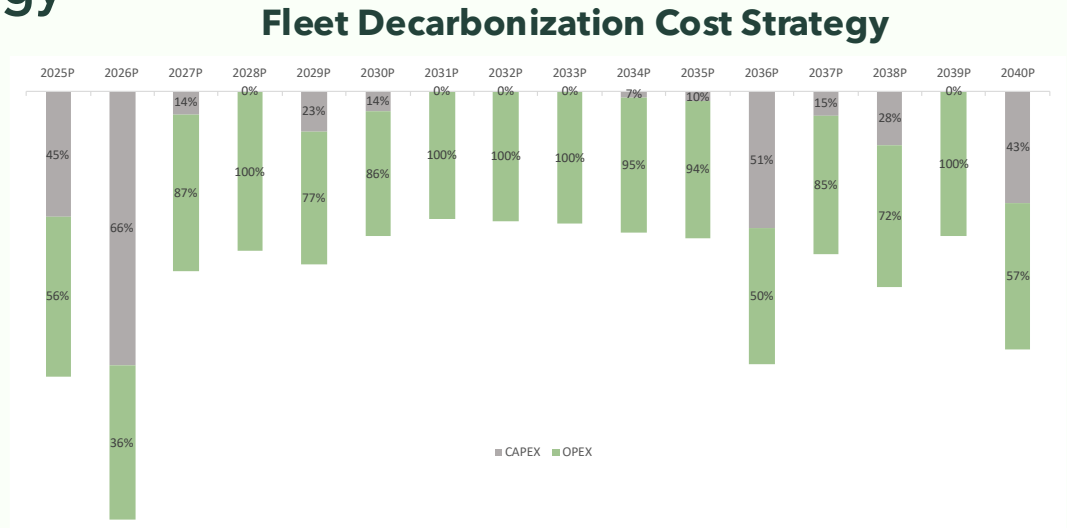
Optimizing the charging strategy is crucial for reducing both CAPEX and OPEX over time. Developing a habit of collecting and post-processing operational data will support data-driven decision-making in the long run.

FEASIBILITY & FLEET DECARBONIZATION STRATEGY

Defining your FEASIBLE strategy

Approach:

- Review various deployment scenarios
- Develop a phased implementation plan (vehicles + infrastructure) that accounts for current gaps and delays (e.g., utility connections, market availability of parts, etc.)
- Define key resilience features
- Determine when a charge management system will be needed
- Set clear targets



Lessons Learned

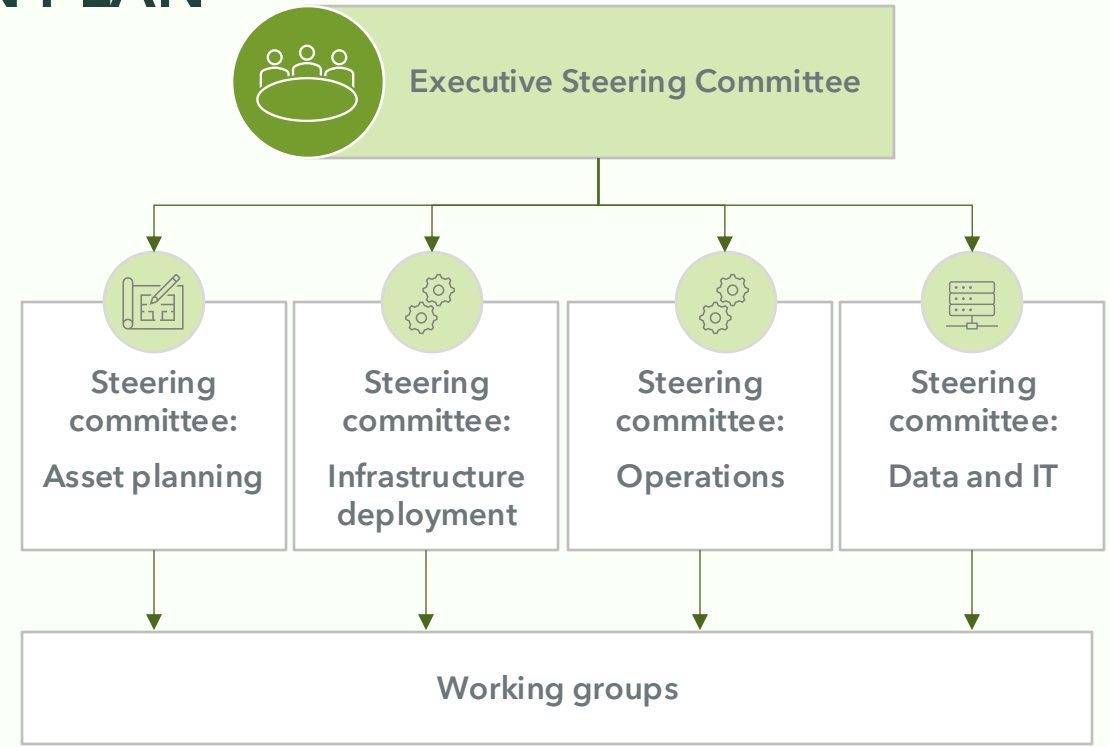
To establish the right strategy and avoid revisiting the drawing board, it is crucial that recommendations at this stage are based on a thorough technical analysis of your buildings, site conditions, lease agreements, high-level electrical upgrade capabilities, and more.

ROADMAP & ACTION PLAN

Aligning on a common strategy

Approach:

- Identify how to implement the strategy effectively
- Ensure you have the right level of support (which may include full-time staff)
- Apply for federal and provincial funding
- Define a new RACI framework
- Establish strong relationships with all partners

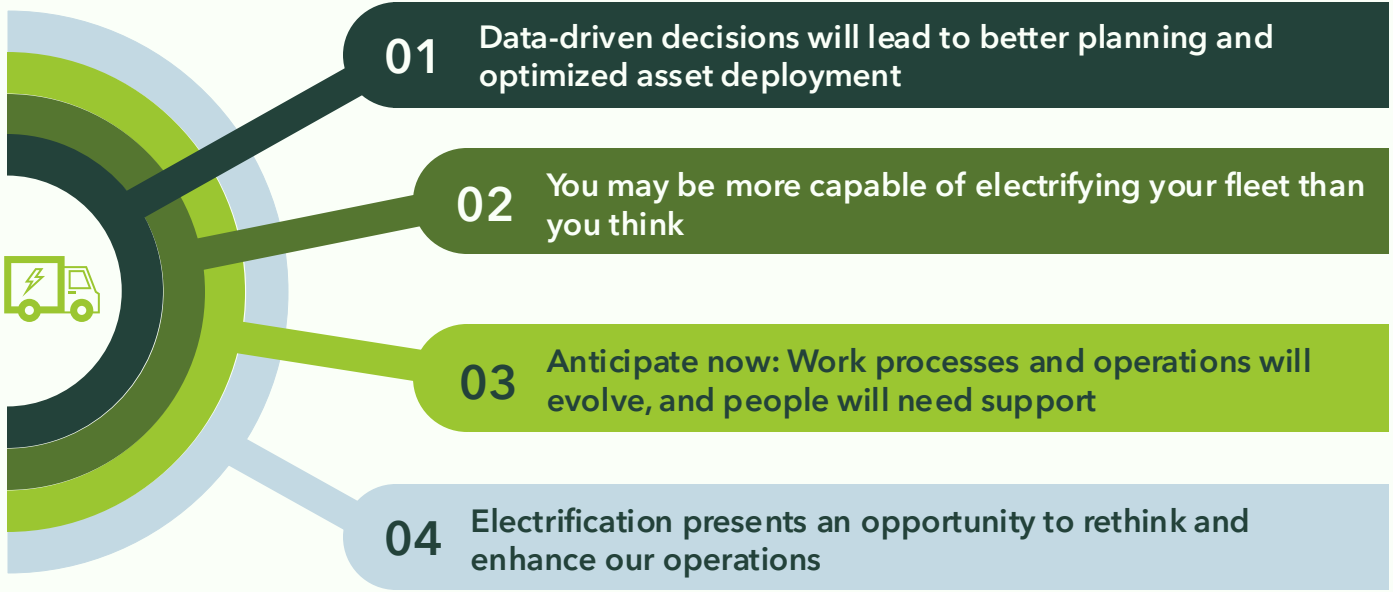


Lessons Learned

Find the right balance between planning and action. Over-planning can slow progress and reduce motivation, while insufficient planning can lead to higher costs and missed opportunities. Since not every question can be answered upfront, start with a small pilot to minimize risk and gain confidence with new technologies and processes.

IN CONCLUSION

Conclusions



THANK YOU FOR YOUR TIME AND ATTENTION.

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