Right-Sizing Charging Infrastructure

Starting Your Fleet Electrification Journey on the Right Path

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A Shift in Mindset

- Electric vehicles (EVs) are **NOT** fossil fuel vehicles.
- Requires a complete **shift in mindset and approach**.

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A Great Opportunity

- With **proper planning** electrified fleets can provide significant benefits:
  - Significant operational cost savings
    - Fuel cost and maintenance savings
  - Greenhouse gas emission reductions
  - Improved employee experience (a better driving experience)
  - Improved brand perception by being an environmental steward

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But First A Bit About Electricity

- Commercial electricity bills have two components:
  - Energy charge ($/kWh)
    - Your odometer reading over the month.
    - Quantity of energy used.
  - Demand charge ($/kVa)
    - Your speedometer reading at the highest point in the month.
    - Your rate of consumption (how fast you consume electricity at a given point in time).

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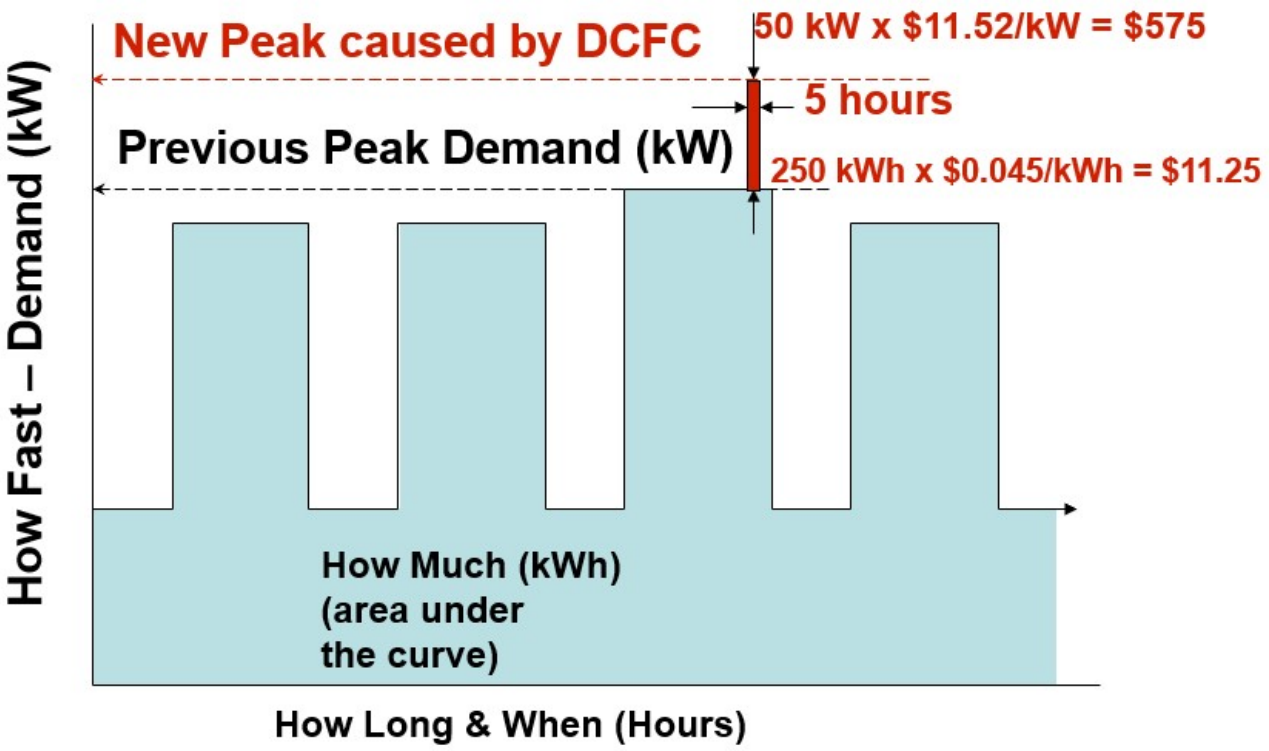
Demand Charge Example



Fueling Options

The old way **does not** equal the new way.

Faster is not always better.

Understanding when and how much fuel/energy you need is critical to success.

DC Fast Charger

120 kw

20-40 minutes per charge

$50,000+ installed

One 15-minute charge could cost **$1,300 + in demand**.

Level 2 (240v)

11 kw

4-6 hours per charge

$5,000 installed

One 15-minute charge could cost **$124 in demand**.

The Perfect Fit = The Right Size

The Value of Right-Sizing

- A fleet operator is considering purchasing 3 electric transit vans to replace 3 diesel ones.
- Each van drives:
  - 5 days per week
  - 250 days per year
  - 150 km per day
- Three charging infrastructure scenarios:
  - 3 DC fast chargers (1 per van)
  - 1 DC fast charger for all 3 vans
  - 3 Level II chargers (1 per van)
- All charging scenarios could meet the fleet requirements.

What is the right charging scenario?

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The Value of Right-Sizing

Potential outcomes:

3 DC fast chargers (1 per van)

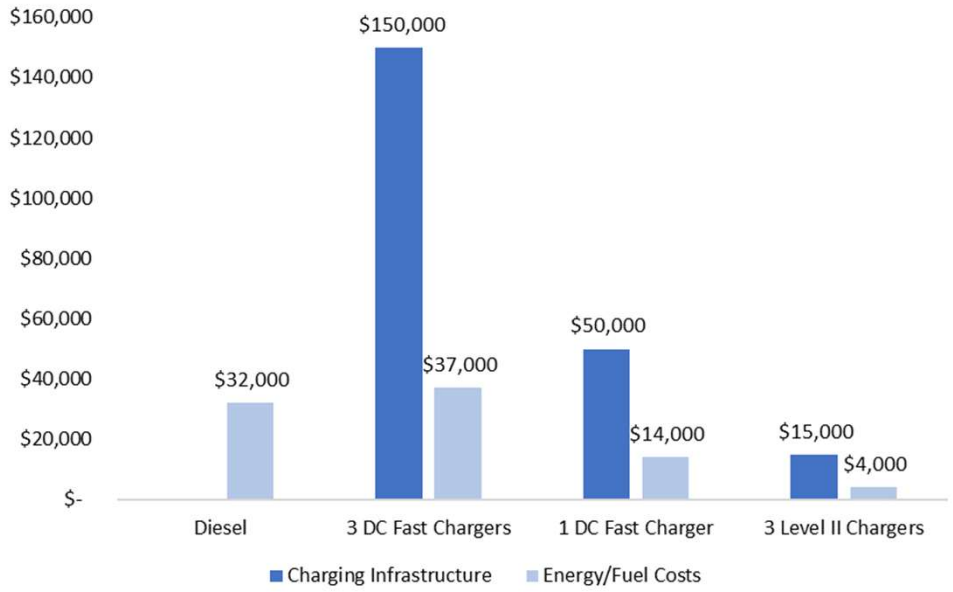
- High demand charges make it **15%** more expensive than diesel to operate.
- High capital cost

1 DC fast charger for all 3 vans

- Less expensive than diesel by **57%** to operate, but room for more savings.
- Moderate capital cost

3 Level II chargers (1 per van) – "Right-Sized"

- Minimizes demand charges making it **88%** less expensive than diesel to operate.
- Minimizes capital costs
- The benefits of EVs achieved.



Steps to Transportation Electrification Success!

1. Connect with Manitoba Hydro **early and often**.
   - Speak with your Energy Services Advisor - don't have one email energyexpert@hydro.mb.ca
2. Start your **planning earlier** than you think.
3. Make sure you have **operational data of your existing fleet**.
   - How many vehicles, daily distance travelled, days per week driven, dwell time, etc.
4. Develop an **EV fleet business case, feasibility study, and transformation plan**.
   - Pembina Institutes Commercial EV Deployment Action Plan
   - www.electricfleet.org (US Federal Government website)
   - Consider working with an EV Fleet Engineering Consultant to assist with developing tailored plan.

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Thank you!

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