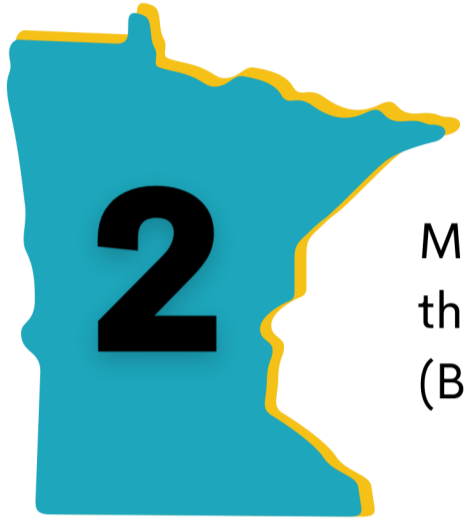




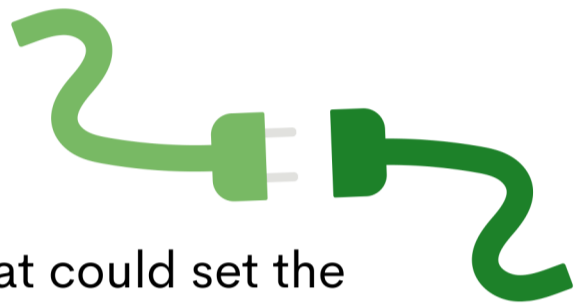
# 12 KEY FINDINGS

**1** Federal policy and funding are functionally picking **vehicle electrification** over other emerging alternative energy sources to power heavy trucks.



**2**

MN has **no current or pending regulations** that mandate **the use of** battery electric trucks (BETs) and fuel cell electric trucks (FCETs)



MN has adopted broader policies that could set the stage for **future mandated use**, including: requiring vehicle dealers to sell an increasing percentage of low, and zero emission vehicles up to 26,000lbs and **actively pursuing a low carbon fuel or "Clean Transportation Standard."**

**3**

**4** California Air Resources Board has regulations that **WILL impact MN fleets** operating in CA:

- *Require vehicle registrations and assessment of a \$30 fee per truck by January 31, 2024 and download on-board diagnostic data beginning mid-2024*

- **Pending EPA approval:** Require reporting of designated CA fleet

- *2030, any MN long-haul fleet with 50+ trucks operating as few as one truck in CA will be required to purchase and operate 10% of its CA-designated fleet as ZEVs and 100% in 2042.*



**CA is on course for major supply chain disruptions in 2024** as vehicles, energy grid, charging stations, maintenance/repair facilities and parts will likely not be adequately available to support compliance.

**5**



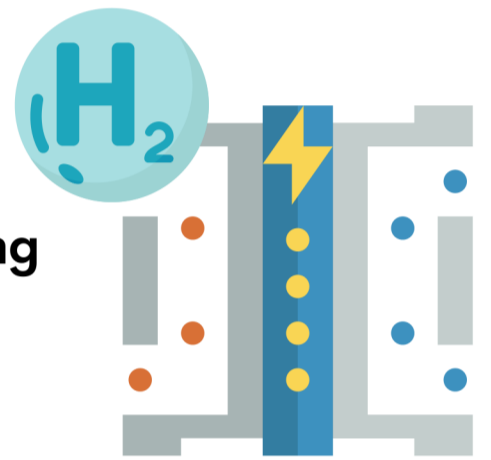
**7** Though currently cost prohibitive and operationally unachievable, **local return-to-base operations** are the most likely early adopters of BET.



**8** Internal combustion engines will remain the **primary truck power source for decades to come**, requiring continued access to fossil diesel and cleaner burning alternative fuels such as renewable diesel and natural gas.

**9**

**Hydrogen fuel cell technology** and hybrid "range extender" technologies (e.g. natural gas engine charging on-board batteries) **show promise for long haul trucking.**



**10**



Transition to new fuel and energy sources will **require significant federal and state subsidies** to build out the infrastructure and offset the cost differential for truck fleets. **Federal incentives are minimal and state incentives are non-existent.**

**MTA member demand for BETs is LOW.**

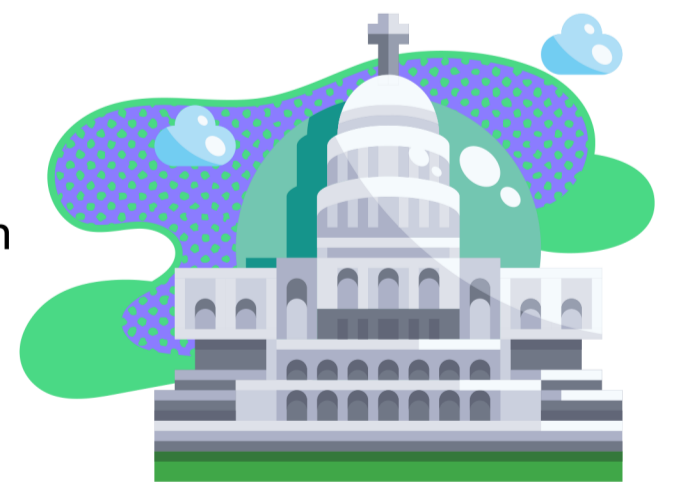
Less than 4% of MTA survey respondents currently operate battery, hydrogen fuel and/or natural gas-powered trucks.

**Roughly 3% are likely to invest in the above in the next five years.**

**11**

**12**

The **MTA is positioned to play a key role** in creating policy direction and funding in MN.



## **6 Battery-electric currently does not work for long-haul trucking:**

- **Lack of available product.**
- BETs **pricing exceeds \$480k per tractor**, and total cost of ownership is not equal or better than diesel powered trucks.
- **Does not meet weight and range operational requirements.**
- **Long charging times** cut into available driver on-duty and driving hours.
- **Lack of infrastructure**, both physical and human.
- Lithium-ion batteries **lose up to 40% of their capacity in cold weather.**