Observations, learnings and thoughts

HVTT18: Trucking toward S²MART transport

Sustainable, Safe, Modern, Adaptable, Resilient, and Trustworthy
First announcement and call for abstracts

May 26-29, 2025
Québec City, Canada

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Observations, learnings and thoughts

1. Left with more questions than answers
2. Our challenges (workforce, climate, decarbonisation) are global issues and we should learn more from overseas
3. Greater risk of regret cost with no clear and obvious choices, particularly with decarbonisation
4. We are doing well in some areas, but they are relatively high risk, but we are not advancing lower risk areas (decarbonisation vs productivity)
5. Some tech is still a way away and we're learning more about unintended perverse outcomes
6. Strong government investment in transport
7. Risk appetite and culture is different

Network Resilience

- We don’t have permafrost but the impacts of climate are increasingly being felt
- Significant risk of regret cost from investing in "resilience improvements" in the wrong places
- Good understanding of the freight task, areas of the network at risk and modelling is key to investing wisely

AUTONOMOUS VEHICLES (3 x Virginia Tech trials)

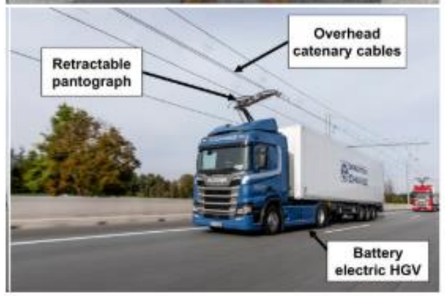
- Port queuing
  - Good at following and staying behind
  - Gap acceptance not as good as a human so poor at merging and trucks tried to pass
- Cross country / interstate driving
  - Lane marking quality
  - GPS satellite coverage
- Fleet Integration (forklift takes a ISO box off barge to ADS truck then onto rail wagon)
  - Went okay but snow was a problem
  - Forklift driver could not "talk" to ADS truck so interplay wasn't great

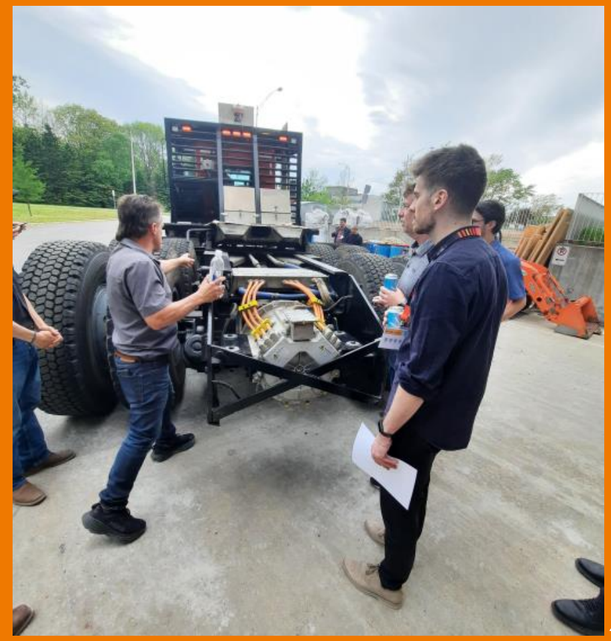
PLATOONING TRUCKS

- Not seen as a solution here but learnings are useful
- Still seen as a feasible solution but increased pavement damage due to channelised loading.
- Speed, lateral lane positioning and longitudinal spacing need to be carefully considered
- Need full connectivity between platoons
- Risk of perverse outcomes and importance of quality research of wide scope

POWER TRAIN ENERGY

- **Diesel**
- **Gas** (CNG & LNG)
- **LPG**
- **Electric**
- **Hybrid**
- **Hydrogen**

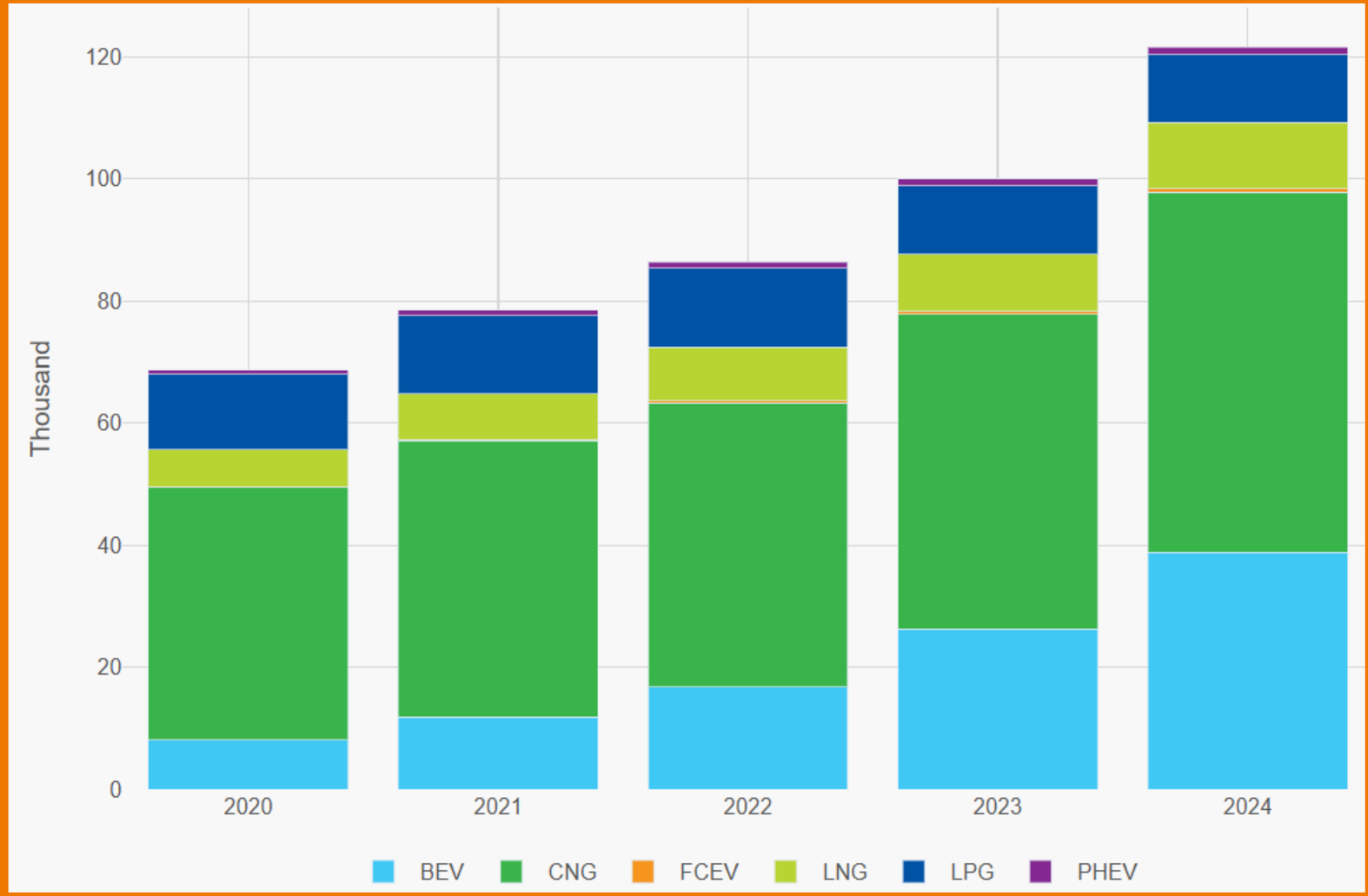




POWER TRAIN ENERGY

EU Truck Fleet approx 6.2 m trucks 2024

- Electric (BEV)
- Gas (CNG)
- Hydrogen
- Gas (LNG)
- LPG
- Plug-In Hybrid
- Diesel



POWER TRAIN THOUGHTS

- ERS may not be the solution for NZ but where vehicle utilisation and vehicles gross out then the productivity losses (payload, downtime to charge) need to be carefully considered
- The infrastructure network needs to be considered strategically and modelled based on the freight task. Cebon's presentation on a multi-use network has ERS, charging, and diesel. It's all about having the right equipment in the right place.
- Diesel trucks still have a considerable future, so transitional decarb solutions like hydrogen dual fuel have merit. There's a great research project opportunity
- More questions than answers

Improving productivity of conventional vehicles

Breemersch: Shift in policy motivation for higher productivity vehicles from being "good for the economy"to a neccessity

- The benefits/impacts on reduced driver demands, reduced number of trucks, reduced congestion and better use of fuel are not sufficiently accepted or recognised by regulators

- HPMVs are much more feasible and viable than new tech solutions
- Some solutions only fix one problem, e.g. an electric truck is great for decarbonisation but it doesn't help the driver short or productivity.

GOVERNMENT INVESTMENT IN TRANSPORT

- Centre de formation en transport de Charlesbourg 1976.
- In 1993, following an analysis of the labour needs of the road sector, the Ministère de l'Éducation, du Loisir et du Sport (MELS) launched the formal program leading to the Diploma of Vocational Studies in Truck Transportation.
- 2024-2025 the Centre trained more than 1,700 students trained, 15% of whom were women

RISK APPETITE

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Traffic related death rates

	Per 100,000 inhabitants	Per 1 billion Vehicle -km
Canada	5.3	4.3
New Zealand	7.33	7.2

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QUESTIONS


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