

About Electric School Buses



Economics

- Electric buses cost more than diesel to buy. ~\$220 000 more than diesel without subsidies. Add \$15 000 for a charging station.
- Pembina Institute estimates that a school district will save \$17 000 per bus annually compared to a diesel bus due to lower fuel cost (electricity) and lower maintenance costs. After 4-5 years, when some subsidies are included, the electric bus outperforms the diesel bus. Over 12 years that is ~\$165 000 in savings!

Environmental Impacts

- Lithium-ion batteries need to be replaced every 8-15 years. Lithium is mined and there is an environmental impact to mining (see example of impacts from the Thacker Pass Lithium Mine Project in Nevada).
- It is a 'critical mineral' (essential to our technological world yet may be in short supply). There is a lot of research in Canada and in the world going into finding solutions for recycling lithium from batteries.

Safety & Performance

- There is evidence that because Electric School Buses do not have a heavy engine on board, they have a more equal distribution of weight. This allows for better performance on icy and snowy conditions.
- Batteries operate at lower range when temperatures are below zero (~55-58% of normal). Buses can accommodate more batteries to allow for reductions. Also, battery & bus technology geared for colder conditions is improving.
- Fueling time can take between 5-8hrs (slow charge) or 3hrs (fast charge).

Greenhouse Gas Emissions

- Overall emissions depends on their manufacturing process and the electrical grid (i.e. coal powered vs hydroelectric powered)
- Electric buses reduce emissions, over an average bus lifetime of 12 years, by 92% compared to diesel.

Health Impacts

Switching to electric school buses improves local air quality and related health outcomes.

Social Impacts

Electric school buses allow, if implemented well, opportunities to provide environmental justice to communities suffering from the effects of emissions. ISA reports from both The World Resources Institute & CleanTechnica suggest embedding equity into the rollout of electric school buses programs. One example would be to make sure that lower income neighbourhoods receive electric bus service first.

Reduce carbon emissions, improve health, feel better!