

Innovative Utility Financing for Clean Transit – Including School Buses



100% EV transit bus in Louisville, KY

**Clean Energy
WORKS**

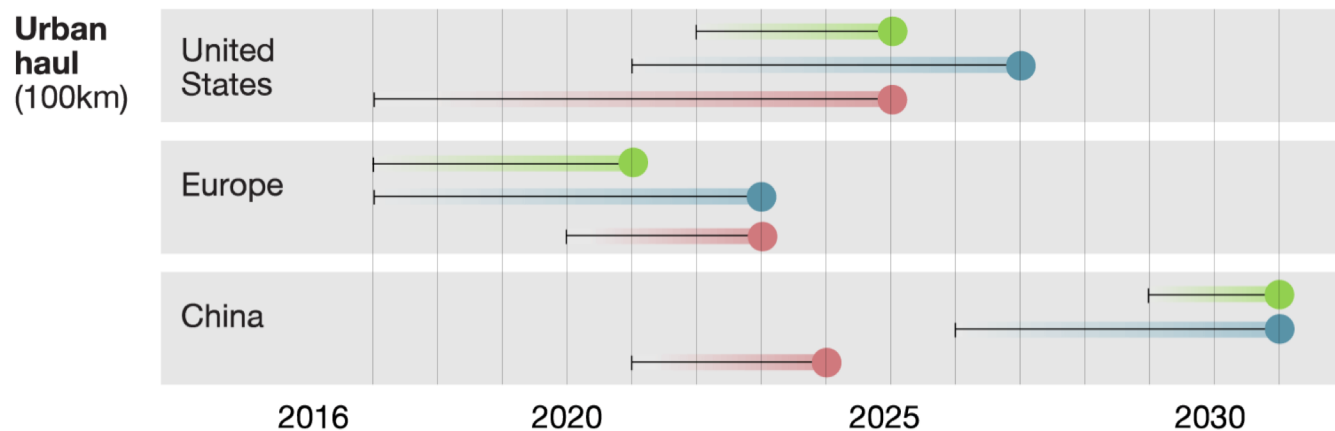


Transit buses have a compelling business case, yet currently depend critically on government grants

Different applications and weight classes will see varying break-even points for electric vehicle total cost of ownership.



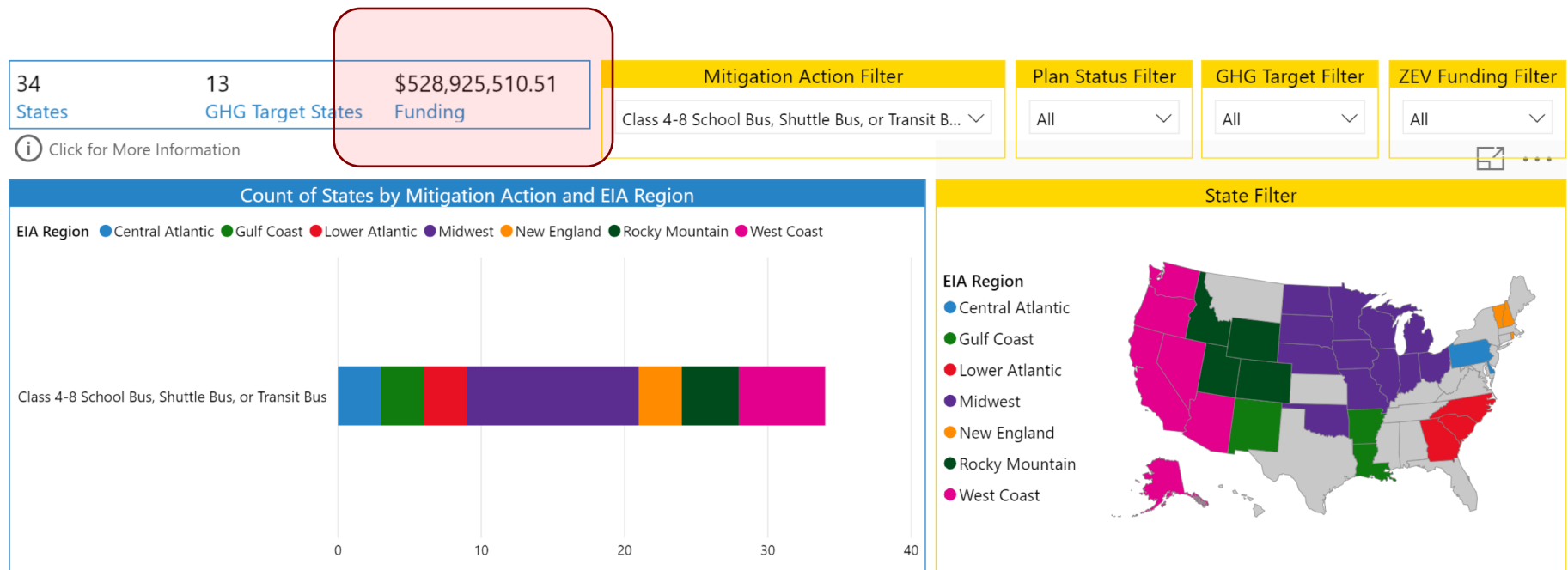
Timing of battery electric vehicle total cost of ownership parity with diesel vehicle, year achieved range



VW Settlement Funds are an attractive option for addressing the upfront cost barrier

34 states have already allocated more than \$500 million to Class 4-8 vehicles, including bus transit and school bus transit fleets.

That is ~10X larger than last year's Low/No Emission grant program.



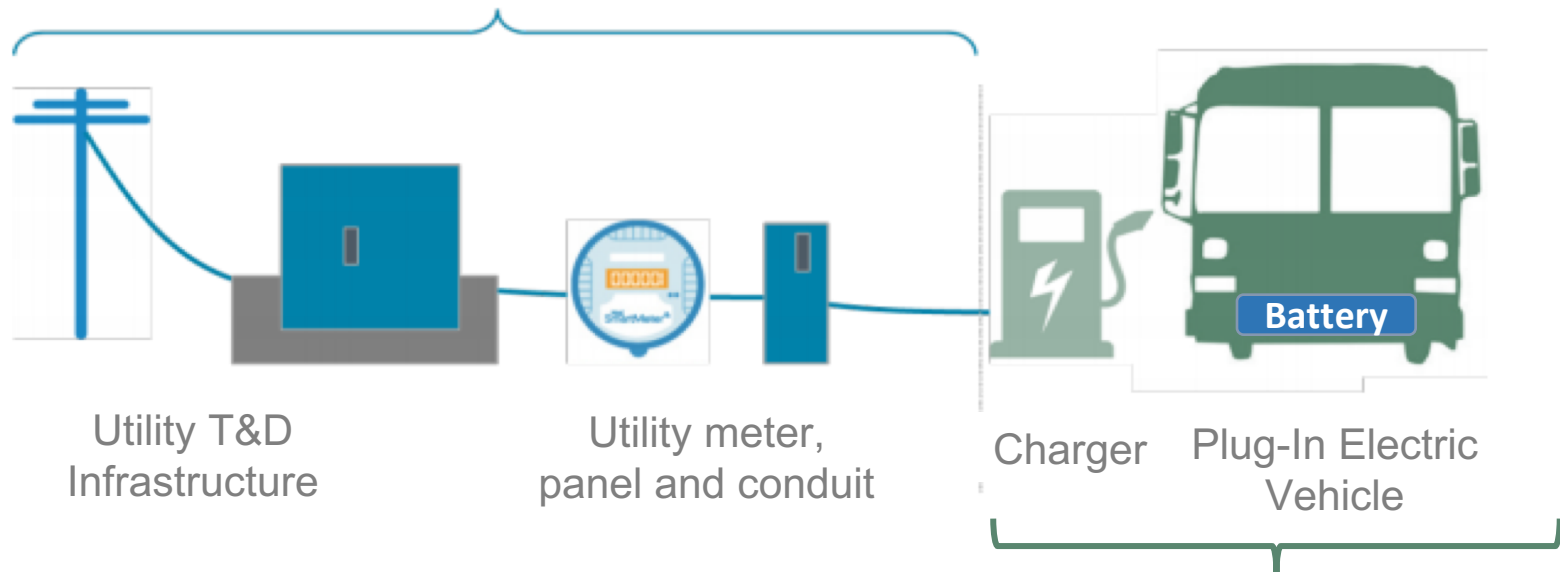
Source: EV Hub by Atlas Public Policy

Utilities have unique capacity to invest and recover costs
on terms that are cost-based, non-discriminatory,
reasonable and fair...



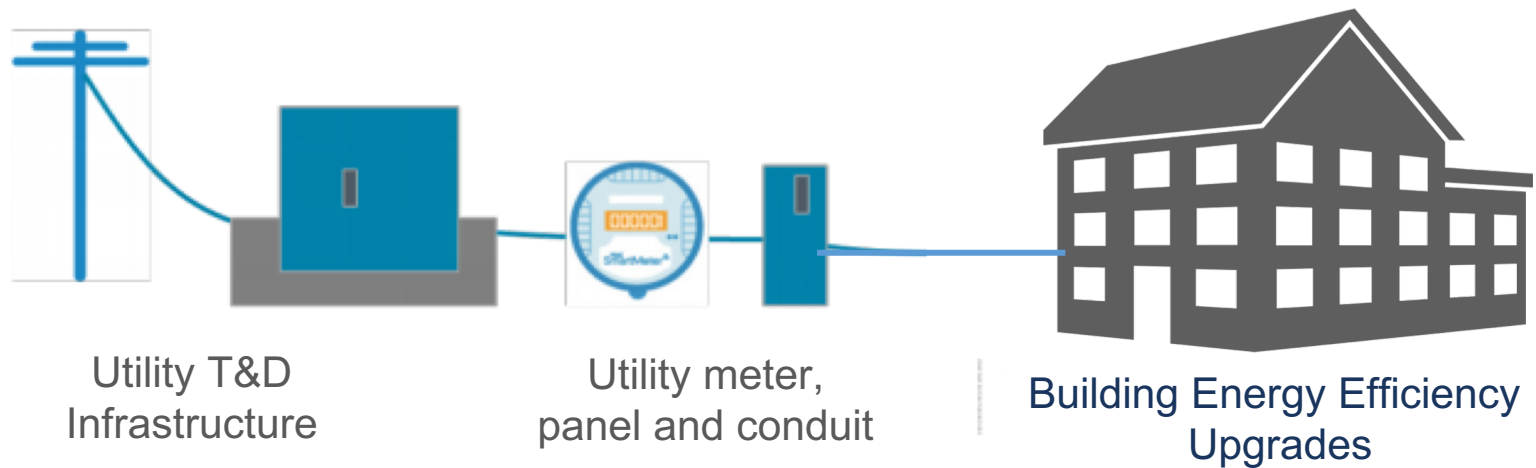
Utility regulations often prevent utilities from investing on the customer's side of the meter

“Make-ready” Infrastructure



What if inclusive financing applied to on-board batteries and on-site charging stations for EVs?

How we invest affects who can invest

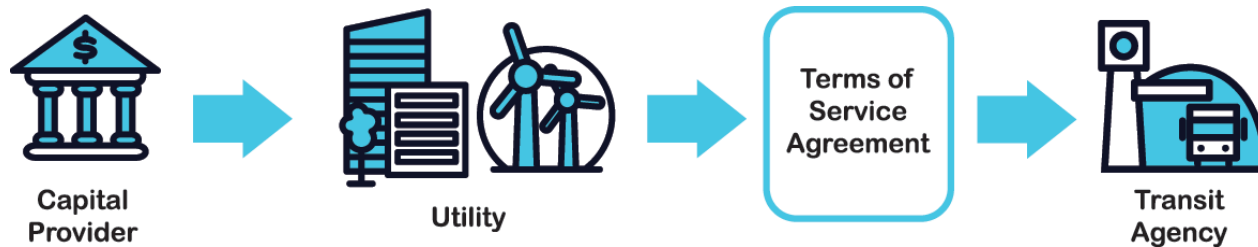


Inclusive financing can clear
barriers for low-income
households and renters

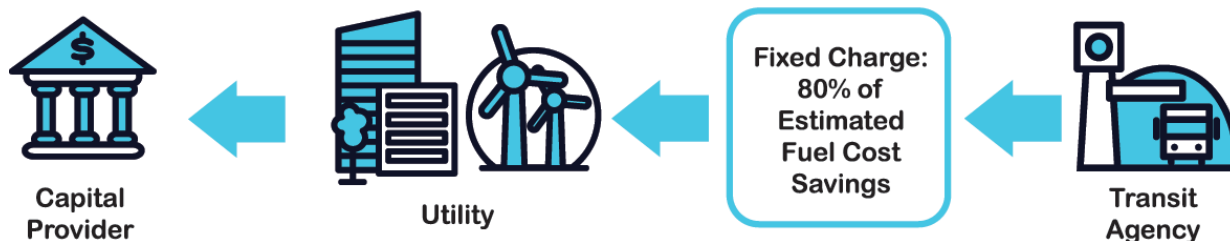
PAYS allows utilities to invest in EV batteries and charging stations

Pay As You Save (PAYS): Successful precedents for this method for EE measures in US buildings over 10 years

1. The **utility** establishes a terms of service agreement (a tariff) for investing in the battery and charging station for each new electric bus sought by a transit agency in its service area.



2. The **EV owner** (e.g. transit agency) opts in to the tariff, allowing the utility to put a fixed charge for cost recovery on the monthly bill at the charging station. The charge is capped at a level below the estimated savings, so *net costs are lower than a diesel bus*.
3. The **utility** recovers its costs within the warranty period of the battery and charging station. Once the utility covers its costs, the **transit agency owns the bus outright**.



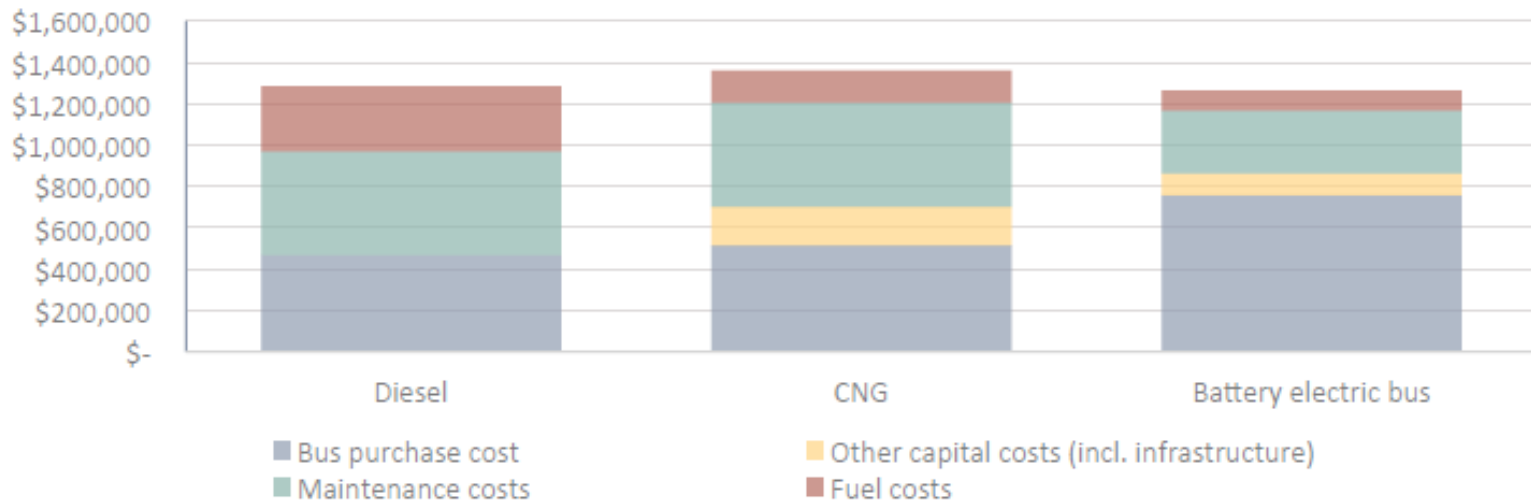
Total Cost of Ownership: Lake City Example

Current fleet: 85 buses

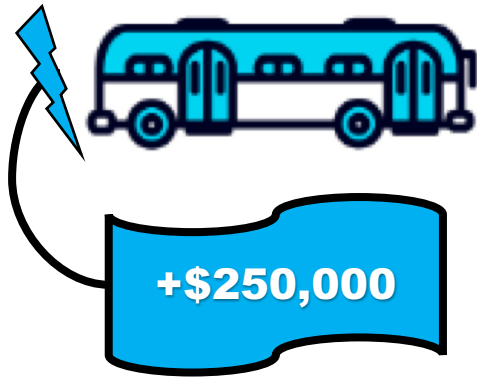
FTA Low/No Emissions Grant application: Denied

Planned procurement: 56 new buses between 2020 and 2023

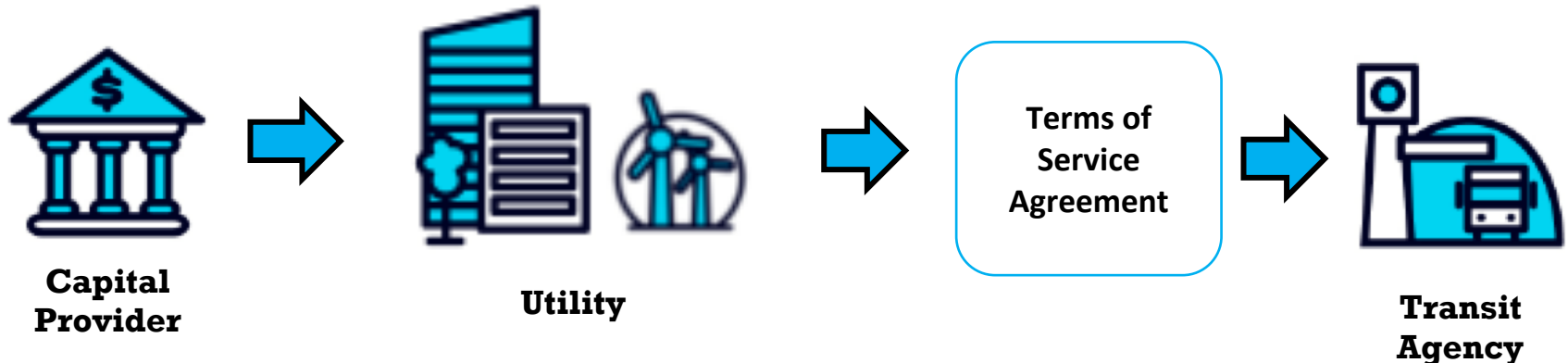
Figure 1: Total cost of ownership by cost category and bus fuel type in 2019 (discounted)



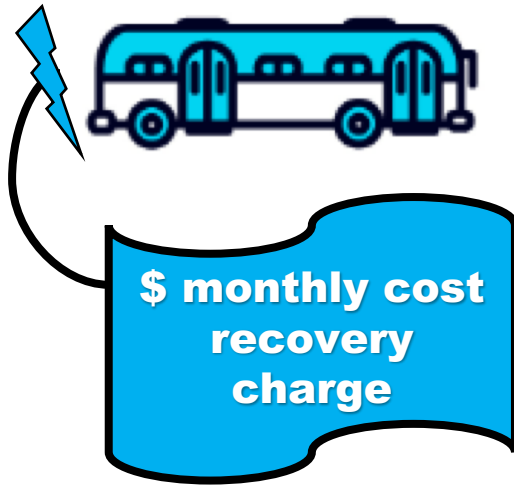
Example: Lake City Transit



Utility Grid Co. invests \$250,000 in the on-board battery and charging station for **Lake City Transit**.



Example: Lake City Transit



Utility Grid Co.'s cost recovery on the monthly bill spans the period of the battery warranty, and when the costs are recovered, the assets belong to **Lake City Transit**.



**Capital
Provider**

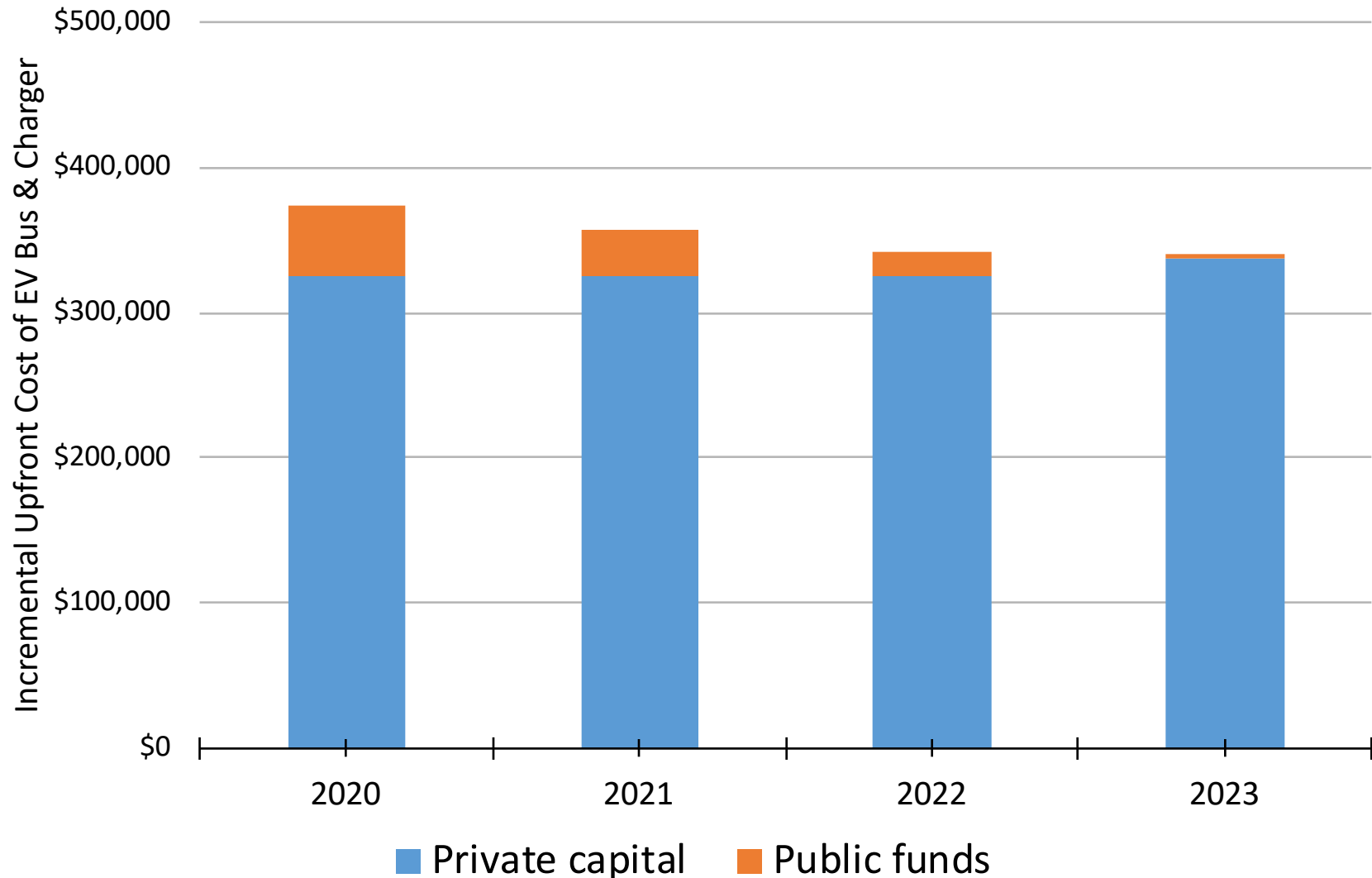


Utility



**Transit
Agency**

Increase in cost effectiveness reduces need for public funds over time...*fast*

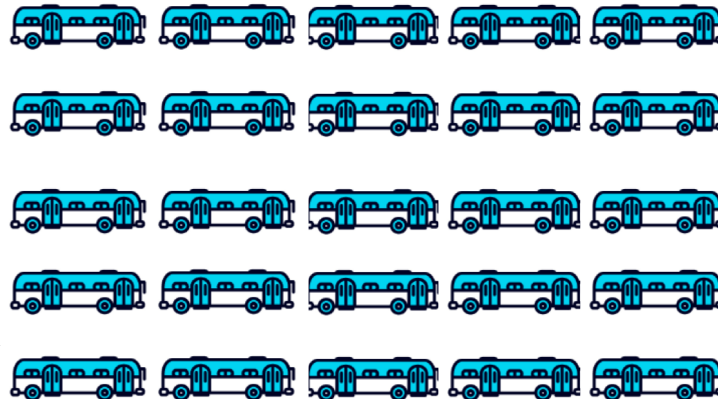


Big leverage => Accelerated beneficial electrification

For a \$1 million grant in **2020**,
Lake City Transit could pay for the upfront cost premium
of **3 battery-electric buses...**



... or pay upfront for the premium
for the Total Cost of Ownership for
20 electric buses.



With a utility offering PAYS terms, Lake City Transit can leverage 100X more capital with grant funds in 2023

The need for copayment from grants reduces significantly, speeding procurements and reducing emissions, pollution, and stranded assets.

Figure 9: Use of grant funds for full incremental upfront cost of a single bus & charger compared to copayments in a tariffed on-bill program

	Procurement years				
	2019	2020	2021	2022	2023
Full incremental upfront cost	\$399,000	\$375,000	\$361,000	\$350,000	\$339,000
Incremental upfront cost that meets PAYS threshold for cost effectiveness	\$321,000	\$325,700	\$329,100	\$332,800	\$336,400
Copayment needed (from VW Settlement or other)	\$78,000	\$49,300	\$31,900	\$17,200	\$2,600
Ratio of Copayment to Full Incremental Upfront Cost	5:1	8:1	11:1	20:1	132:1

Lake City: Potential Terms for 2019

Figure 6: Potential terms for a tariffed on-bill financing program for a 2019 procurement

Total electric bus capital costs	\$865,000
Total diesel bus capital costs	\$466,000
- 80% federal match for a diesel bus	\$372,800
- 20% local match for a diesel bus	\$93,200
Full incremental upfront cost for an electric bus	\$399,000
Cost of capital	3.5%
Years of cost recovery on tariffed terms (warranty period)	12
Cap on estimated annual savings committed to cost recovery	85%
Monthly tariffed cost recovery charge	\$2,770
Incremental upfront cost that is cost effective on tariffed terms	\$321,000
Remaining upfront cost covered with a copayment	\$78,000
Ratio of upfront copayment to full incremental upfront cost	1:5

Winner of three international competitions seeking breakthrough climate action innovations



**Global Innovation Lab
for Climate Finance**



Finance for Resilience



**Climate Strategies
Accelerator**