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Strong Cities Brief

Decarbonising public transport in cities through private public partnerships – the case of Santiago de Chile

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Zero-emission buses are considered a strategic tool to improve air quality in the city of Santiago. Additionally, through its National E-Mobility Strategy, the Chilean government has committed to ensure a fully electric fleet by 2040 to help the country meet its GHG emission reduction targets (NDCs). In Santiago, transportation represents 79 per cent of CO2 emissions, 33 per cent of MP2.5 emissions, and 93 per cent of NOx emissions. Diesel buses are responsible for a considerable portion of these.

Challenges and context

Santiago currently has more than 800 battery electric buses operating in the city on a daily basis, alongside a renewed fleet of almost 1,500 diesel Euro-6 buses, making it a global leader in the transition to electric fleets. With electric vehicles representing 8.9 per cent of the 9,557 urban fleet, the city is currently running a tendering process to replace nearly 2,000 more buses. By the end of 2022, more than 5,000 will be replaced, largely by electric buses complemented with Euro-6 buses.

How can the challenge be tackled?

In an effort to achieve this leading role, a new business model was created, and the ownership of the buses was separated from their operation and maintenance. Thus far, the model has been implemented by a public-private partnership – fleet providers (private companies) provide buses for the public transport operators through a leasing contract in which the buses are paid for by the public transport authority. The leasing contract governs this relationship and secures the buses in the system until the financial obligations are paid. The model has proven to reduce payment risks, which in turn lowers interest rates and funding costs. It allows the government to manage shorter contracts with the operators, and it will no longer be required to pay the cost of buses during the public transport operator's contract.

As electric buses have longer expected lifetimes than diesel buses, the transport authority concluded a 14-year contract for electric buses, while for diesel buses the contractual term is only 10 years. This aims to reduce the monthly payments for electric buses and to increase their competitiveness in terms of total cost of ownership.

These conditions were integrated in the current call for bids for bus fleet providers to renew the 2,000 buses, in which the bids will also be scored based on their Total Cost of Ownership (TCO). As e-buses are becoming increasingly competitive, the authority expects to award a significant percentage of the fleet to providers of this technology. Bus fleet providers will then supply operators, who will be chosen through a subsequent tendering process.

Examples

The Chilean experience operating electric buses over the last few years has shown that the higher capital expenditure for electric buses, compared to diesel buses, can be compensated by their lower operating expenditure. According to Metbus, one of the city's six private bus operators, the operational and maintenance costs of its e-buses are 70 and 37 per cent cheaper, respectively, than an equivalent diesel bus.

Most of the e-bus deployments in Santiago have been led by Metbus, in partnership with a utility company which functioned as asset manager, and a bus manufacturer. In four years, Metbus has deployed a fleet of 436 electric buses by applying this innovative financial model and utilizing financial guarantees offered by the local authorities:

- Financial aspects: The e-buses cost between 295,000 and 330,000 US-Dollar each (compared to an average price of 222,000 US-Dollar for diesel Euro-6 buses); the chargers provided by the bus manufacturer cost an average of 3,000 US-Dollar each, in addition to a rain cover protection for each charger worth 1,700 US-Dollar.
- Operational aspects: Electricity is provided by the utility company at a discounted rate, 75 per cent cheaper than for a diesel equivalent, leading to operational savings of 1,400 US-Dollar per month for each bus. Maintenance costs amount to 0.17 US-Dollar per Kilometre, 37 per cent cheaper than the 0.27 US-Dollar per Kilometre of diesel buses.
- Financial guarantees: Payment guarantees from the Public Transport Finance Administrator (AFT[1]) to the electricity provider are backed by the national government. This leasing payment is discounted from the operation payment to the operator, regardless of the operator's performance.

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