

Pay As You Save® (PAYS®)

An innovative finance approach that facilitates the rapid roll out of electric buses in transit fleets



Main insights

Electric buses demonstrate the best business case for transitioning cities to cleaner, sustainable transport.

PAYS eliminates the biggest barrier to the uptake of electric buses – the upfront capital cost of purchasing electric buses.

This industry brief provides information on how municipalities, bus service providers and electric bus (e-bus) manufacturers can speed up the growth and use of e-buses in South Africa.

Context

- Public transport systems are primarily there to serve the poor and disenfranchised. These South Africans usually live the furthest from places of employment and, in Cape Town, they spend ~43% of their monthly household income on transport costs.
- SA needs to decrease greenhouse gas (GHG) emissions, and transport accounts for 10% of the country's emissions. Conventional buses are heavily reliant on liquid fuel. This is a carbon intensive fuel source and one that presents limited efficiencies and high GHG emissions.
- Buses are space-, emissions- and energy efficient and show the best business case for electrification of road transport.
- E-buses should be considered as the first alternative in the shift towards cleaner energy options for buses, despite barriers like range and cost.

The challenge

The upfront cost of an electric bus is a lot higher than a conventional diesel bus.

Pay As You Save®

Pay-As-You-Save or PAYS is a proven financing approach that has been used in multiple countries to facilitate investment in to a range of climate smart solutions. PAYS is now being used to reduce the upfront capital costs of transitioning from internal combustion engines to electric vehicles, starting with public transport.

How the PAYS concept works

The following are key stakeholders that at a basic level, apply to PAYS for clean transport:

- **Utility/municipality** – supplies electricity; holds direct relationship with bus service provider.
- **Bus service provider (BSP)** – purchases and/or operates buses, often a municipal transit agency.
- **Electric bus manufacturer** – sells buses, including batteries, and charging equipment.
- **Capital provider(s)** – provides debt finance to the utility, if needed.

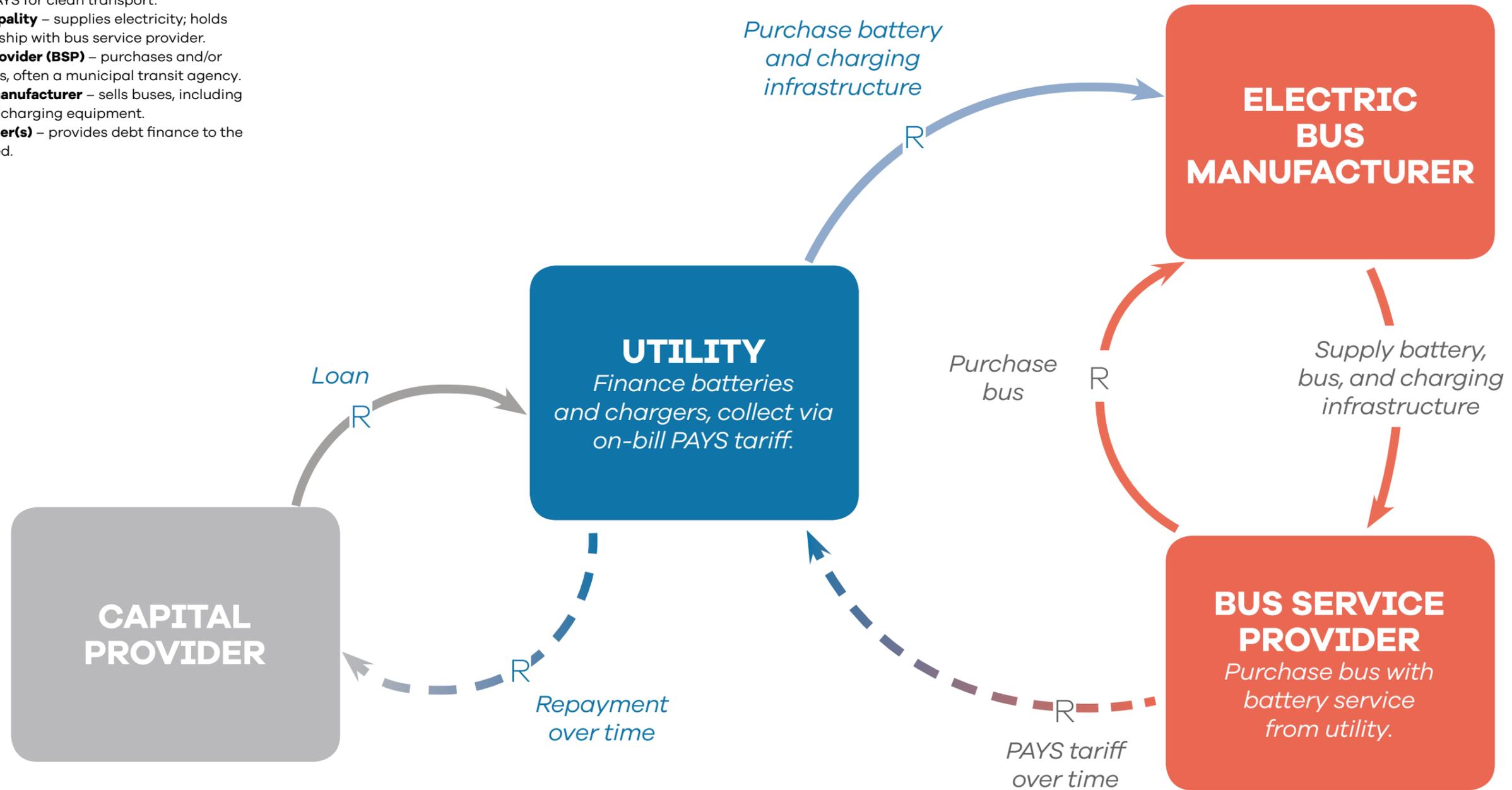


Figure 1:
PAYS for clean transport instrument mechanics

As shown in the figure:

1. A bus operator orders electric buses from a manufacturer and only pays for the equivalent of a diesel bus.
2. A capital provider finances the bus battery and the charging infrastructure through the local municipality.

3. The local municipality utility charges the bus operator a fixed payment called the PAYS tariff on their normal electricity bill. A portion of this tariff goes to the local municipality utility and a portion to the capital provider to recover its costs.
4. The PAYS tariff is set at a level that ensures operational costs savings for the bus operator and a satisfying return on investment for the funder, within the lifetime of the battery and charging equipment.

In many cases the utility/municipality is able to access cheaper capital and therefore improves the transaction by offering better financing terms than the bus operator would have been able to access, optimising tariff costs to bus operator (municipality secures electricity offtake) and improving repayment security through the ability to disconnect a customer in the case of non-payment.

An additional benefit is that this structure helps the utility/municipality gain new revenue from electricity sales that improve the fiscal health of the municipality utility and which help the bus service provider save money from the start, thereby increasing the number of electric buses in cities.

Table 1:
Benefits of the PAYS approach for each stakeholder and criteria of engagement*

Stakeholder	Benefits of PAYS involvement for stakeholder	Criteria for engagement
Bus service provider	<ul style="list-style-type: none"> • Speeds up electrification of bus fleet • Pays the same for electric bus as diesel bus, and starts saving on operational expenses from day one • Upfront capital expenditure on batteries and charging infrastructure moved from balance sheet debt to a lower monthly operating expense 	Private or public bus service providers (BSPs) or operators, with reliable utility-bill repayment record.
Utility/municipality	<ul style="list-style-type: none"> • Secure on-bill payment with cost recovery, with the ability to disconnect service in case of non-payment of electricity bills • Draws on a stronger balance sheet and access to affordable capital (relative to BSPs) • Achieves cost recovery for deployed capital within warranty period of the equipment (eliminating exposure to real or perceived technology risk) • Significant additional revenue from electricity sales to BSPs as a result of PAYS 	For debt-financed transactions lent against utility balance sheets, any utility that is solvent and creditworthy may offer a PAYS tariff to BSPs. Future iterations will be able to accommodate insolvent utilities.
Capital provider	<ul style="list-style-type: none"> • Access to a more creditworthy counterparty (the utility/municipality), and insulation from balance sheet of ultimate payer (the BSP) • Benefits from improved allocation of technology risk for batteries and chargers, which may have kept other lenders from entering the market • Gains exposure to an important growth industry (electric vehicles and charging infrastructure) 	Utility/municipality can tap into any source of debt capital for PAYS investments.
Bus manufacturer	<ul style="list-style-type: none"> • More product sales in new markets where upfront costs would otherwise have prevented sales • Experience and expertise in new markets, and ongoing business relationships 	Product meets BSP needs and battery & charger have warranty periods long enough for the utility/municipality to completely recover its costs.

* 2018. The Global Innovation Lab for Climate Finance. Pay As You Save for Clean Transport: Lab Instrument Analysis.

Why would PAYS® work for a city like Cape Town, for instance?

The financing of 100 electric buses can cut the city's carbon emissions by 30% or 6 000 tons if charged on the South African electrical grid, and by as much as 70% or 19 200 tons if charged using renewable energy. It can also generate 86.4GWh of additional electricity sales, which makes up the bulk of the City's revenue base.

Next Steps

To find out more about how your municipality or bus operating business can benefit from using PAYS, contact GreenCape's energy sector desk: **contact GreenCape's Sustainable Transport Analyst: khanyi@green-cape.co.za or call 021 811 0250.**

Author: Khanyiselo Kumalo



Endorsed by:



With generous support from:

