

# E-Mobility Solutions

## Challenge Question

How might we reduce upfront costs, attract (public and private) investments into and generally support the implementation of e-bus infrastructure and vehicles?

## Initial Situation

The electrification of urban buses is considered an important element in the decarbonization of urban transport. E-Buses are further helping cities in reducing local air pollution and increasing the quality of life in urban areas. Still, due to limited municipal budgets, especially after the COVID-19 pandemic cities often shy away from investments in the implementation of the new bus technology. High upfront cost and additional demand for necessary charging infrastructure are seen as barriers for investment.

Nevertheless, with significantly lower operating costs compared to diesel alternatives e-bus projects usually offer long-term financial viability in many cases. Also, investments in e-buses can be understood as a future proof-invest in sustainable mobility clearly benefiting public health.

## Challenge Description

The challenges posed to multiple cities in the global south, which aim to procure electric buses and equipment for their (municipal) fleets can be characterized as following:

- Limited financial capacities at bus operators and municipal transport authorities
- High procurement costs
- Missing (government) incentives to invest in zero-emission buses
- High import taxes
- Lack of knowledge in the area of business models, finance, tendering, operation & maintenance
- Limited access to finance

Additionally, there are the further challenges related to the general implementation of e-buses and their infrastructure:

- Selection of the appropriate bus and charging technology
- Technical challenges to build safe and reliable smart-charging infrastructure
- Ensuring electricity supply from renewable sources and grid enforcements
- Integration of IT Solutions which ensure a smooth implementation and operation of e-buses
- City planning considerations for increased space demand for charging infrastructure (at depot or in the city)
- Stakeholder involvement and staff training
- Environmental challenges for e-bus implementation such as end-of-life management and battery recycling

Applicant teams can use the Call for Ideas to develop ideas and approaches to create innovative solutions for e-bus project financing in Jakarta (Indonesia) who consistently pursue the goal of sustainable development. The aim of the challenge is to attract additional

investments into e-bus projects or to reduce upfront costs for e-bus projects. The potential solutions can consist of new investment models (e.g. independent, bankruptcy-remote trust funds, crowdfunding), business models (e.g. separation of ownership and operation), as well as innovative finance structures (e.g. leasing, green bonds). Additionally technical solutions which offer cost saving potentials in the areas of project implementation, charging, operation and maintenance should also be considered. Accordingly, solutions can go beyond the financial challenge and address the additional technical, social or environmental challenges that are involved in e-bus implementation in Jakarta. This has the aim to ensure not only financial investments but also a solid implementation of e-buses and their infrastructure.

All solutions can involve private and public investors willing to invest into e-buses and its infrastructure and/or companies/organisations that are able to help implement e-bus infrastructure. By mixing public and private actors, risk and responsibilities can be shifted away from municipal authorities, which often don't have the capacities to bear those alone. With the solutions developed in the DDLab e-bus investment and implementation in Jakarta should be made easy, accessible and in the end provide tangible environmental, health and economic benefits for the region. Ideally the proposed solution offers a certain degree of innovation and the potential for scaling (beyond Jakarta).