

FELICITY - Contributing to A Clean and Integrated Public Transport System in Brazil



Project Profile



Challenge

Transportation accounts for 44,5% of all CO₂ emissions in the energy sector in Brazil, half of which comes from large vehicles such as buses and trucks. Promoting low emission alternatives in the public transport sector in large Brazilian cities is an efficient way to reduce greenhouse gas emissions in the country.

The city of Florianópolis aims to replace the diesel bus fleet across eight municipalities and build an operational control centre. Two new bus terminals will be constructed to support the e-bus fleet. This new system will not only contribute to reduced emissions and therefore improved air quality, but also to social inclusion and mobility with a more integrated public transport network throughout the metropolitan area.



In Detail

FELICITY's support to Florianópolis included several technical studies to assess the viability of the programme, following an initial gap analysis. For the integration of the transport system, studies were conducted on greenhouse gas reduction potential, financial modelling, regulation, socioeconomic risks, governance and knowledge management. To assess electric buses specifically, studies were prepared on cost of ownership, analysis of existing technologies and cost benefits, in order to examine the best existing technology for implementation. Additional studies were developed for the solar PV component, to assess the installation and energy generation potential at bus terminals and garages. As a final step, procurement documentation was developed to enable the swift and correct procurement of the e-busses.

Capacity development was conducted for more than 120 participants in Florianópolis. These included trainings on energy efficiency monitoring in urban mobility; project preparation and management; and international requirements for climate finance in cities.

The pilot stage will be financed with the city's own funds. The project documentation was developed to comply with national and international financing requirements, and a development bank loan may be used to finance further stages of the bus fleet replacement.

FELICITY (Financing Energy for Low carbon Investment – Cities Advisory Facility) is a project preparation facility implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and financed by the German International Climate Initiative (IKI) of the Federal Ministry for Economic Affairs and Climate Action (BMWK), between 2017-2022.

FELICITY works in close cooperation with the European Investment Bank (EIB) to support urban investment projects that significantly contribute to sustainable development and climate change mitigation. FELICITY offers technical assistance to cities in designing and structuring their infrastructure investment projects. FELICITY's support to cities has the potential to leverage EUR 541 million.

This is achieved through low-carbon project pipelining and preparation; capacity development for cities and national intermediaries such as National Development Banks (NDBs); policy recommendations on specific national framework conditions; and the development of knowledge networks for climate finance projects.



Support

FELICITY provided capacity development and advisory services to Florianópolis in developing the prerequisites necessary for the replacement of the city's bus fleet. Additional analyses included feasibility of installing solar photovoltaic (PV) cells on bus garages and terminals for the e-buses to be powered on-site by renewable energy. The model will be tested within the Pilot phase for the transition of 4 bus lines into clean energy, with 8 electric buses.



Partners

The technical studies and capacity development were carried out in cooperation with the Regional Superintendent for the Development of the Metropolitan Region of Florianópolis (SUDERF). In Brazil, FELICITY also worked in close partnership with the Ministry of Mines and Energy and the Development Bank of Southern Brazil.

Additionally, FELICITY supported the set-up of a Project Implementation Unit in Florianópolis to ensure coherent preparation and implementation of all the activities outlined by this project.

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Involving the Mayor at the beginning of TA process of FELICITY is key for cities ownership in the technical assistance process.

Paulo Figueiredo
(Project Consultant)

Outlook and Scaling

The procurement process for the 8 buses is on-going, and they will soon be delivered to local bus operators.

Is it expected that, once the pilot is proven viable, the technical studies supported by FELICITY will be used to replace the city's entire bus fleet, consisting of 450 buses.



Project in Numbers

- The pilot phase including **8 buses** and charging infrastructure will require an investment of **EUR 3 million**.
- The project has the potential to be scaled to **450 buses** in the city, requiring a total investment of **EUR 169 million**.
- It is estimated that **16,150 tCO2** reduction per year with the replacement 8 buses. Scaling up to 450 busses would allow for an estimated reduction of **908,427 tCO2** per year.
- Approximately **1.19 million** inhabitants in the metropolitan area will directly benefit from this project.

FELICITY has Supported These Achievements:



Enabling Access to Climate Finance

Florianópolis will invest its own funds into the pilot phase with 8 electric busses, which is of strategic importance for the metropolitan region.



Enhancing Bankability

The project documentation was elaborated to comply with international financing requirements of EIB and other financiers.



Partnership

Through the work of FELICITY, SUDERF also joined the Transformative Urban Mobility Initiative (TUMI) e-bus mission to ensure knowledge exchange and establishment of international best practices to be included in SUDERF's ambitious plans.



Knowledge Sharing

FELICITY supported the Brazilian government on the development of a project preparation guidebook for replicating these experiences across the municipalities of Brazil, and has worked with the World Resources Institute in Brazil on recommendations and potentials in urban climate finance.



Ensuring Continuity

FELICITY provided support for the continuity of the project during the period of transition of administration, after political changes due to elections and investigations in the regional administration.

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