Project Reference Sheet | **Urban** | **Mobility**

FELICITY - Public transport and low-carbon bus technology in Florianopolis

Contact
Vinciane WAUTERS
vinciane.wauters@tractebel.engie.com
www.tractebel-engie.com
Tel.

Client: GIZ
Country: Brazil
Date/Period: 2019 - 2020
Contract Value: 144 kEUR

PROJECT DESCRIPTION

FELICITY, “Financing Energy for Low-carbon Investment - Cities Advisory Facility”, is an initiative funded by the International Climate Initiative (IKI) of the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and implemented by GIZ in collaboration with the European Investment Bank (EIB).

FELICITY supports the implementation of Nationally Determined Contributions (NDC) at the sub-national level. The initiative aims to make low-carbon urban infrastructure projects in cities in Brazil, China and Mexico bankable and increase access to internal climate finance at the subnational level by providing technical assistance and advisory services, especially to project developers and municipalities.

Based on the integrated Sustainable Urban Mobility Plan for the metropolitan area of Florianópolis (PLAMUS), the project foresees a gradual renewal of the bus fleet, partly by introducing clean technologies for electric and/or hybrid buses through new concession contracts. The project will also integrate the bus lines of eight municipalities into one public transport network on the mainland and connect them efficiently with the city of Florianopolis (island). The regional Superintendence for the development of the Florianópolis Metropolitan Region (SUDERF) is currently developing the project and will be responsible for overseeing its implementation.

The main objectives of the assignment are:

- Identifying suitable locations for the introduction of electric and hybrid bus technologies and their charging infrastructure in the metropolitan area of Florianopolis;
- Conducting a total cost of ownership analysis (TCO) and facilitate SUDERF’s decision-making for different low-carbon bus technology options;
- Advising on the technical requirements for implementing selected technologies and further developing the integrated public transport system.

COMPETENCES INVOLVED

- Low carbon bus technologies
- Total cost of ownership
- Bus operation

PARTNERSHIP

Laborelec

SERVICES PROVIDED

Technology options

- Conducted site inspections with regard to the routes considered as being most suitable for introducing the recommended low-carbon bus technology options into the metropolitan area of Florianópolis
- Developed an inventory of low-carbon bus technology options relevant for the project (e.g. full-electric buses, plug-in hybrid electric buses, biogas fueled propulsion technologies) as well as the associated options for energy supply and infrastructure technologies
- On the basis of these quantitative figures, elaborated on qualitative advantages, disadvantages and risks of each low-carbon technology option
- Recommended three promising low-carbon bus technology options for the total cost of ownership (TCO) analysis

Total cost of ownership (TCO) analysis, based on:

- Cost components taking a life-cycle approach for investment, operation, maintenance, disposal of the low-carbon bus technology options
- Three scenarios to determine potential TCOs for low-carbon bus technology options
- Sensitivity analysis
- On the basis of the results of the TCO analysis, recommendation of the most appropriate technology option or combination of technologies by considering the local context

Technical requirements and recommendations for system integration

- Based on the selected technology option, definition of the technical requirements and design standards for procurement processes for infrastructure construction, concession contracts for operating the bus lines and/or the purchase of vehicles
- With regard to the integration process involving eight municipalities, support on tariff setting, the use of smart technologies and governance arrangements, especially to maximize attractiveness of public transport for users and ensure cost coverage in the operation and maintenance phase of low-carbon bus technologies.

Project Reference Sheet | **Urban** | **Mobility**

FELICITY - Public transport and low-carbon bus technology in Florianopolis