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Potential Investment Projects Brazil

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Author	Marcio Souza, Andres Chaves, Verena Arauz, and Susana Ricaurte
Revision	Jürg Grütter and Daniel Wunderlin
Contact	Rte. des Esserts 92, 1854 Leysin, Switzerland jgruetter@transport-ghg.com, www.transport-ghg.com

1 Introduction

This report contains the summary of the potential investment projects identified through the interviews conducted in Brazil. A total of 13 potential investment projects were identified for urban buses. The interviews were conducted in December-February. Up to this date the financing conditions of the program were unknown. This was one of the biggest barriers to withdraw information from the potential project-owners. The willingness to invest in commercial EVs is clearly given, however, in order to obtain more detailed information (e.g. feasibility studies), a more formal and direct relation between the bank and the project owner (borrower) should be established.

It is important to mention that all projects must be technically, financially, economically, environmentally, socially, gender and legally structured. The structuring of each project will contribute to an adequate allocation of risks and bankability, as well as to the deployment of innovative business models.

2 Urban Buses

ID	1
City	Curitiba
Project owner (private or public)	Curitiba Municipality. Institute of Urban Research and Planning of Curitiba. Public.
Degree of maturity	During the interviews the authorities mentioned to have this project as a priority. Curitiba has strong tradition in innovation on public transport. And demand studies are being conducted by the Instituto de Pesquisa e Planejamento Urbano de Curitiba (IPPUC). The renovation of stations opens a window for implementing e-buses. However, there are no feasibility studies for e-buses specifically.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Urban Public Transportation in Curitiba: BRT East/West
General summary of the project	Renovation of 32 bus stations along 22,5 km of exclusive lanes, as well as the incorporation of around 60-80 electric buses of 28 meters in this project.
Timeline	60-80 electric buses (28 meters and with AC) by 2024
Barriers identified	- Tendency to have business as usual; - Challenge to develop and implement new business models.
Included in Funding Proposal	no

ID	2
City	Curitiba
Project owner (private or public)	Curitiba Municipality. Institute of Urban Research and Planning of Curitiba. Public.
Degree of maturity	Curitiba has already defined the 35km of exclusive corridors. There are some studies that are currently being developed to implement e-buses in the new corridors.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Urban Public Transportation in Curitiba: Inter 2
General summary of the project	Implementation of further 35 km of exclusive corridors with around 80 electric buses of 13 and 28 meters in this project.
Timeline	80 electric buses (13 and 28 meters, with AC) by 2024
Barriers identified	Same as ID 1
Included in Funding Proposal	no

ID	3
City	Teresina
Project owner (private or public)	Teresina Municipality. Municipal Secretariat of Planning and Coordination. Public.
Degree of maturity	There is a clear intention for the municipality authorities to implement this project. There is an electric mobility plan for Teresina from the previous local government. However, the new local government has not shown any commitment to e-mobility.
Potential set-up	Unknown due to the low maturity degree of the project. Probably a Public Private Partnership might be the best set-up-
Name of Project	Urban Public Transportation in Teresina
General summary of the project	Fleet replacement by electric buses on trunk corridors (exclusive lanes). A total of 42 electric buses (13 meters) to be implemented until 2022.
Timeline	42 electric buses (13 meters, with AC) by 2023.
Barriers identified	- The previous mayor's office had an electric mobility plan for Teresina. The new Mayor has not confirmed the previous e-mobility plan for his term, then the new mobility plan needs to be renegotiated with new mayor. - Today, there are concessions of 15 years that will finish by 2030 and the operators will hardly ever accept significance changes in their contracts. For this reason, it is difficult to renegotiate these contracts to incorporate electric fleet purchase obligations. - Due to the impact of the pandemic, the demand has been reduced drastically and it is difficult to have financial resources for electric buses.
Included in Funding Proposal	no

ID	4
City	Greater Metropolitan Region Florianopolis
Project owner (private or public)	Santa Catarina State. Development Superintendence of the Greater Metropolitan Region Florianopolis (SUDERF). Public.
Degree of maturity	It is foreseen a pilot of 8 electric buses by 2022. It also foreseen 2 terminals to be implemented with different business models (tickets paid at the terminal not at the buses). The public transport initiative will gather 9 municipalities, including the capital city of Florianopolis. Technical, legal and financial studies are needed to be conducted. If funding is available, there is a potential to start by 2024.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Urban Public Transportation to integrate 9 cities in Florianopolis Metropolitan Area.
General summary of the project	Public transportation reorganization project in Florianopolis of 174 bus routes. No definition of technology: hybrid or electric buses.
Timeline	Fleet of 358 buses by 2023: 3 buses (8 meters, with AC); 19 buses (12 meters, with AC); 293 buses (13 meters, with AC); 21 buses (15 meters, with AC); 22 articulated buses (21 meters, with AC).
Barriers identified	- Higher level of investment for electric technology and recharging system versus diesel. - The effects on user fare (ticket) are high. - There is still no certainty of the operational performance of electric fleets in the country; therefore, there is a risk and uncertainty of the operation of electric buses. - Capacity building for the operation and maintenance of electric vehicles.
Included in Funding Proposal	Yes, for medium term (2024-2026).

ID	5
City	Salvador
Project owner (private or public)	Salvador Municipality. Urban Mobility Planification. Public.
Degree of maturity	To implement electric buses is only a possible idea. There is a clear expressed desire to implement a project with electric buses; however, there is no information on the number of electric buses and their category per year that the municipality needs to implement. No feasibility study for e-buses has been conducted so far.
Potential set-up	Unknown due to the low degree of maturity – Probably a Public Private Partnership might be the best set-up-
Name of Project	Extension of the BRT in Salvador
General summary of the project	This BRT (Lapa-LIP-Pituba BRT corridor) is 15km in 3 sections in "Y" design after the extension. Completion scheduled for 2022. This city is interested in electric buses; however, the information about the number of buses and category is not available.
Timeline	Not informed.
Barriers identified	- Complete implementation of E-mobility in Salvador depends on proven feasibility and funding. - Higher level of investment for electric technology and recharging system versus diesel.
Included in Funding Proposal	no

ID	6
City	Niteroi
Project owner (private or public)	Niteroi Municipality. Municipal Secretariat. Public.
Degree of maturity	The municipality is clearly determined to implement e-mobility for public transportation if the feasibility studies show that it is possible. Therefore, there is the clear need for financial, technical and legal studies to be conducted.
Potential set-up	Unknown due to the low degree of maturity – Probably a Public Private Partnership might be the best set-up-
Name of Project	Urban Public Transportation / Fleet Renovation in Niteroi
General summary of the project	Renovation of up to 750 bus within the next 10 years, starting in 2021 with 80 buses.
Timeline	Up to 750 buses (13 meters, with AC) for the next 10 years, starting in 2021. Note: 80 buses to be purchased in 2021 as pilot project.
Barriers identified	- Financial resources to purchase the new fleet (Higher level of investment for electric technology and recharging system versus diesel); - Business model today requests that all cost and investments for public transportation are paid by the bus tickets; business model as usual - the concessionaire is responsible for the acquisition of the bus fleet and its operation.
Included in Funding Proposal	No

ID	7
City	Belo Horizonte
Project owner (private or public)	Belo Horizonte Municipality. BHTrans. Public.
Degree of maturity	The city expects to implement the Pilot Test through public and private partnership. Today, the public transportation runs through public bidding for fleet and operation together (BAU). A new business model shall be designed. In previous pilot test in 2016 and 2019, e-mobility were not proved to be feasible, yet. The city has mentioned the possibility leasing for public transportation buses in the future as a new business model.
Potential set-up	Public Private Partnership with preferential interest rates or operational leasing.
Name of Project	Pilot Project for Urban Public Electric Mobility
General summary of the project	Belo Horizonte has target to reduce CO2 emissions in 40% until 2030 and transport represents 55% of the CO2 emission in the city. The city has around 3000 buses and it will shift 100% of its buses to clean technology by 2035, staring in 2025 (300 buses per year). Now Belo Horizonte needs to have a Pilot Test to confirm economical and technical feasibility to implement electric buses and the city will start with 25 electric buses in 2022.
Timeline	For the Pilot Project 25 electric buses by 2022: 4 electric buses (8 meters, with AC). 4 electric articulates buses (18 meters, with AC). 17 electric buses (12 meters, with AC).
Barriers identified	- Financial resources to purchase the new fleet (Higher level of investment for electric technology and recharging system versus diesel); - The municipality cannot pay for 100% of the Pilot Test costs; challenge to measure the pilot test results.
Included in Funding Proposal	no

ID	8
City	Belo Horizonte
Project owner (private or public)	Belo Horizonte Municipality. BHTrans. Public.
Degree of maturity	The municipality is clear defined to implement e-mobility for public transportation. BHTrans has a strong institutional framework. If the larger pilot test with 25 e-buses (ID 7) proves to be feasible than the city will move gradually to electric public transport with potential to reach 300 e-buses since 2025.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Fleet renovation of 900 buses in 2025-2027
General summary of the project	Belo Horizonte has target to reduce CO2 emissions in 40% until 2030 and transport represents 55% of the CO2 emission in the city. The city has around 3000 buses and it will shift 100% of its buses to clean technology by 2035, staring in 2025 (300 buses per year).
Timeline	300 electric buses per year, a total of 900 electric buses (2025, 2026 y 2027): 10% of the buses will be of 8 meters (with AC); 13% of the buses will be articulated of 18 meters (with AC); 77% of the buses will be of 12 meters (with AC). The pilot test (ID 7) and later studies might change these percentages.
Barriers identified	Same as ID 7
Included in Funding Proposal	Yes, for medium term (2024-2026).

ID	9
City	Rio de Janeiro
Project owner (private or public)	Rio de Janeiro Municipality. Municipal Secretary of Transport. Public.
Degree of maturity	BRT System in operation demands 200 articulated buses. If funding is available, the municipality is open (and willing) to implement e-mobility right away. The feasibility studies need to be conducted to shift to e-mobility by 2022.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Complement BRT fleet with 200 electric buses
General summary of the project	Rio de Janeiro has a BRT System with 123km. This system has a deficit of 200 articulated buses. The municipality is willing to implement 200 electric articulated buses (18 meters, with AC).
Timeline	Around 200 electric articulated buses (18 meters, with AC) by 2022.
Barriers identified	- Financial resources to purchase the new fleet. - Technical Assistance for feasibility studies and structuring the public bidding.
Included in Funding Proposal	No.

ID	10
City	Rio de Janeiro
Project owner (private or public)	Rio de Janeiro Municipality. Municipal Secretary of Transport. Public
Degree of maturity	The BRT line has not been designed for e-mobility. If funding is available the municipality will need to conduct technical, legal and financial studies.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	New BRT line (20km, exclusive lanes) with 200 electric buses.
General summary of the project	Rio de Janeiro is building a new BRT line (20km, exclusive lanes). This line demands 200 buses. The municipality is willing to have electric articulated buses (18 meters, with AC).
Timeline	Around 200 electric articulated buses (18 meters, with AC) by 2022.
Barriers identified	Same as ID 9.
Included in Funding Proposal	no

ID	11
City	Rio de Jainero
Project owner (private or public)	Rio de Janeiro Municipality. Municipal Secretary of Transport. Public.
Degree of maturity	The municipality is optimistic and positive to shift to e-mobility for public transportation. But there are no technical or financial studies, no regulatory frameworks or standards yet. If the decision is made, funding might be needed by 2025 on (not earlier). The implementation of 6,000 buses depends on the renegotiation of the current contracts between the operators (current concessionaries) and the municipality.
Potential set-up	Public Private Partnership with preferential interest rates.
Name of Project	Fleet renovation of 6,000 buses by 2025
General summary of the project	Rio de Janeiro will renew and increase the number of buses from 4,000 to 6,000 by 2025 and the municipality wants to have electric buses of 12 meters (most of them).
Timeline	Around 6,000 electric buses by 2025. Most of the buses are 12 meters long (with AC).
Barriers identified	- Financial resources to purchase the new fleet.
Included in Funding Proposal	no

ID	12
City	São Paulo
Project owner (private or public)	São Paulo Municipality. SPTrans. Public.
Degree of maturity	- There is an ongoing Pilot Test with 17 electric buses today. - The municipality will shift to electric public transport. There are contracts signed with private operators and individual transition plans approved for every single operator in order to renovating of 100% of fleet by using clean technology buses by 2028. The process is taking longer than expected due the COVID19, which has reduced the transport demand and the income of operator. The private operators have already agreed the electric buses is the best option for them; however, there is no specific schedule for the start-up of the electric buses.
Potential set-up	Public private partnership with special interest rates.
Name of Project	Fleet renovation of 13,000 buses in 2022-2028
General summary of the project	Sao Paulo has a law to reduce CO2 emissions by 2030 and the transport sector represents a relevant portion of CO2. The city has around 14,000 buses and they will be clean technology by 2030, starting in 2022 (1,300 to 1,800 new buses per year). In order to comply with the current law and to fulfil with the CO2 emission reduction targets, the parties agreed on new contract terms (September 2020) which includes renovation of 100% of fleet by using clean technology buses by 2028. The private operators have already agreed the electric buses is the best option for them.

	It is expected that the fleet will reduce to 13,000 buses by 2028 due to pandemic constrains.
Timeline	Around 13,000 electric buses from 2022 to 2028 (1,300 to 1,800 new buses per year). Most of the buses are 13 meters long with air conditioning.
Barriers identified	Financial resources for 40 private operators, which will have to purchase the new electric bus fleet estimated in 13,000 units by 2028.
Included in Funding Proposal	no

ID	13
City	Brasilia
Project owner (private or public)	Brasilia Municipality. Secretary of Transport & Mobility. Public.
Degree of maturity	Since June/2020, there is an ongoing Pilot Test with 10 electric buses. However, the municipality has another advance project to implement 26km of VLT System (Tram) that might reduce 1,600 diesel buses on W3 Avenue every day. The VLT is a priority project for the municipality. If funding is available, Brasilia might start e-buses in large scale by 2025 (or after). The government has clear intention to shift to electric public transportation, but the VLT project is the priority.
Potential set-up	Unknown due to the low degree of maturity. The priority of the municipality is to implement the VLT System.
Name of Project	Fleet renovation of 3,000 buses in 2025-2028
General summary of the project	Brasilia has around 3,000 buses running on diesel today. The municipality has decided to shift to clean technology transport with low CO2 emission. The private operators have a contract that needs to be changed and new bids will come up by 2024 and electric buses are the priority.
Timeline	Around 3,000 electric buses from 2025 to 2027. Most of the buses are 12 meters long with AC.
Barriers identified	Financial resources for private operators, which will have to purchase the new electric bus fleet estimated in 3,000 units until 2027.
Included in Funding Proposal	no