

# **“E-MOTION”**

## **PROGRAM AIMING TO ACCELERATE ELECTROMOBILITY IN LATIN AMERICA**

### **Sub-Program 2**

September, 2022



# Contents

1. CONTEXT AND PROJECT OVERVIEW
2. PARADIGM SHIFT AND THEORY OF CHANGE



# Why electromobility adoption is relevant in Latin America?



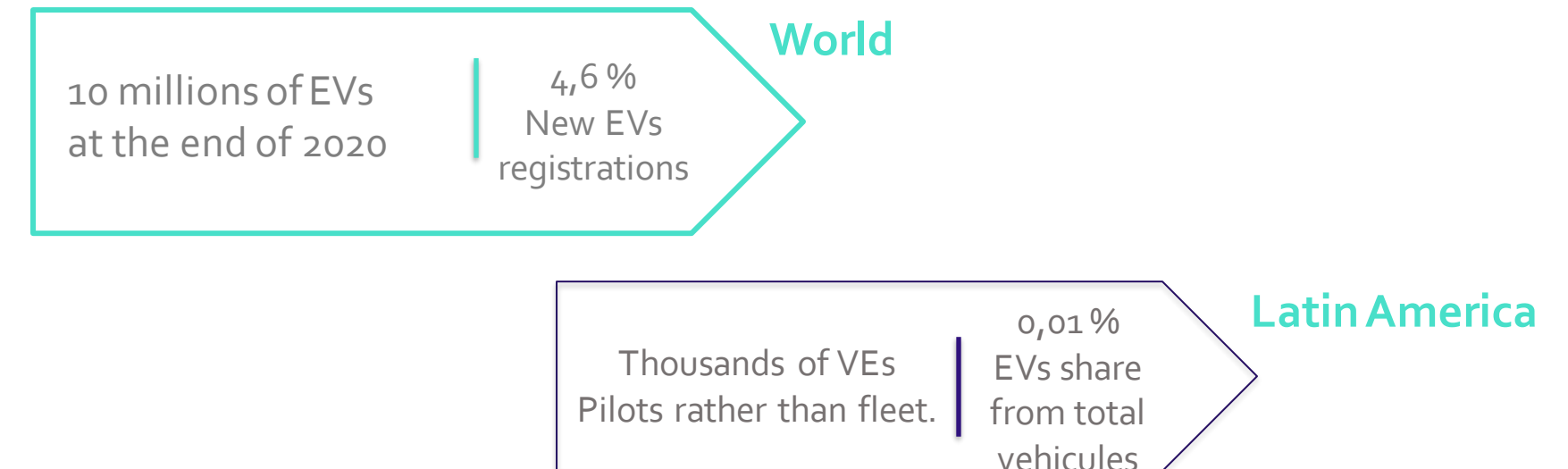
## Climate Rationale

**14%** Globally, Transport sector is one of the main sources of GHG

**45%** Transport GHG contribution in Latam

**10%** Latam GHG contribution globally

The use of electric vehicles in Latam is growing slowly vs the need of energy transition in transport sector for this decade (2030)



## HIGH GHG EMISSION MITIGATION POTENTIAL

Latin America has one of the cleanest electric energy matrix due to renewable sources

# Main barriers detected in Latin America can be addressed by providing access to funds

## Limited Knowhow

Policymakers, transit officials, and bus operators often lack a basic understanding of the capabilities or availability of electric buses.

## Technological Limitations

Current electric bus technologies often offer limited driving range, power, and configurability to meet all the needs of municipal transit.

## Acquisition and Selection Practices

Conventional procurement practices often discourage the adoption of new technologies, such as electric buses, in favor of diesel vehicles.

## Non-scalable Financing Escalable

There is a lack of funding available to support the mass adoption of e-buses, which is necessary to overcome the high capital costs associated with this technology.

## Institutional Limitations

In many cases, government institutions lack the mandatory supervision of public transport within their respective cities.

## Stallment of Pilot Projects

Early adopters of electric buses often do not develop comprehensive plans to transition from small pilot projects to large-scale adoption.

# E-Motion: E-Mobility and Low Carbon Transportation

## Program Overview

The E-Mobility and Low Carbon Transportation Program (E-Motion) is an initiative that aims to enable a large-scale regional transition towards electro-mobility in Latin America focusing on intensive use vehicles leading to reduced fossil fuel consumption, greenhouse gas emissions and air pollutions. CAF and AFD will lead the implementation of E-Motion in 11 countries in the Latin American Region.





# Program components to be developed in Panama, Paraguay and Uruguay



## E-Motion Components

**Component 1:** Establishment of an e-mobility conducive ecosystem by providing Technical Assistance to create a policy and business framework conducive for massive deployment of EVs on a local (project design, business model design and development, city EV policies, training etc.), national (sectoral electrification roadmaps, stakeholder coordination, support of national enabling policies for EV deployment, advice on battery re-usage, recycling and disposal) and a regional level (capacity building, knowledge materials, outreach and dissemination, program monitoring).

**Component 2:** Deployment of large-scale e-bus fleets (major investment component) coupled, when possible, with innovative business models based on a separation of asset ownership and operations modernizing and increasing the attractiveness of the public transport sector whilst also making it financially more efficient and sustainable.

**Component 3:** Deployment of electric light commercial vehicles (public and private).

**Component 4:** Deployment of large-scale fast-charging and gender aware infrastructure for the countries.

**MRV Component:** Establishing a Program Management Unit (PMU) for project implementation and impact monitoring.

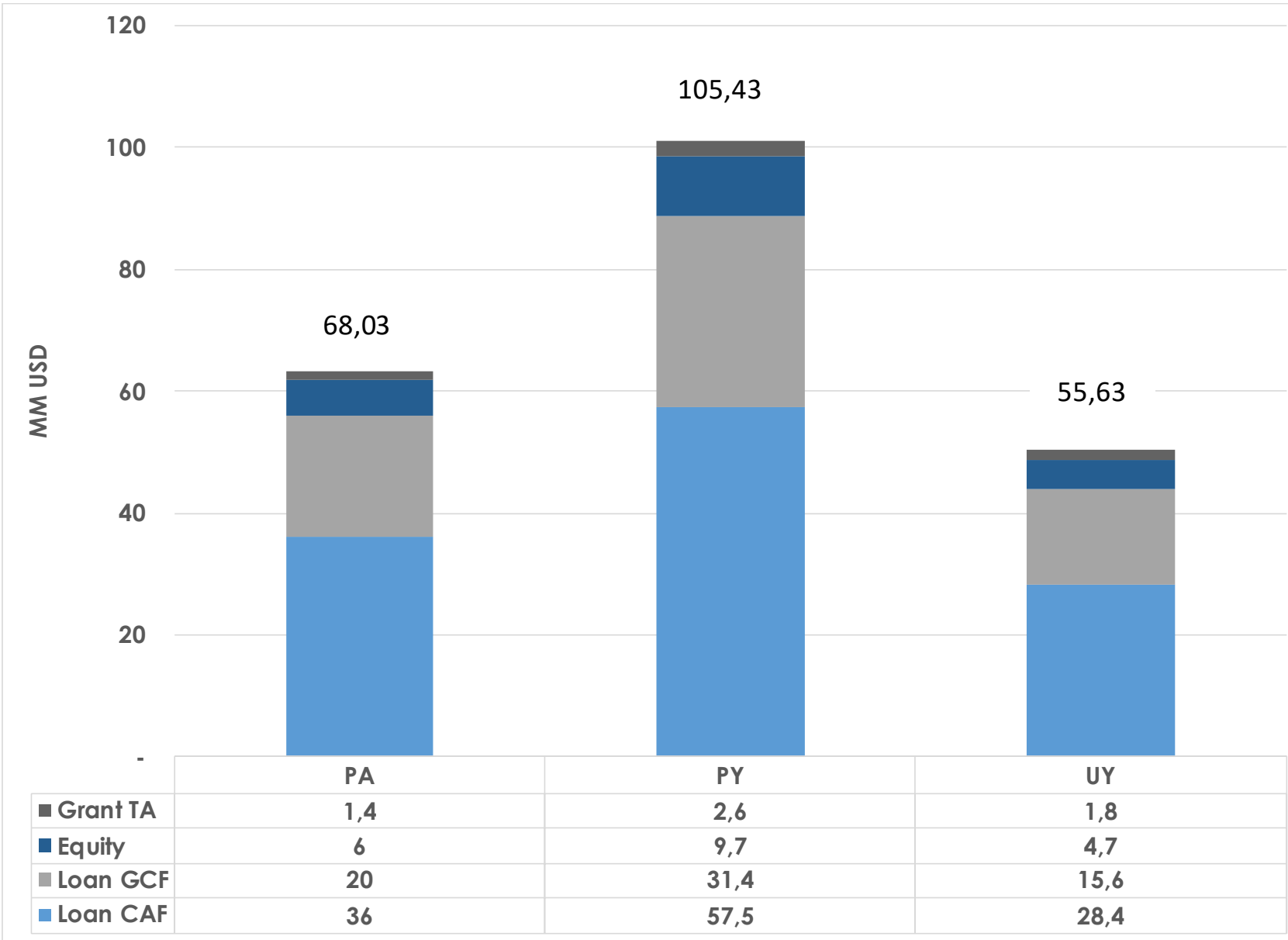




# Financial structure considers grants for TA and concessional loans for FA



## E-motion FA and TA



**229.09 MM USD** Total Financing (GCF+Co-finance)

**74.32 MM USD** Total  funding requested

**3.3 MtCO<sub>2e</sub>** Total Expected Direct GHG mitigated

**650 BEB** PA (150), PY (300) and UY (200)

**1,150 eLCVs** PA (450), PY (400) and UY (300)

**60 Fast Chargers** PA (20), PY (20) and UY (20)



# E-Motion: E-Mobility and Low Carbon Transportation



## Program Impact

**GHG reduction:** EVs have significantly lower lifecycle GHG emissions than fossil units in all countries included in the Program.

**Improved air quality:** EVs have no combustion emissions and are a crucial instrument to achieve clean air in cities. Commercial vehicles are a major source of PM<sub>2.5</sub> and NO<sub>x</sub> emissions in cities. Replacing fossil diesel powered commercial vehicles with EVs improves air quality significantly.

**Reduced energy dependency:** EVs use domestic resources and reduce reliance on imported fossil fuels. They thereby also increase the resilience of the country's economy to external oil price shocks.

**Increased energy efficiency:** EVs are up to 4x more energy efficient than fossil vehicles. Electricity consumption even if pursuing an ambitious EV penetration level such as proposed by the EV<sub>30@30</sub> target supported by the International Energy Agency (IEA) is marginal compared to national production levels – however, localized grid problems need to be addressed.

**Allows the implementation of innovative business models:** Separation of fleet ownership and operation precursor among others for paradigm shift.



# Contents

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# E-Motion: E-Mobility and Low Carbon Transportation



## Specific Objectives Include

- 1) Reduction of CO<sub>2</sub> emissions of countries members pursuant to their commitments to the Paris Agreement;
- 2) Eliminate barriers to the development and financing of Electric Mobility in the region;
- 3) Establish new business models that facilitate access to credit for the different actors (public and private);
- 4) Facilitate private investment in the sector through PPPs schemes;
- 5) Mobilization of extra regional resources through co-financing and access to green concessional funds

# E-Motion expected outcomes

## Outcomes

**Outcome 1:** An increased share of low-emission transportation is reached by replacing fossil fuel-based vehicles. EVs have significantly lower lifecycle GHG emissions than fossil units in all countries included in the Program. The expected GCF fund-level impacts are reduced GHG emissions through increased access to low-emission transportation, resulting in direct emissions reductions of 3.3 MtCO<sub>2</sub> over the asset lifetime of investments co-financed by the Sub-program 2.

**Outcome 2:** EVs use domestic resources, hence reliance on imported fossil fuels is reduced. Thereby also the resilience of the country's economy to external oil price shocks is increased.

**Outcome 3:** EVs are up to 4x more energy efficient than fossil vehicles, hence energy efficiency in the transport sector is increased. Electricity consumption even if pursuing an ambitious EV penetration level such as proposed by the EV<sub>30@30</sub> target supported by the International Energy Agency (IEA) is marginal compared to national production levels – however, localized grid problems need to be addressed.

**Outcome 4:** The Programme introduced new business models that allow for the separation of fleet ownership and operation as a precursor, among others, for paradigm shift. This also includes the support of public and private financing institutions including leasing entities with appropriate technical assistance.

# GCF's new Paradigm Shift dimensions in the IRMF

IRMF: Integrated Results Management Framework

## The application in E-motion

**Scale** - Accelerated uptake of commercial EVs and electric public transport thanks to an improved ecosystem for EVs with:

- ✓ Financial assistance made available for EV investments; and
- ✓ Adequate technical assistance on each pre-identified scalable EV segment in each country.

**Replicability** - based on:

- ✓ Market based price decrease;
- ✓ Reduced risks and costs for 2nd and 3rd projects due to showcasing of successful implementation of projects and business models;
- ✓ Policies which are more conducive for e-mobility.

**Sustainability** - medium-term commercial viability of EVs without further concessional finance from the GCF due to:

- ✓ Conducive EV framework, local business models which match the EV situation and reduced (perceived) risks of operating EVs due to the experience gained with large fleets;
- ✓ At the sectoral level the Program will deliver road maps for electric mobility in public transport and LCVs.



# EMOTION: long-term sustainability by innovation in business models



- ❑ Develop **innovative business models** that allow the **split of the operation** of the system and the **ownership of the fleet** in order to make the system, in all its components, **more bankable** based on an **efficient allocation of risks** among the different participants.
- ❑ Via **Public-Private Partnerships (PPPs)**, accelerate the introduction of the electric fleet through direct and indirect financing of the provision of buses, vehicles in the fleet, mass and intermediate transportation systems managed by the private sector. Contribute to the **expansion of the fast charging network** in the country through alternative private providers.
- ❑ Through the proper implementation and coordination of multidisciplinary teams, CAF hopes to **place financing** for both the **private and public sectors** under different business models, making use of concessional financing and working hand in hand with key partners such as: GCF, AfD, GiZ, KfW and PROPARCO.

# Theory of Change – the general approach by GCF

## The application in E-motion

ToC Level	E-MOTION REFLECTION
<b>IMPACT</b>	<ul style="list-style-type: none"> <li>- Reduced environmental footprint;</li> <li>- Reduced demand for fossil fuels</li> </ul>
<b>OUTCOME</b>	<p>Kick start mass deployment of EVs through:</p> <ul style="list-style-type: none"> <li>- Enhanced enabling environment (TA);</li> <li>- Financing of e-buses/commercial EVs, investment in charging infrastructure (FA)</li> </ul>
<b>OUTPUTS AND ACTIVITIES</b>	<ul style="list-style-type: none"> <li>- Several enhanced enabling environment elements implemented, e.g. strategies, vehicle and charging standards, new business models, waste management, fiscal incentives, trainings etc.</li> <li>- Financing of EVs realized</li> </ul>
<b>INPUTS</b>	<ul style="list-style-type: none"> <li>- Loan for de-risking of investments to enhance bankability</li> <li>- Grant-based technical assistance</li> </ul>
<b>BARRIERS</b>	Financial, Fiscal, Regulatory, Technical, Social





# E-Motion: E-Mobility and Low Carbon Transportation

**Sustainable Development Goal alignment:** The Program has as main target to reduce GHG emissions. It contributes significantly to sustainable development goals (SDG) 3 (“good health and well-being”), SDG goal 7 (“affordable and clean energy”), SDG goal 9 (“industry, innovation and infrastructure”), SDG goal 11 (“sustainable cities and communities”), and SDG 13 (“climate action”).

**Paradigm Shift:** The transformative shift is possible through the uptake of commercial EVs and the improved ecosystem for EVs resultant of the concrete interventions as well as of policy assistance and capacity building.

**Need of Concessional Funding:** Public transport systems rarely recovers its costs though tariffs, implementing; therefore, transition to an “expensive” transport technology requires Concessional Funding from development institutions, local governments and specialized entities such as the Green Climate Fund.

**Potential for scaling up and replication:** Experience of various countries shows that there is a strong demonstrative effect, once fleets of EVs are operational at scale allowing technology to be taken up seamlessly.

**Electromobility is a good public investment:** Once all externalities: air and noise pollution, social healthcare costs, commuting times, safety and gender inclusion; the benefits of having a clean, functional, reliable and affordable public transport system significantly overweight its total costs (CAPEX and OPEX) under a social Cost-Benefit analysis. Good quality of public transportation has a strong induced demand effect creating a virtual cycle.

**Everything we do  
begins with you**

