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Centro di ricerca sulla geografia, le risorse naturali, l'energia, l'ambiente e le reti

SCENARIOS AND PERSPECTIVES OF PUBLIC ROAD TRANSPORT ELECTRIFICATION

The role of subsidized financial instruments and of the reduction of ESG-oriented risk appetite

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1. Introduction

The aim of the study is to **highlight the financial benefits for LPT operators** involved in the ecological transition arising from the valorization of higher public contributions, in turn derived by the synergy with environmental policies and by the support of financial intermediaries which are investing in alternative fueled buses (within the logics of Environmental, Social, Governance-oriented risk appetite).

These **benefits** lie in the terms of:

- **lower financing costs** (thanks to lower medium/long-term risk perceived)
- **easier access to credit** (thanks to investment funds and credit lines devoted to ecological transition)
- **warranties** from financial institutions supporting national public policies
- **direct access to non-repayable contribution** instruments or to **subsidized finance** instruments provisioned by International Financial Institutions (e.g., European Investment Bank or UN initiatives to accelerate decarbonization in the transport field)

1. Introduction

The investment in new low-emission buses and new infrastructure supporting the ecological transition (e.g., *buses powered by electricity and green hydrogen)* is the target for many financial instruments called **SAC- *Sustainable Asset Classes*-** as well as of subsidized public finance. Moreover, many studies have confirmed the positive correlation between ESG factors, investments in sustainability and businesses' financial performance (identified through different indexes like price/earnings ratio, ROE, ROA, etc.).

The alignment between public policies to increase the efficiency and sustainability of the sector and the investor initiatives to support the fight against climate change has facilitated the spread of these assets in the transport field.

Among these initiatives takes place the strong support given by the **United Nations (UN)** through the Sustainable Development Goals (SDG), approved in May 2015 and refined for financial aspects by the United Nations Environment Programme - Finance Initiative (UNEP - FI) task force.

- Investors can be incentivized to invest in SACs acknowledging that their final objective also supports general social interests (on the basis of ***ESG-motivated* logics**).

- According to the latest 2021 analysis of Bank of International Settlements, sustainable asset classes pay a slightly lower risk premium compared to similar asset classes.

Unicredit research comprises in the **SAC category** the *Green Bonds, the Social Bonds, the Sustainability Bonds, the Sustainability linked bonds*, the *Climate Awareness Bonds* from the European Investment Bank, the *Positive Impact Covered Bonds* certified by Societé General SFH and the *Transition Bonds* certified by *AXA IM. Climate Bond Initiative adopts a totally similar classification, but it doesn't include the Climate Awareness Bonds from EIB, nor the Positive Impact Covered Bonds certified by Societé General SFH.*

2. The role of EU Regulations and the EIB (European Investment Bank)

Sustainable finance strategy

The most innovative sustainable elements introduced in 2020/21 for both investors and lenders include the taxonomy of eco-friendly activities and sustainable finance.
The **Sustainable Finance Strategy** of the EU Commission (July 6th 2021) enhances the role of sustainable finance in supporting ecological transition. For instance, the strategy mentions the introduction of *minimum sustainability criteria* for financial products, which promote ESG features and shared labels for transition bonds, sustainability-linked bonds and ESG benchmarks.

Taxonomy Regulation (TR)

TR (EU Regulation 2020/852) has introduced in the European regulatory system the taxonomy of eco-compatible economic activities, which is a classification of activities than can be considered sustainable according to their alignment with EU environmental objectives and their compliance with specific social clauses.

According to the provisions of the art. 8 of TR, organizations subject to the Directive on non-financial reporting (Non-Financial Reporting Directive - NFRD) and, subsequently, to the new Corporate Sustainability Reporting Directive – CSRD, will have to prove their compliance with the taxonomy by disclosing some indexes like turnover, capital expenditure and operative expenditure.

2. The role of EU Regulations and the EIB (European Investment Bank)

European Investment Bank

EIB attempts to enhance its role both as a bank for the development of EU and for the Climate.
→ It promotes guidelines for the use of credits which are exclusively dedicated to sustainability and based on the metrics provided for by **EIB Carbon Footprint Methodologies.**

EIB initiatives to support subsidized finance

- **Cleaner Bus Facility** (as part of the **Cleaner Transport Facility**) provides loans at particularly low rates (as granted by the institution with the highest European ratings). It is a specific financial instrument to support investments in fleet of buses powered by sustainable fuels (e.g., exploited by Transdev in Gothenburg, Sweden).

- **Green Bond Purchase Program** was used for the first time by the Italian Group Ferrovie dello Stato. EIB requests the inclusion of a specific clause on the characteristics of the buses to be replaced and on technical details that prove the environmental benefits of replacing the vehicles.

3. EU funds from the CEF Alternative Fuel Infrastructure Facility & the Social Climate Fund

Connecting Europe Facility (2021-2023) for Alternative Fuels

- It allocates a specific budget (**€ 425 mln/year** for the 3-years period of reference) dedicated to co-financing infrastructure (**max 30% investment with no-repayable funds**).

  For the LPT sector, co-financing is dedicated to the electric charging infrastructure in storage and online and to initiatives for energy storage and grid connection (cases of RATP and Île-de-France Mobilités). It is allocated both in form of non-repayable investments and loans at reduced rates granted by partner lenders (such as EIB and Cassa Depositi e Prestiti in Italy, for instance).

Social Climate Fund (2025-2030)

- It will be **financed with the EU budget** (almost 25% of expected revenues coming from the emissions trading mechanism in the construction industry and fuels for road transport).

  It is estimated a hypothetical **budget of €72,2 billions** for the time period 2025-2030, with the idea of **covering the 50%** of the planned investments, thus mobilizing €144,4 billions dedicated to the social impact-sensitive ecological transition including the situation of vulnerable transport users

Opportunity for cities with Sustainable Urban Mobility Plans (SUMPs)

In the proposal to revise the TEN-T Regulation*, the EU Commission requires Member States to adopt **Sustainable Urban Mobility Plans** for the 424 European urban nodes by December 31st 2025.

By the end of 2022, The Eu Commission will publish a recommendation to Member States to support regions and cities in the implementation of effective SUMPs, with a full integration of resilience aspects and urban plans of sustainable logistics.

The Commission is planning to strengthen the **link** between **SUMPs** and **financial facilities** by:

- prioritizing applicants, in the Horizon Europe notices, that are equipped with SUMPs
- giving priority, in the work programmes of the CEF, to urban mobility projects supported by the SUMPs or equivalent plans

*proposal COM/2021/812 on Union guidelines for the development of the trans-European transport network, amending Regulation (EU) 2021/1153 and Regulation (EU) No 913/2010 and repealing Regulation (EU) 1315/2013

4. SACE warranties for the implementation of the Italian Green New Deal

SACE offers a specific financial guarantee instrument for companies' access to credit, and the extraordinary measures provided for by the Green New Deal have even enhanced its role. Specifically, in this context SACE's specific goals are:

- Facilitate the transition to a circular and clean economy and integrate production cycles with low-emission technologies to deliver sustainable goods and services.
- Accelerate the transition to a sustainable and smart mobility, with particular reference to projects that promotes connected multimodal mobility, are suitable for reducing pollution (also with intelligent traffic management systems), including projects dedicated to climate change mitigation and adaptation and pollution prevention and reduction.

Instruments

The instruments offered to replace the counterparty risk with the Italian State risk and improve the rating (with a differential of 20-30 basis points/year) are:

- Financial warranties at first request, irrevocable and unconditional, with the guarantee of the Italian Republic and a variable percentage of coverage within the limits of 80%
- SACE remuneration on market terms (with more favorable conditions in case of simultaneous multi-objective benefit)
- Zero weighting of Risk-Weighted Assets (RWA) in the calculation of the capital ratios (for the share of funding warranted by SACE) and a reduced cost of capital (thanks to lower bank cost and improved conditions for the borrower)

5. ESG finance experiences of major players in the Local Public Transport field in Europe

RATP

RATP has been among the 1st emitters of **Green Bonds** since 2017. The 2 emissions (in 2017 & 2019, **€500 mln** each) were 50% and 35% respectively dedicated to refinancing existing debt. The 1st emission invested in the renewal of rolling stock; the 2nd emission was 50% invested to renew the fleet with 100% eco-friendly vehicles (electric and biomethane), in order to reduce by 143k tonnes CO2 annual emissions, in a certified way.

Keolis

Keolis issued a **syndacated loan of €600 mln** (Dec. 2021) linked to specific sustainable development goals. The loan is annually indexed according to criteria which involve the achievement of targets not just environment-related (e.g., CO2 reduction and energy efficiency), but also including issues of gender equality, health and safety. The loan has extended the duration of the debt and refinancing at improvement rates.

EIB - MUFG - Société Générale

EIB built a partnership with **Mitsubishi UFJ Group** and **Société Générale**, for a loan of €117 million (maturity of 10 years) to support the purchase of 145 18.75 m electric buses and related infrastructure for **Transdev** in **Gothenburg** (Sweden, Dec. 2020). Better financing conditions than the market were ensured by the collaboration of these 3 financial institutions.

RATP & Île-de-France Mobilités

In Oct. 2020, RATP & Île-de-France Mobilités were awarded a **non-repayable contribution** (**€23 mln** as part of CEF-Alternative Fuel Infrastructure) for the purchase of electric buses, the conversion of existing depots and for charging infrastructures for electric batteries and biomethane.

6. Specific incentives for non-EU countries.

6.1 UK

The National Bus Strategy "**Bus Back Better**" (March 2021) outlines policies for fleet modernization (with a public investment of £3 mln for 4000 new buses and related infrastructure) and for supporting the industrial production chain in the sector (with the extension of bus production sites of 3 major companies in UK, as Alexander Dennis ADL, Switch Mobility and Wrightbus).

The incentives provided (focused on lower investment costs) are:

- ZEBRA (**Zero Emission Buses Regional Area**) schemes: co-financing programs that can accelerate the transition to zero-emission buses in areas outside London
- BSOG (**Bus Service Operator Grant**): updating the current Mileage Subsidy System for buses outside London in order to establish a rewarding scheme (an additional contribution of 22 pence/mile) to reduce fuel costs and incentivize the spread of ZEBs

	Fund (£)	Bus N.	Geographical Scope	Period
ZEBRA	£ 71 mln	335 e-buses + infrastructure	5 areas	October 2021
All Electric Bus City	£ 50 mln	300 e-buses	Coventry	--
ZEBRA	£ 198 mln	943 e-buses	12 areas	March 2022

6.2 US

Low -or- No-Emission Vehicle Program

the program provides funding to state/local government authorities to buy or rent no or low-emission buses and to buy, build or rent the necessary support facilities, in the form of grants. Up to 0,5% of the grant can be used for workforce development activities and 0,5% also for training costs at the National Transit Institute

Clean Transit for America Plan

(inspired by the "Low-No emission program") was incorporated in the "**Infrastructure Package**", a substantial investment plan approved in Nov. 2021 to promote and finance electric mobility. → $7.5 billion to buy/rent electric school buses and buses and to buy/build/renew related infrastructure (+ staff training programmes)

AEP & Volkswagen

AEP (American Electric Power, one of the main electric utility companies in US) and Volkswagen were accused of violating the Clean Air Act.

- AEP invested $60 mln (in partnership with the Environmental Protection Agency) in projects devoted to reduce the negative effects of its past excessive emissions. Among those, the plan to replace old buses with new electric ones, cover the cost differential between electric and conventional buses and finance the purchase of charging infrastructure. These funds were destined to schools, businesses and local entities.
- Volkswagen implemented compensatory measures to mitigate the environmental damage caused with a fund of $6 billion, partially dedicated also to purchase low-emission buses and school buses and charging infrastructure.

Air Resources Board (California) introduced:

- ## Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP)

  subsides and incentives to sellers/buyers to make low-emission buses cheaper than conventional ones. It provides max £198k for public school buses, $120k for transit electric/hybrid buses and $240k for transit hydrogen-powered buses.

- ## Low Carbon Fuel Standard

  incentive scheme to use engines with low environmental impact, which provides the delivery and monetization of credits related to the effective saving of carbon-intensive energy.

6.3 Australia

The Australian Government has put in place high-level instruments to foster energy transition, following two lines of action: non-repayable funding and facilitated access to credit.

Two main public entities are involved:

CEFC (Clean Energy Finance Corporation)

makes investment only in technologies for renewable energies and for energy efficiency and in low-emission technologies. It operates through direct acquisition of equity (not control), guarantees on loans and financing

ARENA (Australian Renewable Energy Agency)

supports the pre-commercial innovation of technologies delivering non-repayable funds

Next Generation Electric Bus Depot

is the most interesting project in the context of public strategies for the electrification of public transport and it's jointly funded by CEFC (AU$ 24,5 mln) and ARENA (AU$5 mln). It entails **AU$36 mln** to purchase **40 public electric buses** (serving the Inner West area in Sidney) and related infrastructure, as well as to renew the relative depot (*Leichhardt*).

6.4 Latin America

In Latin America, the ZEBRA (Zero Emission Bus Rapid-deployment Accelerator) project aims at creating partnerships between main manufacturers and investors to develop new business models and innovative financial models to boost and facilitate the transition to electric public transport.

Initial investment costs for electric buses and related charging infrastructure are higher than those for diesel buses. However, their whole-life cost is lower and this is particularly significant in these countries, where the majority of urban bus fleets is owned by small private operators with limited access to affordable funding.

Two main instruments can help overcome these issues: **subsidized finance and separation of bus ownership**.

1. Subsidized finance

Cities with publicly owned bus fleets can benefit from subsidized finance instruments from institutions that finance development, and they can receive **better loan terms**, **lower interest rates and non-repayable financing** to support their investments in electric buses.

2. Separation of bus ownership

When fleets are privately owned by small operators, separating the ownership from the operation services may help to overcome financial barriers and to better distribute risk among many stakeholders. In this case Rolling Stock Companies **(Rosco)** are created, companies with good financing capabilities and experience in assets management, which take care of the investment on the fleet (also exploiting any economies of scale) and rent it later to small local operators that provide the service.

6.4.1 Colombia

Transition to electric vehicles in Colombia is addressed at two levels of administration

- **State Level:** in 2020 was delivered the “Estrategia Nacional de Movilidad Eléctrica” which provides guidelines on future public policies and investment strategies
- **Municipal Level:** municipalities deal with the implementation of public policies and public-private agreements

Different measures have been implemented:

- **Non-repayable loans**
- **Loans at reduced rates**
- **Regulatory benefits**
- **Tax exemptions or concessions**

  - VAT exemption for electric vehicles;
  - Exemption from import duty on electric vehicles;
  - Maximum tax cap: the total amount of taxes may not exceed 1% of the commercial value of electric vehicles

National development plan 2018-2022 - Pact for Colombia, Pact for the Equity

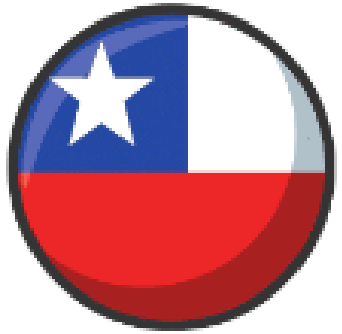
(released by the Ministry of Energy) provides a **co-financing** measure (**40-70%**) for investments in infrastructure, intelligent transport systems and the purchase of new low- and zero-emission vehicles.

Loans at preferential rates

Some local and central authorities have granted loans at preferential rates aimed at investing in zero or low-emission infrastructure and means of transport. It is the case of the municipality of **Medellin**, where 12 electric buses were bought thanks to guarantees and reduced interest rates on financing.

6.4.2 Chile

Chile is one of the most advanced region of Latin American for the transition to renewable energies. In 2015 was launched the "*Estrategia Nacional de Electromovilidad*" to foster short and long-term goals, such us reaching at least 5 mln electric vehicles by 2050 (40% of total).



In 2021 Chile counted 819 public electric buses (95% of them in Santiago) and in the same year 1000 new ebuses were expected in Santiago.

In Santiago the government covers 50% of the leasing cost of electric buses bought by LPT operators.

There are also accounting and fiscal facilitations, like the **accelerated depreciation of fixed assets** (buses and their charging infrastructures) in order to reduce the company's tax burden.

Chile is planning to introduce electric buses also in other regions, with the first **170 electric buses** in **Arica** (in the North of the country).

6.4.3 Brazil

Despite some parliamentary initiatives carried out by the newborn Parliamentary Group on Electric Mobility, Brazil is not equipped yet with an extensive plan for the transition to electric buses.

Currently the Federal Government of Brazil has provided tax measures for exemption from duties on imports of vehicles with low environmental impact and for the reduction of operating costs by reducing or exempting certain taxes.
Also, preferential lines of credit are offered by the Brazilian National Development Bank (BNDES) for operators wishing to invest in low-emission buses, differentiated according to the engine.

Seven states (MA, PI, CE, RN, PE, SE e RS) has approved the total exemption of the vehicle tax IPVA ($500 year/bus) for electric vehicles, while three others (RJ, SP, MS) have approved a reduction of 50%.

6.4.4 Peru

Political and social issues in the last ten years in Peru have slowed down the development of public policies or a national strategy to boost the technological and ecological transition of the LPT sector.
Indeed, the first electric bus was introduced in 2020 as part of a pilot project.

6.4.5 Uruguay

Legislation in Uruguay established measures to support the spread of electric and low-emission vehicles in the form of direct subsidizes and tax concessions.

Tax concessions include the exemption for imported hybrid & electric vehicles from the payment of the "*Tasa consular*" (5% of the value), "*Tasa global arancelaria*" (import duty, otherwise equal to 23%) and *IMESI* (otherwise equal to 80.5% on diesel vehicles with an engine displacement ≥ 3.0).

The Movés project, supported by the **UN Global Environment Facility (GEF)**, funds experimental projects to incentivize LPT operators. In particular, it provides a non-repayable fund (grant) of $100k ($10k for charging infrastructure and $90k for the first electric bus) to every LPT that wants to experiment with the introduction of a pilot ebus in its own fleet.

6.4.6 Mexico

In 2021 the government launched its "*Estrategia Nacional de Movilidad Eléctrica*", a strategic document that is expected to introduce relevant changes in the upcoming years in the electric mobility field. However, currently Mexico is still not equipped with an extensive program to finance and facilitate the spread of low-impact buses. The only instrument currently in force is the general exemption from import duties for electric vehicles.

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This study has been prepared by a joint research team of **GREEN - Bocconi University and Enel Foundation** coordinated by Oliviero Baccelli and Carlo Papa with the researchers Claudio Brenna, Gabriele Grea, Antonio Sileo and Mirko Armiento. Ignazio Cordella (**Enel X**) contributed to the study.

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