

# ELECTRICAL, ELECTRONICS AND COMMUNICATIONS ENGINEERING

## MUR DM 117/GTT - Development and testing of strategies to reduce electricity supply costs of public transport companies

<b>Funded By</b>	GTT - GRUPPO TORINESE TRASPORTI S.P.A. [P.iva/CF:08559940013] Ministero dell'Università e della Ricerca - MUR [P.iva/CF:96446770586] Politecnico di TORINO [P.iva/CF:00518460019]
------------------	---

<b>Supervisor</b>	COLELLA PIETRO - <a href="mailto:pietro.coella@polito.it">pietro.coella@polito.it</a>
-------------------	---

<b>Contact</b>	GAUDIELLO SALVATORE MAZZA ANDREA - <a href="mailto:andrea.mazza@polito.it">andrea.mazza@polito.it</a> PONS ENRICO - <a href="mailto:enrico.pons@polito.it">enrico.pons@polito.it</a>
----------------	--

<b>Context of the research activity</b>	<p>The research wants to study fleet management systems and strategies for sizing storage systems to minimize the overall cost of electricity borne by local public transport companies, with the same service provided to users. The parameters to be considered are the range required for vehicles to ensure public transport, the performance and cost of electric buses and storage systems, and possible strategies in electricity spot markets to maximize the value of energy fed into the national power grid.</p> <p>Progetto finanziato nell'ambito del PNRR – DM 117/2023 - CUP E14D23002000004</p>
---	---

	<p>The objective of the research is to identify and test methodologies to minimize the cost of electricity supply and decrease the environmental impact of local public transport companies.</p> <p>The need to decrease CO2 emissions leads local public transport companies to invest in facilities for generating electricity from renewable sources (e.g., photovoltaic systems), and to replace vehicles equipped with an internal combustion engine with electric vehicles. In other words, these years are witnessing the electrification of local public transport, and this process requires the design of local public transport and management strategies that ensure greater rationalization of the production and use of the electric energy.</p> <p>Since the production of this type of facility is by nature non-programmable,</p>
--	--

## Objectives

energy in excess of that required by electrical loads is either fed into the grid or stored in storage systems, if any.

Given the increasing number of electric buses, each equipped with a battery pack, the research wants to study fleet management systems and strategies for sizing storage systems to minimize the overall cost of electricity borne by local public transport companies, with the same service provided to users. The parameters to be considered are the range required for vehicles to ensure public transport, the performance and cost of electric buses and storage systems, and possible strategies in electricity spot markets to maximize the value of energy fed into the national power grid. By optimizing resources, the same public transportation service can be provided with lower costs to the benefit of the community.

The developed methodologies will be tested and implemented within the Gruppo Torinese Trasporti (GTT).

The subject matter of the research is related to the research and innovation needs of the Gruppo Torinese Trasporti and is closely related to the objectives of Missions 2 and 3 of the PNRR, including energy transition and the development of a modern and sustainable transport infrastructure that can be a model for all Italian public transport realities.

## Skills and competencies for the development of the activity

- base knowledge in the field of electrical and energetic engineering
- interest in coding
- B2 in Italian and English according to the “Common European Framework of Reference for Languages: Learning, Teaching, Assessment” (CEFR) classification