

INTERREG Alpine Space

**“e-mobility SMART grid for passengers and last mile freight
transports in the Alpine Space – e-SMART”**

Best Practice Template

June 2021

Best Practice

1. General Information		
Title of the practice	ATM Milano – Full electric Project	
Specific objective	100% electrification of the bus fleet	
Location of the practice	Country	Italy
	Region/City	Milan

2. Detailed Description	
Detailed information on the practice	<p>ATM, following the directives of its owner, the Municipality of Milan, is implementing his “Full Electric Plan” since 2018. This decision in particular derives from the problematic situation of air quality in Milan and in the whole area of the Pianura Padana. In the last years, local authorities have focused on more and more restrictive regulations in order to limit the circulation of combustion engine’s vehicles.</p> <p>The project aims to offer by 2030 to the city of Milan a public transport fully electric with a gradual switch, for its 1.200 bus fleet, from diesel to zero emissions vehicles.</p> <p>There are 3 main pillars:</p> <ul style="list-style-type: none"> - New electric buses - New bus depots and upgrade of the existing ones - Recharging infrastructure <p>Electrification of bus fleet: ATM needs to be part of the change that is looking for a sustainable and zero emissions mobility with electric bus supplied with green energy. ATM is already offering the 70% of its service with electric vehicles (metro, tram and trolleybus).</p> <p>Depots: the new buses demand more space in the depots; ATM has planned the construction of 3 new depots and the upgrade of other 3 that already exist.</p> <p>Recharging infrastructure: in order to supply the whole fleet, it’s necessary to have a suitable and reliable infrastructure for recharging. After the experience of the first electric buses, ATM has decided to add to the traditional overnight charge, the “opportunity charge” at end stops with top-down pantographs. This “fast chargers” will have a 200kW power and will enable to extend the range of the bus during a recharging time of 5/8 minutes. The</p>

	<i>overnight chargers instead provide an 80 kW power useful for a fully recharge in 4/5 hours.</i>
Resources needed	<i>The total investment in the electrification project is estimated in € 1,5 bln partially covered by ATM internal resources and partly by Government funding.</i>
Timescale (start/end date)	<i>March 2018 – December 2030</i>
Evidence of success (results achieved)	<p><i>The project is still in its early stage so that measurable outputs and results are still not available.</i></p> <p><i>One of the most important point is related to environmental aspects: ATM wants to reduce its impact on atmospheric emissions in the metropolitan area of Milan: a study by AMAT (the local agency for mobility, environment and territory) says that with an electric bus fleet will cut approximately 73.000 tons of CO2 and 460 tons of NOx.</i></p>
Difficulties encountered/ lessons learned	<p><i>For a huge project like this, lot of attention must be put on timings (e.g. purchasing of new buses that is a quite quick process vs. long time required for building new structures or upgrade the existing ones) and also on the development of technology (e.g. fuel cell capacity increase).</i></p> <p><i>It is also important to consider the future demand of electric energy and cooperate with the local supplier to identify the needs of the transport network alongside with the growth of other public or private entities.</i></p> <p><i>It would be then necessary to put in place the right upgrades of the electric distribution network.</i></p>
Potential for learning or transfer	<p><i>The ATM's project is one of the first that involves such a huge fleet. There are a lot of aspects that should be considered before and during the development of the plan.</i></p> <p><i>One of the first aspects to examine is the behaviour of the electric bus in line during the different hours of the day and different seasons. This may impact the purchasing process and the scheduling of the service.</i></p> <p><i>As said before is also very important to consider the timings of the different parts of the project and the different phases.</i></p> <p><i>From the environmental point of view an electric bus can reduce air pollution (be sure that energy provided comes from renewables) and improve the comfort of users (e.g. noise).</i></p>

Further information	<i>Link to where further information on the good practice can be found</i>
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