

The construction of the innovative PIONEER energy storage system with second-life batteries.

Aeroporti di Roma (AdR) is going ahead with the implementation of the PIONEER project and announces the start of the construction of an innovative energy storage system (BESS, Battery Energy Storage System), with second-life batteries from electric mobility, perfectly adaptable for use in an electric storage.

This innovative storage system, co-funded by the European Union through the Innovation Fund's call for tenders, was commissioned to Enel X, which was responsible for the design and integration into the existing energy infrastructure at Fiumicino Airport. The project also involves Fraunhofer, for the analysis of battery characterisation. When fully operational, the BESS will optimise energy flows by storing up to 10 MWh to deliver green energy to the airport's infrastructure in the desired time slot, while also providing flexibility services to the grid.

ADR has also started construction on one of the largest photovoltaic plants in Europe within an airport, which will supply the Rome Fiumicino hub with green energy.

The development of storage, carried out with the support of Enel X and Fraunhofer, will enable ADR to optimise its energy performance, supporting its path towards low-carbon.

In this perspective, the PIONEER project is a further step towards the validation of ADR's innovative approaches to energy transition. The validation of new technologies and energy management modes, including a wider range of BESS, will catalyse the adoption of these systems, which are a fundamental pillar for grid stability, as they enable flexibility services and support the development of renewable energies.

Pioneering a new approach for the adoption of BESS

Specifically, the PIONEER ('airPort sustaInability secONd lifE battERy storage') uses a total of 786 second-life batteries supplied by three leading international manufacturers of electric vehicles to develop a **10-MWh storage system** powered by Fiumicino's photovoltaic plants.

The storage will be installed within the airport grounds in the landside Cargo City area. The site preparation was started in spring 2024 and work will proceed in stages, with the first 5-MWh of capacity scheduled to come into operation at the end of 2024, until the 10-MWh storage facility is completed by the end of 2025. The flexible operation of the storage will allow the energy produced by the photovoltaic systems, installed at the airport, to be used for self-consumption at night, avoiding the use of energy from conventional sources, which should reduce CO₂ emissions by a total of 16,000 tonnes over 10 years.

The PIONEER project is a virtuous example of the circular reuse of batteries, which have already completed a first life cycle in electric vehicles and will be reused to store green energy in electric storage.



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