Energy storage unit pilot project

A second lease of life for Swiss Post scooter batteries

Since January 2017 Swiss Post's scooter fleet has comprised only electrically powered three-wheeled vehicles. After approximately seven years, their batteries have a storage capacity of around 80 percent – not enough for their continued use in mail delivery, but more than enough for use in a stationary energy storage unit.

Disused batteries store solar power

Since the start of 2017, an energy storage unit at the Umwelt Arena Schweiz in Spreitenbach (AG) has been storing the excess solar power generated by a system in front of the building but not directly used. Another similar storage unit will be installed in the Swiss Post building at the train station in Neuchâtel in March 2017 to store the unused solar power collected from the roof. This energy storage system using discarded scooter batteries has been designed from scratch as its use has different requirements to an operation with new batteries.

The storage of electricity is a key technology in the conversion of power supply to renewable energy. Swiss Post has been joined by Ökozentrum, the Swiss Federal Laboratories for Materials Testing and Research (EMPA), Kyburz Switzerland AG (manufacturer of the electric scooter used by Swiss Post), W. Schmid Projekte AG, Helion Solar AG and Batteriewerk AG in the development of the energy storage unit. The Swiss Federal Office of Energy is supporting the two-year pilot project with around 100,000 Swiss francs. In the Umwelt Arena Schweiz in Spreitenbach, the entire project will be presented as part of an exhibition – from the Swiss Post scooter available for test drives on the indoor course to the production of solar power, and the energy storage unit from discarded scooter batteries as an aspect of building technology.

Modern battery management system

The capacity of a storage unit is 7-10 kWh. The battery management system and packaging have been designed in such a way that several battery cells could fail per storage unit and the battery module could still be used – even if up to 30 percent of the battery cells fail. The technology developed for the project is not restricted to the batteries from the Swiss Post delivery vehicles, but can also be used for discarded batteries from the most varied fields of application. Two reasons for the further use of the discarded batteries are interesting from an economic standpoint: the owner of an electric vehicle can sell on his amortized battery, while the buyer receives a high-quality storage unit at a comparably inexpensive price.

Energy storage unit made from old Swiss Post scooter batteries (dimensions: 195x64 cm).

This reuse considerably improves the eco-audit of discarded batteries. Using the same amount of resources, the energy saved is at least doubled through the use of the energy storage unit.

Technical data

- 6, 8 or 10 kWh storage capacity
- Feed-in power 3000 W (1 or 3-phase) mains parallel operation
- Battery management optimized for battery cells from reused batteries

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