

SAFT



Saft Li-ion batteries power catenary-free CAF Urbos trams in Birmingham

Lithium-ion battery modules allow city to extend its tram network by several kilometers without the cost of overhead wires.

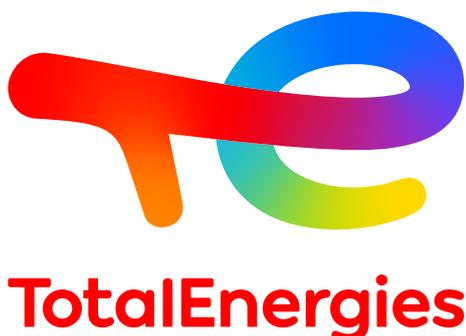
Li-ion batteries allow new operating modes for these second generation Trams.

When the UK's city of Birmingham wanted to extend its West Midlands Tram network, it wanted to upgrade its trams with lithium-ion (Li-ion)

batteries to avoid the investment needed to install overhead catenary wires. It turned to tram builder CAF to upgrade 21 of the city's existing Urbos trams.

As a leading developer of advanced electrical, control, and communication systems for railways, CAF Power & Automation (P&A) took the lead in developing a solution. It integrated Saft's Li-ion battery into its Onboard Energy Storage System to retrofit onto the tram roofs.

During operation, the batteries charge on sections of the city route served by catenaries and also receive charge by recovering braking energy. They then provide traction power on new track sections that extend over distances of several kilometers and that are not served by catenary wires.



► Expert technical support

Sizing a Li-ion battery system requires extensive knowledge and experience of how electrochemistry performs in the field. A battery's operational life is influenced by the depth and frequency of its charge and discharge cycles, and its operating temperature. If a battery is too small, it will age prematurely, but too large and it will be more costly, larger and heavier than it needs to be.

Benefits

- Technical support and advice on battery sizing and control
- Two battery systems per tram

- Compact and lightweight for rooftop installation
- Components supplied for CAF to integrate at its facility in San Sebastian, Spain

Matching battery design with operating profile

CAF P&A's choice of Saft batteries for the batteries on board the Urbos trams is providing several advantages for Transport for West Midlands:

- Significantly reduced the capital investment required to extend the network as battery-powered trams

eliminated the need for overhead catenary wires

- Optimized lifetime costs and environmental footprint as Saft sized the batteries to have a maintenance interval of at least seven years to match CAF's maintenance intervals for the trams themselves
- Batteries will provide high availability for reliable and safe operation over their service life of seven years or more.



« While CAF Power & Automation's role is to provide systems to support electric traction, energy storage, control, and communication, our customers are really buying reliability. We select technology partners such as Saft because of their proven technology and ability to meet our delivery schedules. »

Jean-François Reynaud
Project Manager at CAF P&A



SAFT

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