

ABB wins first commercial order for breakthrough 15-second flash charging technology to enable emission-free public transport in Geneva

Zurich, Switzerland, July 15, 2016 – Revolutionary technology requires no overhead lines and offers silent and zero-emission mass transit solution as a viable alternative to diesel buses, providing a model for future urban transportation

ABB has been awarded orders totaling more than \$16 million by Transports Publics Genevois (TPG), Geneva's public transport operator, and Swiss bus manufacturer HESS, to provide flash charging and on-board electric vehicle technology for 12 TOSA (Trolleybus Optimisation Système Alimentation) fully electric buses (e-buses) which will run on Line 23, connecting Geneva's airport with suburban Geneva. The e-buses can help save as much as 1,000 tons of carbon dioxide per year, when compared with existing diesel buses.

ABB will deliver and deploy 13 flash-charging stations along an urban transit bus route, as well as three terminal and four depot feeding stations. This will be the world's fastest flash-charging connection technology taking less than 1 second to connect the bus to the charging point. The onboard batteries can then be charged in 15 seconds with a 600-kilowatt boost of power at the bus stop. A further 4 to 5 minute charge at the terminus at the end of the line enables a full recharge of the batteries. The innovative technology was developed by ABB engineers in Switzerland.

"We are proud of this breakthrough technology to support Geneva's vision of providing a silent and zero-emission urban mass transportation for the city. It provides a model for future urban transport and reinforces our vision of sustainable mobility for a better world" said Claudio Facchin, President of ABB's Power Grids division. "As part of our Next Level strategy, we are committed to developing customer-focused solutions and technologies that help lower environmental impact."

The decision to deploy TOSA on Line 23 was undertaken after the successful pilot of the first such e-bus on the route from Geneva airport to the Palexpo exhibition center. The Line 23 bus route will be slightly modified in order to provide a fast connection to Praille-Acacias-Vernet, a new suburb being built to accommodate 11,000 flats and office space for about 11,000 employees. When fully commissioned in 2018, the high-capacity articulated buses will depart from both terminuses at 10-minute intervals during peak times. The line carries more than 10,000 passengers a day and the replacement of diesel buses by TOSA e-buses reduces noise as well as greenhouse gas emissions.

As part of a separate award by HESS, ABB will supply 12 flexible drivetrain solutions for the buses including integrated traction and auxiliary converters, roof-mounted battery units and energy transfer



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systems (ETS), as well as permanent magnet traction motors. Both contracts include five-year maintenance and service agreements to ensure operational reliability, efficiency and safety.

"The deployment of TOSA on Line 23 is the result of the collaborative efforts of the public and private sector partners who invested in this vision. This innovative project opens the way for the future of mobility, by providing a sustainable and environmentally-friendly mass transport solution for the well-being of our community," said Luc Barthassat, Geneva's State Councilor for Transport and Environment.

Geneva is one of the world's leading cities, recognized as a global center of diplomacy, a financial hub and a technology and innovation center. It is also a popular tourist destination with a high quality of life. It hosts the highest number of international organizations in the world, including global headquarters of institutions like the United Nations and the Red Cross.

ABB provides a range of technologies to support mobility applications such as railways, metros and electric buses and vehicles. Transportation and Infrastructure is one of the three customer groups, served by ABB alongside utilities and industry, and sustainable mobility is a key focus area within ABB's Next Level strategy.

ABB is celebrating 125 years of its legacy in Switzerland and has been actively involved in the transportation sector including rail. As a recent example, ABB technologies are helping to power and ventilate the recently commissioned 57 km Gotthard base tunnel through the Alps - the world's longest railway tunnel.

ABB (www.abb.com) is a leading global technology company in power and automation that enables utility, industry, and transport & infrastructure customers to improve their performance while lowering environmental impact. The ABB Group of companies operates in roughly 100 countries and employs about 135,000 people.

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