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## Beijing metro installs ultra capacitor energy storage



27 Jul 2016

CHINA: Maxwell Technologies announced on July 27 that it had installed wayside energy storage ultra capacitors on the Beijing metro.

The 48 V ultra capacitor modules have been installed in two sets of energy storage devices in use on the 26.6 km Line 8. These store energy recovered from regenerative braking of the CSR Sifang rolling stock.

This represents the first commercial metro wayside project carried out under a partnership between Maxwell and CRRC's Qingdao Sifang Rolling Stock Research Institute that was announced last year. 'Ultra capacitor energy storage solutions are critical to meet the needs of the growing China rail market', said CRRC-SRI Chairman Liu Baoming. 'Working together, we expect to bring more solutions to market as China strives for improved rail efficiencies and reduced carbon emissions.'



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## Ultra capacitor technology partnership signed



09 Aug 2015

CHINA: US-based ultra capacitor manufacturer Maxwell Technologies and CRRC's Qingdao Sifang Rolling Stock Research Institute have signed a long-term strategic partnership agreement covering the joint development of energy storage technology for the Chinese rail market.

'Rail transportation applications are an excellent match for ultra capacitors, and the rail market will be a significant opportunity for Maxwell,' said the company's President & CEO Dr Franz Fink. 'Our partnership with CRRC-SRI represents an excellent opportunity for us to generate meaningful revenue in a three-to-five-year horizon through the co-development of application-specific technology and products for the expanding China rail market.'

Chairman of CRRC-SRI Liu Baoming said 'we firmly believe capacitive energy storage technology is essential' for meeting future energy-saving and environment-protection requirements in China.



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## Guangzhou super capacitor tram unveiled



13 Jun 2014

CHINA: CSR Zhuzhou has unveiled what it says is the first tram to be powered only by supercapacitors.

In June 2013 Guangzhou Metro Corp subsidiary Guangzhou Tram Co signed a contract with CSR Zhuzhou for seven 100% low-floor trams. The first two will be produced in Zhuzhou, with the subsequent five assembled in Guangzhou.

The first vehicle is currently undergoing static testing before being shipped to Guangzhou for dynamic tests. The trams are due to enter passenger service in December.

Siemens is supplying propulsion and control, braking and auxiliary systems, including powered bogies, under a technical licensing and co-operation agreement.



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The onboard super capacitors will be automatically charged from a ground-level power supply at stops. This will normally take between 10 sec and 30 sec. The trams are able to run for up to 4 km between charges. According to CSR Zhuzhou, the braking energy recovery efficiency is more than 85%. Mobile charging vehicles are to be used in case of faults at the charging points.

The four-section tram is 36.5 m long with a capacity of 386 passengers. Floor height at the entrance is 325 mm. There are five sets of doors, 10 'priority seats' and two wheelchair spaces. The stainless steel bodied trams are capable of a maximum speed of 70 km/h, a maximum gradient of 60‰ and a minimum curve radius of 25 m.

The trams are to run on a circular route in the Haizhou district of Guangzhou. The first 7.7 km, 10-stop section will link Canton Tower and Wanshengwei and is due to open in late 2014



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## Ultra capacitor energy storage offers metro operators 20% savings



03 Mar 2014

SOUTH KOREA: Metro operators in Seoul, Daejeon and Incheon have achieved power savings of more than 20% using ultra capacitor braking energy recuperation technology, according to ultra capacitor manufacturer Maxwell Technologies.

Up to 200 Maxwell Technologies 48 V multi-cell ultra capacitor modules are installed in 750 V and 1.5 kV energy recuperation systems which Woojin Industrial Systems has supplied for seven metro stations, as well as the Korea Train eXpress depot in Seoul. These follow an initial demonstrator installed in Seoul in 2009 under a contract awarded by Korean Railroad Research Institute. Additional installations are planned for 2014-15.

The ultra capacitors have been found to operate reliably in temperatures from -40°C to 65°C, and through more than 1 million charge/discharge cycles. 'Ultra capacitors' rapid charge and discharge capabilities make them the most efficient option for energy storage and power delivery in braking energy recuperation systems,' according to Dr Eun K Lee, Vice-President at Woojin Industrial Systems. 'In addition to being highly efficient in recycling energy that otherwise would be wasted, Maxwell's ultra capacitors operate reliably in low and high temperature environments and have met our expectations for long operational lifetime.'

Courtesy : Railway Gazette