

New technology light-weight electric buses charge while operating

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Helsinki Region Transport and VTT Technical Research Centre of Finland Ltd will launch an extensive joint pilot to introduce highly efficient light-weight electric buses. Buses have technology to charge their batteries in operation, in the capital region. Helsinki region with its demanding climatic conditions is an excellent test platform. This is the first extensive pre-commercial pilot project enabling a new mode of operation and service piloting in demanding conditions. The first buses, acquired from Linkker Ltd, will be in service by late summer.

Helsinki Region Transport (HSL) will purchase 12 electric buses from Linkker, the first of them built individually in Linkker's own production facilities. Linkker was founded about a year ago as a spin-off of the eBus project coordinated by VTT.

"We made an exception and bought the buses ourselves, because it would have been unreasonable to have a transport operator shoulder the technology risks of individually made electric buses," says Reijo Mäkinen, Director of HSL's Transport Services.

This arrangement also enables HSL to test and develop new passenger services on their own buses and try out various installations.

The Finnish-made bus is light with quickly rechargeable batteries

"The bus frame will be made fully out of aluminium. Thanks to their light weight, the buses will also be extremely energy-efficient. The batteries will be quick-charged at the terminal. Other benefits include zero emissions and quiet operation," says Linkker's Managing Director Kimmo Erkkilä.

The buses will be delivered in stages and their performance will be evaluated in VTT's chassis dynamometer. The buses used in the pilot will be equipped with sensors to collect data, and a real-time monitoring and control system will be developed to receive information about battery charge levels, as the amount of energy and charge in the batteries is critical in terms of the operation of the buses.

The acquisition of electric buses is part of a wider four-year development project for innovative and emission-free bus transport in order to create the infrastructure and operating network for the introduction of new technologies. The project's objectives are to pilot the [electric bus](#) system, to create more detailed electric bus specifications and to introduce the idea of electric buses to bus operators.

The project also acts as a development platform for innovation, and other cities and commercial operators are expected to join in.

"HSL has made a genuine "catalytic acquisition" to speed up the electrification of bus transport systems. VTT has been involved in the development of electric buses right from the start, and we are pleased to say that Finland is creating an international reference for electric buses," says Nils-Olof Nylund, Head of VTT's TransSmart research programme.

HSL's target is to reduce carbon dioxide emissions and harmful local emissions from bus transport by over 90% by 2025. In order to reach this target, HSL has to implement electric buses, new low-emission

diesel vehicles and biofuels.

Provided by VTT Technical Research Centre of Finland

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