

## Hybrid buses improve air quality in Hanoi

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Siemens and the Vietnam Motors Industry Corporation (Vinamotor) are launching the first hybrid bus with a combined electric/diesel drive in Hanoi. The project is the first of its kind in Vietnam. The vehicle uses the ELFA drive system developed by Siemens, in which the diesel engine does not drive the rear axle via an automatic transmission, as is usually the case. Instead, a generator is activated which supplies one or more propelling motors with electricity via power electronics. The buses consume up to 50 percent less fuel and reduce exhaust emissions by the same amount.



Public transportation is one of the biggest challenges for Vietnamese cities - and many other metropolises in Asia. Their populations are growing rapidly and, at the same time, city <u>buses</u> are often the only form of mass transit. The buses add significantly to <u>air pollution</u> and have high <u>fuel costs</u>. Over the long term, purely electric drives will help, but the battery technology today is still relatively expensive. Because the vehicles stop frequently at traffic lights and bus stops, hybrid drives that combine diesel engines and electric motors are an excellent choice for city buses.

In the ELFA system developed by Siemens, the electric motors act as generators during braking and feed electricity back into an energy storage unit. The bus can use this energy to run entirely on electric power for stretches at a time and thus with <u>zero emissions</u>. Depending on the capacity of the energy storage unit, the range is between several hundred meters and several kilometers. The bus operates more efficiently, emits less exhaust and is quieter because the diesel engine does not rev up during acceleration.

Buses with ELFA drive technology have been in operation in various cities around the world for a number of years, including London, Munich and Nuremberg. In Vietnam, Siemens has been working together with the bus manufacturer, Vinamotor, since 2012 to integrate the technology into its buses. The first prototype recently went into service in Hanoi. In a three-month test run, an international team of technical experts from Siemens is currently optimizing the bus for the requirements of Vietnamese environmental and operating conditions. At the end of this phase, series production of the hybrid buses will begin with Vinamotor.

Provided by Siemens



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