Juiced roads: Volvo explores electric power for trucks, buses

June 18 2013, by Nancy Owano

(Phys.org) —How are engineers doing in solving the problem of large-sized all electric transport vehicles traveling long distances without the burden of large batteries? One workaround that has been the topic of much discussion is the use of power lines that are built into the surface of the road. The Volvo Group has issued its state of progress and says it has come a long way in its research but that there's still work and planning decisions ahead. The goal is to find a cost-efficient way to

supply electricity to vehicles in long-distance traffic. Work continues on technical development of the collector, electric motor and control systems, not to mention issues of road construction, road maintenance, electricity supply along the roads and payment models. Translation: You won't see long-distance buses using this method any time soon.

The Volvo Group nonetheless cannot stop its research momentum for a sustainable transport solution to a problem of a long distance vehicle obtaining its energy supply while on the road.

A plug-in bus equipped with battery is all well and good if it can be charged quickly when the buses are at bus stops but that is not the scenario for long-distance hauls where stops are not frequent. To cope with the task, say experts, they would need so many batteries that there would be no room for any passengers. The Volvo Group is engaged in a Swedish research project to find solutions for this, with the support of the Swedish Energy Agency. The project includes the Swedish Transport Administration, Vattenfall, several universities, vehicle manufacturers and suppliers.

They are working on a method where power is continuously supplied to the vehicle from an external source—in the form of power lines built into the surface of the road. Along with a power and transport firm, Alstom, the company built a 400 meter-long track at a facility in Hällered near Gothenburg. They are testing a special collector fitted to a truck. The collector draws power from the rails installed into the road surface.

Specifically, two power lines are built into the surface of the road along the entire length of the road. The power line is designed in sections; live current is delivered to a collector under or at the rear of the truck if an appropriate signal is detected.

According to Richard Sebestyen, project manager at Volvo Group Trucks Technology, the electricity flows into a water-cooled heating element, with similar power requirement as an electricity-driven truck.

More information: via Volvo