Where there’s a political will, there’s a way

Author: Christopher Evans, MindsinMotion.net<christopher.evans@mindsinmotion.net>

It is green and wants to conquer the Earth. Is Ultra-Light rail something out of a science fiction movie?

F068 Image 1

Imagine there was a public transport system that could be powered by any locally-produced sustainable energy, was cheaper to install than conventional trams and could carry more people per driver than a bus. Maybe one day, in some far off eco-friendly future?

Not so. Clive Hinchcliffe, business development manager at sustainable transport consultancy Sustraco, says it already exists: Ultra-Light rail (ULR). Sustraco, or Sustainable Transport Company to give it its formal name, is on a mission to bring ULR to the world. But so far, the world isn’t really listening.

Enough talking

Sustraco is actually a group of companies from the UK, Belgium and Hong Kong. It promotes ULR systems through its website and visits as many sustainable transport conferences as it can to get the word out. It’s also project managed a study on the use of fuel cells in light trams for the UK’s Carbon Trust. But now it’s had enough of talking and research. What it really wants to do is design and install these systems.

“Our goal is to convince a city somewhere in the world to install a major system,” Clive tells *MindsinMotion.net*.

The cradle

Sustraco was born out of a pilot of ULR in Bristol, England, with the ULR technology itself pioneered by Bristol Electric Railbus Ltd (BER).

Between 1998 and 2000, a demonstration ULR service ran along the Bristol Harbourside carrying a total of fifty thousand fare-paying passengers. When the demonstration showed ULR could be commercially viable, BER’s chairman James Skinner founded Sustraco in order to show the

whole planet.

F068 Image 2

Versatility
The Bristol vehicle was powered by green electricity supplied from the grid and ran on energy stored in a flywheel (see 'technical talk' below). Clive says this showcases one of the benefits of ULR, its versatility when it comes to fuel.

“The type of fuel used depends on the local supply of sustainable energy and the budget available. In Brazil they produce an awful lot of ethanol from sugar, so that’s an option there,” says Clive.

Clive explains that ULR is low-cost because it often does not require any external electrification. He says it’s easier to route and does not require the relocation of services, such as electricity, gas or water. What’s more, it can carry more people per driver and uses less energy per passenger than a bus. All in all, he claims ULR costs between 30 and 75 per cent less than standard light rail systems.

Balls
But the Bristol pilot was nearly a decade ago, and still ULR has not taken over the world. So what’s stopping it? Political balls, says Clive, or lack of them.

One project that looked like it would get up and running was the installation of a ULR tram system in the seaside Greek town of Kalamata. The local council had agreed to purchase and install a ULR system, but funding was pulled and diverted to Athens for the Olympic Games.

Bristol City Council has not gone ahead with a full-time ULR system because government policy is to promote bus services, says Clive.

“Government policy is a big hurdle and it does not help that transport ministers get changed like socks. We’ve been to see three different transport ministers and each time they did not even know what the previous postholder had said to us. It’s like starting from scratch every time,” he explains.

Clive says in the UK alone there are at least two hundred cities and towns that could support a ULR system, but local authorities lack the power – or the will – to press ahead.

“Once somebody has tried the system, we believe it will go up like a balloon and there will be no stopping it,” Clive says. But for now, he’s still waiting for a bit more political puff to get ULR inflated.

Technical talk

ULR has two axles, both of which are powered by a permanent magnet motor under IGBT converter control. Two flywheel energy storage units are housed under the floor which supply the main acceleration power and absorb the brake energy.

The flywheels are rapidly charged at stops at five hundred metre intervals from a seventy volt direct current (DC) supply. Optionally, the flywheel charge can be maintained by a small on board generator which can be a hydrogen fuel cell or another sustainable fuel, giving unrestricted autonomous range between refuelling.