

Fact Sheet

Environmentally Friendly Transport – Ultra Light Rail (ULR)

Intermediate Public Transport – Investment in urban public transport is currently focused almost exclusively on either Conventional Light Rail (CLR), which is clean but expensive, or on diesel buses, which are cheaper than CLR, but polluting. Ultra Light Rail is both clean and low-cost – as well as being more popular than buses with the public. Climate change and energy security are environmental imperatives which will make the replacement of diesel buses with clean, low-cost, energy efficient light trams an unavoidable necessity in the near future. The sooner this happens the better for the climate and for the economy. This change can be achieved relatively quickly and economically by using existing technology, in a novel form, to create a new public transport system in the form of Ultra Light Rail. Given the necessary resources, a demonstration fuel cell powered vehicle can be in operation within one year.

The diesel bus is the standard form of public transport used in urban areas, except where dense population and heavy traffic justify the use of Conventional Light Rail, at a cost of £10-15 million per route kilometre (eg Croydon, Nottingham etc). However the urban diesel bus is incompatible with stated Government policy on environmentally friendly transport and will have to be replaced sooner or later. Ultra Light Rail (ULR) has been specifically designed to replace urban diesel buses, thus providing the following principal advantages:

1. **Pollution** – diesel buses are a major source of urban pollution. Diesel fuel for buses in UK is subsidised by Government at the rate of £1 million per day (£365 million per annum). Buses contribute to rising toxic transport emissions, which cause 24,000 people to die prematurely in UK every year. ULR trams have low (hybrid electric) or zero emissions (with fuel cells).
2. **Carbon** – if UK is to meet its international climate change obligations to reduce carbon emissions from transport then diesel buses will have to be phased out.
3. **Energy security** – dependence on fossil fuels will also need to be phased out as demand for oil overtakes supply and prices rise and become more volatile over the next ten years. The obvious substitutes for buses are fuel cell powered trams, pioneering the way to fuel cell cars.
4. **Energy Efficiency** – zero-emission electric vehicles, using fuel cells or batteries, require high levels of energy efficiency to be economic. Trams running on steel wheels on steel rails are at least three times more energy efficient than buses running on rubber tyres on tarmac
5. **Vehicle Costs** – light ULR trams, with on-board power source and without continuous electrification, are comparable to buses in cost, but trams are normally amortized over 30 years as compared with 8-13 years for buses, because of their less demanding duty cycle and smooth running on rails.
6. **Operating Costs** – the relatively low power requirement of energy efficient light trams reduces fuel consumption, thereby reducing operating costs.
7. **Infrastructure Costs** – light-weight trams with on-board power do not require heavy substructure or continuous electrification, thus reducing costs per route kilometre to around £1 million only (cf guided busways at £3 to 4 million per route kilometer or CLR at £10-15 mprk).
8. **Market Appeal** – trams are more popular than buses, thus encouraging more people to leave their cars at home and use public transport.
9. **Urban Regeneration** – Trams play a vital part in urban regeneration by creating uplift in property values along the line of rail. This can largely compensate for installation costs.
10. **Pedestrianisation** – as pedestrian areas in city centers are extended trams will be needed to replace buses that are incompatible with pedestrianisation