

A COMPARISON OF TRAIN AND BUS ENERGY CONSUMPTION ON COMPARABLE IDEALISED JOURNEYS

To show the effect of basic vehicle parameters on specific energy consumption of passenger transport by train or bus, a comparison of energy consumption is made for idealised journeys of defined start to stop distance at defined average speeds.

The effect of the high tare mass of rail vehicles and the high rolling and aerodynamic resistance of road vehicles is that a breakeven journey distance can be shown to exist. For inter-city journeys, of over about 10km start to stop, the specific energy consumption per passenger kilometre is lower for a train than for a bus, at equivalent average speed and load factor. For suburban journeys however, the lighter bus can be more energy efficient where start to stop distances are short. The breakeven start to stop distance above which a train is more economic in energy varies from about 1km to 6k depending on journey speed.

The effects of reducing the mass of the train or the rolling and aerodynamic resistance of the bus are examined.