

**BUS RAPID TRANSIT AND NEW TECHNOLOGIES FOR FUELS AND POWER TRAINS****P. Danielsson***Environment Development, Volvo Bus Corporation, Gothenburg, Sweden*

Rapid urbanization and motorization in developing countries poses a challenge to quality of life and the environment. Fossil fuel depletion, climate change impacts, poor air quality and congestion are shared global problems to which the growing mega cities contribute. The most efficient route ahead is to promote public transport as a more sustainable alternative than expanded freeways and roads for cars, which has been the predominant solution thus far. Buses generally provide the most cost efficient means of public transport, affordable for the user as well as for society. This paper will address three key areas of development for bus-based public transport.

**Bus Rapid Transit:** Innovative approaches have been introduced primarily in Latin American cities in recent years, including the concept of Bus Rapid Transit (BRT), which offers a mass transport system with passenger capacities on par with a metro system. A BRT system will provide significant improvements in fuel consumption and emissions compared to a conventional bus system and even more so compared to transport with cars. Since investments in vehicles and running costs are low the operation can be self-supported relying only on the revenue from the tickets.

**New fuels for buses:** In order to evaluate fuels, an entire well-to-wheels (WtW) approach is needed, from feedstock, processing, distribution, storage and final use in the power train. Fossil fuels have a good WtW efficiency compared to many alternative fuels. There are a potential for fuels with a biomass origin. Among the longer term energy carrier's hydrogen has been highlighted but the WtW efficiencies are poor compared with today's fuels and technologies.

**New technologies for bus power trains:** There will be a rapid development of diesel engines during this decade that will reduce regulated emissions more than one order of magnitude compared to today's best diesel engines. The technologies employed to achieve this will include improved combustion in combination with advances in exhaust after-treatment. In order to enhance efficiency the use of hybrid propulsion where a diesel engine in combination with an electric machine and energy storage can provide significant energy savings. Fuel cells may prove to be an option but durability and cost remain hurdles for years to come.