DESIGN ASPECTS OF SUBURBAN RAILWAY ELECTRIFICATION

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By

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DECLARATION

The work submitted in this dissertation is the result of my own investigation, except where otherwise stated.

It has not already been accepted for any degree, and is also not being concurrently submitted for any other degree.

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Abstract

The highway transportation of Sri Lanka is becoming more and more time consuming due to road traffic congestion and becoming more expensive due petroleum fuel prices. Travelling by highway is a more stress full thing and it creates lots of fatigue on passengers. Use full time has to be wasted on the road without any productivity.

As a remedy for this burning issue, railway transportation is to be improved using modern technology and techniques. By improving railway transportation lot of direct and indirect benefits can be received.

Commuter will receive a comfortable travelling with minimized fatigue hence better productivity is the result in return. Reducing wasted man hours on travelling also will result to improve the productivity of the country. Properly scheduled train service will attract passengers using other modes of transportation. So it will automatically reduce the road traffic congestion and considerable amount of fuel can save by minimizing vehicles idling. Also it will reduce the road traffic accidents.

By using electrified railway system with regenerating facility big amount of energy can be saved without wasting. Alternative fuel such as heavy oil, coal or some times nuclear power in the future can be used to generate electricity and hence reduced the dependency of petroleum fuel. So long term train fare consistency can be expected.

In the view of environmental protection, electrified railways are the best environmental friendly transport mode compared to other modes of transport.

For this study only a part of the main railway line, Colombo – Polgahawela section is considered. From all relevant data extracted from railway department statistics, required numbers of Electro Motive Units (EMU) are decided and the study lead to financial considerations which emphasis the feasibility of the project.

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