

# **Energy efficiency in high speed train operation**

A.P. Cucala, A. Fernández-Cardador

**Abstract—** Reduction of energy consumption has become a global concern, and the EU is committed to reducing its overall emissions to at least 20% below 1990 levels by 2020. In the transport sector, measures are focused on planning, infrastructure, modal change, the renewal of vehicles and also programmes for efficient driving.

Factors such as the low friction wheel-rail that allows coasting for long distances, electric traction which may allow the use of renewable energy, a capacity to transport large numbers of people and the possibility of adapting the number of coaches to demand, make the railways an efficient mode of transport. Additionally, railway transport is a guided path transport mode which allows the existence of electrification and facilitates traffic control and the automation of drivin

## **Index Terms—**

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