Smart Technologies

Future Train Motive Power Technologies (R1.115)

Background

The imminent reality of a carbon-constrained and eventual post-carbon economy is of particular concern to rail given its reliance on carbon-intensive infrastructural systems such as the diesel locomotives and electric locomotives relying on largely coal-fuelled electricity. Given that transport looks likely to be included in the Carbon Pollution Reduction Scheme (CPRS), it is timely for the rail industry to gain a better understanding of the various alternative technologies and infrastructural systems that will enable it to position itself as an environmentally friendly and economically efficient transport mode.

Objective

This project aims to evaluate existing and emerging locomotive technologies and recommend environmentally and economically more efficient technologies that can be implemented by the Australian rail industry for a carbon-constrained environment.

Outcomes

This project will develop a detailed overview of emerging and existing technologies, and their potential utilisation. Models and criteria for assessing the efficacy and feasibility of new technologies, rationale for what infrastructural changes and conditions likely to be required to facilitate the implementation of more environmentally friendly and cost-effective technologies will be investigated.The project will evaluate options beyond emerging technologies including more radical versions of hybrid locomotives and systems and train traction/energy options with the view to ensuring sound decision making pertaining to locomotives and associated infrastructure into the future.

Benefits

The outcomes of this project will feed into the decision-making framework of the industry participants regarding locomotive technologies.

Project timeframe

1 January 2010 to 31 December 2010

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