

Public Summary of

D2.5. STUDY OF THE BUSINESS MODELS IN SCENARIO 3

What is MERLIN?

MERLIN is a collaborative project funded under the European Commission's 7th Framework Programme on Research and Development. MERLIN started on 1st October 2012 and will last 36 months.

MERLIN's main aim and purpose is to investigate and demonstrate the viability of an integrated management system to achieve a more sustainable and optimised energy usage in European electric mainline railway systems.

What are the issues at stake?

Energy management is a key issue for railway systems and this situation will continue to be prominent for the foreseeable future. Multiple operational scenarios add complexity to the development of suitable and appropriate energy management solutions. Moreover, existing assessment tools lack an integrated approach, and tend to omit the variation in emission levels, energy usage and associated costs resulting from differing traffic peaks.

Given that the railway system is a complex and interconnected system, a single supplier, operator or infrastructure manager (as large as they may be) cannot

tackle the energy management issue for the entire network alone. Hence, only through a collaborative approach such as **MERLIN** can effective solutions for this issue be developed. Appropriately, the **MERLIN** consortium brings together the key rail stakeholders from across Europe.

What are MERLIN's main achievements?

- Proposals for technical recommendations (UIC/UNIFE TecRec) on Specification and verification of energy and power consumptions of railway systems and on Energy and power related information protocols at operational level;
- Future business models & recommendations (smart energy management, cost saving);
- Optimised solutions for current and future business models;
- Reference architecture and interfaces related to a strategic support tool and operational energy management tool which supports real time suggestions to network actors.

Public summary:

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The development of electrical railway smart grid technologies will improve the controllability of the elements of the railway power systems (such as trains, substations, DESSs, ESSs, etc.), enabling them to respond more effectively to the day-to-day events (delays, failures in the equipment, changing weather conditions, changes in the power supply, etc.). These technologic advances will favour the emergence of a new paradigm in the management of railway power systems, with new roles for the agents, new activities and new business models. From a conceptual point of view, these changes in the business models are described in deliverable 2.4.

This document aims to illustrate, based on a specific case for which power and energy measurements are available (Scenario 3), the main cash flows related to these business models. Different cases, which correspond to different degrees of implementation of the technologies and different national regulations, are envisioned and, for each of them, the main cash flows are calculated based on different hypothesis.

In addition to this summary, the document has ten sections. Section 2 describes the main activities existing in the energy management in railways. Section 3 briefly characterizes the main aspects of Scenario 3. Sections 4 to 9 describe the results of this analysis in six different cases. Finally, Section 10 summarizes the main conclusion of this work.

As a summary, the results obtained for these study cases analysed in this deliverable show that the biggest savings can be achieved when the energy consumption and power peak minimization is carried out, especially, when combined with the optimization of the energy procurement.

More information

To know more on the MERLIN project, please visit <http://www.merlin-rail.eu>.