Railenergy

Energy Efficiency Days 2009

Panel 3 – Innovative Energy Efficient Trackside

Analysis on EE for Electric Traction Systems

Luca Trinca & Claudio Spalvieri
RFI spa - Italy

nitel Consorzio Nazionale Interuniversitario per i Trasporti e la Logistica

ALSTOM

RFI RETE FERROVIARIA ITALIANA
GRUPPO FERROVIE DELLO STATO

UIC

SIEMENS

VUZ

SP3 TRACKSIDE : Scope & Objectives

SP3 “Track side” focuses on the Energy Efficiency in fixed installation due to reduce the of losses in the distribution system (ESS, OCL, …)

Electrical Sub Station

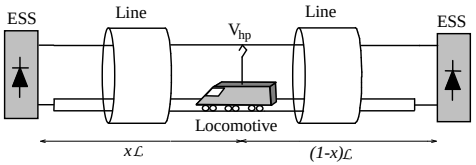
Contact line systems

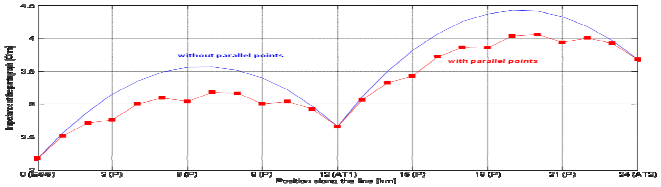
Mathematical models and software simulations

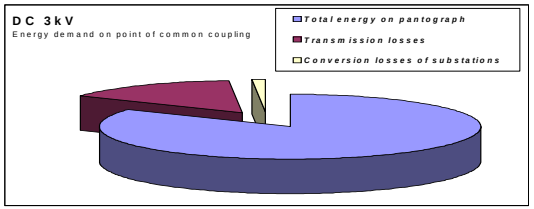
Development of components and devices

Activities performed & Status

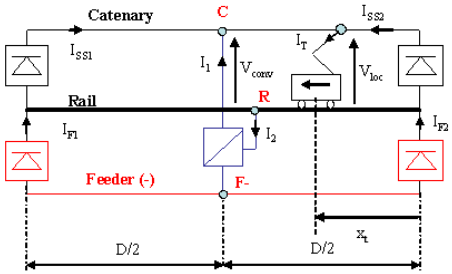
- Mathematical analysis, quantification, measures and tests of the present energy efficiencies







- New components, techniques with the same pantograph voltage



- New components, techniques even changing the pantograph voltage

Results Achieved - 1

- Complete set of energy models for conventional and innovative railways power infrastructure systems
- Simulations of different models as basis for the most promising solutions
- Provision of Data required by other Railenergy partners
- Tests and validation of the models & simulation on real track

Results Achieved - 2

- Technical specification (design and prototyping) of the different technologies and devices such as DC recovery ESS, 2x1.5 kV feeding system, asymmetric systems

- Joined technical report about innovative (highly loaded) overhead contact lines

- Specification, taken from simulation, for new feeding architectures for AC and DC traction systems

Next Steps – Possible implementation

- finish the complete reconfiguration to an asymmetrical system [25kV; 0; -50 kV]
- evaluate the possibility to modify the feeding train voltage
- extension to other voltage level of the former investigations for the twice feeding systems (e.g. 750 and 3000 V dc)

Common European Standard on Energy Efficiency on power supply feeding system for railways !!!