GLOBAL VIEW on OSIRIS

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Introductive Summary

Energy optimization & management in Urban Rail system:
a complex issue, almost a science, yet in its infancy

- OSIRIS directly benefited from knowledge of "pioneer experts" in the field with the Operators the Industry the Universities.
- OSIRIS system approach, including the thermal side : put finger on numerous unknowns especially in the way elements of the system interact with each other.
- OSIRIS greatest achievement ? Probably the close link established between saving claims of all experiments, ideas, models and reality of benefits in the field

Achievements (1)

Structured "energy oriented network data base"
encompassing data from over 10 operators

- A most useful tool when trying to extrapolate benefits of an innovation to an array of local situations

10 Key Performance Indicators

- With an insight into each sub system (trains, stations & technical rooms, tunnels, energy supply) all within their environment
- KPIs allow each operator to both monitor evolution of its performance over time and to compare and wonder about differences with others;

Achievements (2)

Definition of modular duty cycles

- Combining approached developed for Urban Transport busses and main line Rail perspective
- Accurate approximation almost any real Urban Rail line performance by combining elementary reference modules.
- As industry will progressively benchmark its products to those reference modules, a remarkable tool for operators to compare offers in their own specific environment.

Global "holistic" model including the thermal dimension & integrating existing energy/performance models

- Revealed both the considerable potential and the difficulties of such exercise

Technical Analysis of results

Every innovation whether technical or operational

- Analyzed along the very same structured process
- Results evaluated for at least one and, in most cases, two different real environments

The often impressive individual figures for each specific innovation combine to approach the overall OSIRIS target of savings

=> See individual presentations

Global View => Trustfull figures

	Savings *in ref. to each innovation's own area*	**Savings** *in ref. to total system for an entire year*
Technical innovations on board and ground (3)	**5% to 80%**	**5% to 6%**
Operational innovations ground systems exclusively (8 only considered here)	**11% to 80%**	**1,7% to 4,6%**
Operationnal capacity management (1)	**3%**	**2,3%**
TOTAL (aft. elimination of non cumulative solutions/figures)		**8.2 to 12.1%**

10 GWh for Istambul , **50** GWh for Paris , **15** GWh for Milan

Technical solutions alone do not ensure effective energy savings !

<u>Operators and Industry appreciation capability are esssential</u>

Are investments into specific energy saving innovations worth effort in developing and implementing each of them ?

⇒Approached in each innovation presentation

⇒A whole session on the matter in the afternoon

Thanks for your attention !