

# Innovative transmission system technologies for effective development of pan-European grid infrastructures

## Presentation of intermediate results

### Background

REALISEGRID is a research project led by ERSE S.p.A. (former CESI RICERCA) and co-funded by the Directorate-General Energy and Transport of the European Commission within the 7<sup>th</sup> Framework Programme for the research and technological development.

The ultimate objective of REALISEGRID (<http://realisegrid.cesiricerca.it>) is to develop a set of criteria, metrics, methods and tools to assess how the transmission infrastructure could be optimally developed to support the achievement of a reliable, competitive and sustainable electricity supply in Europe.

The activities of REALISEGRID are based on the following pillars:

- identification of technical performances, economic benefits and costs of novel technologies aimed at increasing capacity, reliability and flexibility of the transmission infrastructure
- definition of long term scenarios for the European power sector, characterized by different evolutions of demand and supply, such as the integration of a large amount of intermittent renewable energy sources (e.g. wind power), meeting specific targets concerning security of supply and sustainability
- implementation of a framework to facilitate harmonisation of pan-European approaches to electricity infrastructure evolution and to evaluate benefits of transmission investments

The aim of the analysis of transmission system technologies is:

- to scan the technology options that will be made available to European transmission operators in the future years;
- to identify their effectiveness and efficiency at guaranteeing reliability and controllability of the increasingly interconnected European transmission system;
- to infer the impacts of the use of such innovative technologies on the power system;

- to analyse optimal methods of synchronous and joint operation for the improvement of stability and reliability of the pan-European power system;
- to develop a roadmap for the incorporation of new transmission technologies in the electricity grids.

During the first year of work, a selection of innovative technologies has already been identified as promising for transmission systems in the next twenty years. A filtering methodology is proposed to single out the most suitable ones, as seen by the four TSOs members of the REALISEGRID consortium and validated by an international Board of prominent stakeholders.

This methodology will serve as an entry point for an integrated cost-benefit analysis of grid expansion options. This evaluation, highly dependent on local contexts, will be carried out during the second phase of the activities.

### Structure

The morning session of the workshop will focus on the intermediate results obtained after one year of REALISEGRID development on innovative technologies for transmission systems. Cross-cutting issues raised by such innovations will be discussed during the afternoon session.

The presentations will be made by the following partners of the REALISEGRID Project:

- Technofi S.A. (France), leader of the transmission technology work package
- European Commission - DG Joint Research Centre (JRC) - Institute for Energy (The Netherlands)
- PRYSMIAN POWERLINK S.r.l. (Italy)
- R&D Center for Power Engineering (Russian Federation)
- Technische Universität Dortmund (Germany).

## Provisional programme Paris, 1 October 2009

### Morning session

9 a.m.	<b>Introduction and objectives of the workshop (Technofi)</b>
9:15 a.m.	<b>The studied list of promising innovative transmission system technologies (Technofi)</b>
10 a.m.	<b>Underground transmission cables: benefits and performances (Prysmian)</b>
10:45 a.m.	Coffee Break
11 a.m.	<b>Improving network controllability by FACTS and HVDC (JRC, Technische Universität Dortmund)</b>
12 a.m.	<b>Interconnection of the IPS/UPS system with UCTE (R&amp;D Center for Power Engineering)</b>
12:30	Lunch Break

### Afternoon session

2 p.m.	<b>Brainstorming sessions on cross-cutting issues</b> <ul style="list-style-type: none"><li>• Tentative approaches to quantify the <b>reliability</b> of innovative technologies</li><li>• <b>Interoperability</b> of critical technology components: how to make European standards emerge?</li><li>• <b>Environmental issues</b> of innovative transmission technologies</li></ul>
4 p.m.	End of the workshop

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for effective development of pan-European grid infrastructures

**Workshop registration form**  
**Paris, 1 October 2009**

**First name**

**Last name**

**Organisation**

**Official  
occupation**

**Tel. number**

**E-mail address**

**Address**

Please send the filled-in registration form to TECHNOFI by e-mail ([svaugelade@symples.eu](mailto:svaugelade@symples.eu))  
or by fax : +33 493 65 27 16

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