



<h1 style="margin: 0;">iTesla</h1> <p style="margin: 0;"><b>Innovative Tools for Electrical System Security within Large Area</b></p>			
<b>Grant agreement number</b>	283012	<b>Funding scheme</b>	Collaborative projects
<b>Start date</b>	01.01.2012	<b>Duration</b>	48 months
<b>Call identifier</b>	FP7-ENERGY-2011-1		

## Deliverable D8.2.2:

### Workshop materials and training materials for the use of the toolbox - Year 2013

Dissemination level		
<b>PU</b>	Public.	<b>X</b>
<b>TSO</b>	Restricted to consortium members and TSO members of ENTSO-E (including the Commission Services).	
<b>RE</b>	Restricted to a group specified by the consortium (including the Commission services).	
<b>CO</b>	Confidential, only for members of the consortium (including the Commission services).	

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## 1. Introduction

The purpose of the present deliverable is to introduce and make available to all interested parties the dissemination material that was developed and used during year 2013 in order to promote the iTesla project and the preliminary results produced.

### 1.1 The iTesla project

The purpose of the iTESLA project is to develop an open interoperable toolbox which will support the future operation of the pan-European electricity transmission network by bringing forward a major innovation: carry out operational dynamic simulations in the frame of a full probabilistic approach, thus going further than the current “N-1” approach and optimizing the transit capacities of the grid at different spatial (national, regional, pan-European) and time (two-days ahead, day-ahead, intra-day, real-time) scales. This toolbox will allow transmission system operators

- to perform accurate security assessment taking into account the dynamics of the system using time-domain simulations,
- to provide a risk-based assessment taking into account the different sources of uncertainties (in particular those brought by intermittent power generation), the probabilities of contingencies and the possible failures of corrective actions.

Therefore, the developed toolbox will allow any TSO to take into account uncertainties, probabilities of contingencies, corrective and preventive actions, in their risk-based security assessments at national or/and pan-European level.

The toolbox will be available through an IT platform and will favour flexibility and openness in order to enable the integration of any relevant method, tool and result coming from other operational tools or R&D projects funded at EU level or elsewhere.

### 1.2 iTesla dissemination objectives

The main goal of the dissemination activities in Work Package 8 is the uptake of the iTesla toolbox by different stakeholders (mainly TSOs) by resorting to four different channels:

- Targeted dissemination workshops (WS) towards the TSOs within the EU27, regulators, equipment manufacturers, the academic community, and the Umbrella consortium<sup>1</sup>, aiming at the early adoption of the iTesla open simulation toolbox;
- Training sessions for TSOs, research centers, and equipment manufacturers, open to stakeholders outside the consortium, and to be held in 2015;
- Publications and contributions to conferences in Europe and worldwide;
- An Internet site providing information on the project to the interested stakeholders (equipment manufacturers, research centers, regulators, policy makers, etc.), and giving access to the dissemination material and public deliverables of the project ([www.itesla-project.eu](http://www.itesla-project.eu)).

In addition, WP8 also manages the preparation of the exploitation plan with the whole consortium, relying on a series of exploitation workshops and related activities.

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<sup>1</sup> A first common workshop has already been organized during in June 2012 at ENTSO-E premises in Brussels.

## 2. iTesla dissemination events in 2013

Two main dissemination events were organized by the iTesla consortium in 2013/early 2014:

- The first dissemination workshop dedicated to the TSO community, held in June 2013 in Brussels,
- The second joint workshop with the Umbrella consortium, held in January 2014 in Brussels.

The next two sections introduce the respective agendas of these events and the displayed material is given in Appendices 1 and 2.

### 2.1. First workshop towards the TSO community

The workshop targeting the TSO community, held on June 26<sup>th</sup> 2013 in Nice, aimed at introducing the challenges addressed by the iTesla project, its objectives and the technical approach to achieve them. The workshop gathered over 45 people<sup>2</sup>. The next table displays the full agenda of the workshop.

Time	Session	Speaker
<b>09:30 – 10 h15</b>	<ul style="list-style-type: none"> <li>• Welcome / Introduction</li> <li>• Security and risk assessment issues</li> <li>• Objectives and challenges of the iTesla project</li> </ul>	<ul style="list-style-type: none"> <li>• RTE</li> <li>• Coreso</li> <li>• RTE</li> </ul>
<b>10:15 – 11:15</b>	<ul style="list-style-type: none"> <li>• 1<sup>st</sup> challenge: to take into account uncertainties</li> <li>• Data mining techniques to extract knowledge from historical data</li> <li>• Solution implemented in the iTesla toolbox</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• RTE</li> <li>• Pepite</li> <li>• Imperial College</li> </ul>
<b>Coffee break</b>		
<b>11:30 – 12:45</b>	<ul style="list-style-type: none"> <li>• 2<sup>nd</sup> challenge: to take into account system dynamics</li> <li>• Solution implemented in the iTesla Toolbox</li> <li>• Validation of dynamic models and use of Modelica models</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• Statnett</li> <li>• Tractebel E.</li> <li>• KTH/AIA</li> </ul>
<b>12:45 h – 13:45 Lunch</b>		
<b>13:45 – 14:30</b>	<ul style="list-style-type: none"> <li>• 3<sup>rd</sup> challenge: provide operators with relevant proposals for preventive and corrective actions</li> <li>• Solution implemented in the iTesla toolbox</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• Elia</li> <li>• RSE</li> </ul>
<b>14:30 – 15:15</b>	<ul style="list-style-type: none"> <li>• Synthesis: global solution to the security assessment problem - Recourse to offline parallel computing</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• RTE</li> </ul>
<b>15:15 – 15:45</b>	<ul style="list-style-type: none"> <li>• Data management - Progress of work</li> <li>• Use cases for the toolbox validation</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• Quinary/RTE</li> <li>• INESC Porto</li> </ul>
<b>15:45 – 16:00</b>	<ul style="list-style-type: none"> <li>• Next steps – Future exploitation of the toolbox - Next workshops</li> <li>• Questions</li> </ul>	<ul style="list-style-type: none"> <li>• Technofi/RTE</li> </ul>

<sup>2</sup> A more in-depth analysis of the outputs of the workshop is given D8.3.2.

## 2.2. Second joint workshop with the Umbrella consortium

The 2nd joint workshop between the iTesla and Umbrella consortia, held on January 14th 2014 in Brussels (ENTSO-E premises), aimed at further strengthening the cooperation between the two projects. The event gathered over 80 people counting TSOs, equipment manufacturers and academics. The two projects respectively presented their achievements so far and the challenges ahead, and a first demo of the iTesla prototype platform with operational modules was performed by RTE in session.

The next table displays the full agenda of the workshop<sup>3</sup>.

Time	Session	Speaker
09.30	<b>Workshop opening - Welcome speech</b>	Chavdar Ivanov (Entso-e Secretariat's R&D team)
10.00	<b>iTesla Toolbox</b> <ul style="list-style-type: none"> <li>• Overview on and state of the iTesla project</li> <li>• General architecture of the security assessment process</li> <li>• Definition of security rules taking into account uncertainties and system dynamics</li> <li>• Demo of prototype modules</li> <li>• Validation of dynamic models and use of Modelica Models</li> <li>• Defense plan and restoration</li> </ul>	<ul style="list-style-type: none"> <li>• Christian Lemaitre, RTE</li> <li>• Jean-Baptiste Heyberger, RTE, Diego Cirio, RSE</li> <li>• Ioannis Konstantelos, Imperial College, Philippe Duchesne, Pepite</li> <li>• Geoffroy Jamgotchian, RTE, Massimo Ferraro</li> <li>• Luigi Vanfretti, KTH/ STATNETT</li> <li>• Poul Sørensen, DTU, Regina Llopis Rivas, AIA</li> </ul>
14.00	<b>Umbrella Toolbox</b> <ul style="list-style-type: none"> <li>• Overview on and state of the Umbrella project</li> <li>• Modeling uncertainties relevant for the operation of the European transmission grid</li> <li>• Optimization algorithms for transmission system operation</li> <li>• Risk-based Security Assessment incorporating Forecast Uncertainty and Cascading Events</li> <li>• Toolbox Requirements based on TSO Demands and Testing Environment</li> </ul>	<ul style="list-style-type: none"> <li>• Dr. Wulf A. Engl, Helmut Paeschke</li> <li>• Raik Becker, Prof. Christoph Weber</li> <li>• Jonas Eickmann, Tobias van Leeuwen</li> <li>• Thilo Krause, Frauke Oldewurtel, Line Roald</li> <li>• Peter Gilsdorf, Dr. Simon Krahl, Michael Rogge, Oliver Scheufeld</li> </ul>
16.45	<b>Conclusion</b>	Irene Bonvissuto (European Commission DG Research & Innovation)
17.00	<b>Close</b>	

<sup>3</sup> A more in-depth analysis of the outputs of the workshop is given D8.3.2.

## **APPENDIX 1: Presentations of TSO workshop, 26 June 2013**

All presentations can be downloaded in a single zip file [following this link](#), or the iTesla website on the following page: [http://www.itesla-project.eu/public\\_files](http://www.itesla-project.eu/public_files) .

## **APPENDIX 2: Presentations about Itesla, joint workshop with Umbrella, 14 January 2013**

All presentations can be downloaded in a single zip file [following this link](#), or the iTesla website on the following page: [http://www.itesla-project.eu/public\\_files](http://www.itesla-project.eu/public_files) .