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**608540**

Project acronym:

**GARPUR**

Project full title:

**Generally Accepted Reliability Principle with  
Uncertainty modelling and through probabilistic Risk assessment**

**Collaborative project**

**FP7-ENERGY-2013-1**

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**D10.6.1**

**Training implementation**

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Dissemination Level		
<b>PU</b>	Public	X
<b>PP</b>	Restricted to other programme participants (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)	



<b>Deliverable number:</b>	D10.6.1
<b>Deliverable short title:</b>	Training implementation
<b>Deliverable title:</b>	Training implementation
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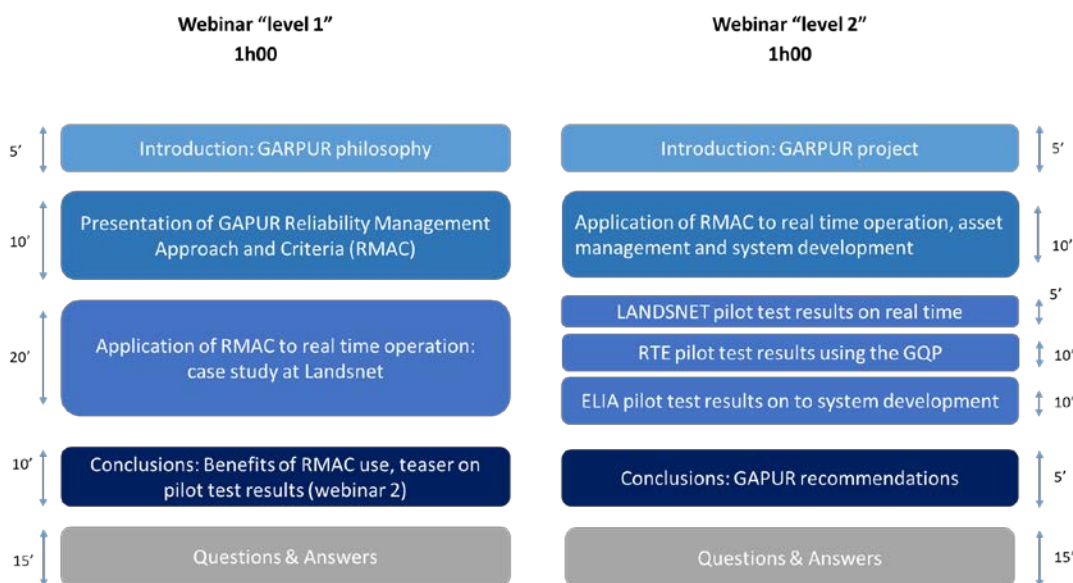
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# 1 INTRODUCTION

This report results from task 10.6 “Training delivery” led by TECHNOFI, aiming to implement the training programmes developed in task 10.5.

The training concept and program are described in deliverable D10.5.1. In brief:

- The key targeted audience for the training **are reliability concerned experts within TSO organisations**, in particular team leaders, heads of operational planning and operations, as well as R&D managers, as future adopters and promoters of the concepts and tools developed in GARPUR. The research community active in the field of power systems reliability management is also a relevant audience, as they should be involved in the further development of the related principles and tools.
- The training objectives are to **transmit the main concepts** developed in GARPUR, **demonstrate the benefits of Reliability Management Approach and Criteria (RMAC), and motivate towards the adoption and further development** of the principles and tools developed in GARPUR.
- The training format is a set of two 1-hour webinars that progressively introduced the project approach and results. The 1-hour format was imposed by LEONARDO ENERGY, organisation operating the ISGAN Academy webinars. Session 1 focuses on an introduction on Reliability Management Approach and Criteria and a first application to real time, session 2 is more dedicated to the pilot test results and the project recommendations.



## 2 OPPORTUNITY OF TRAINING IMPLEMENTATION THROUGH ISGAN FRAMEWORK

A networking opportunity between EU projects (GARPUR, Best Paths, PROMOTioN & MIGRATE) and with ISGAN Annex VI representatives took the form of a meeting organized by Red Electrica de España in Barcelona on 17<sup>th</sup> November 2016 upon a suggestion of the EC project officer. TECHNOFI as WP10 leader participated to the workshop with the intention to widen the GARPUR dissemination to a wider European audience<sup>1</sup>

The bilateral discussions between representatives of ISGAN Annex 6 - International Smart Grid Action Network- and the GARPUR dissemination team resulted in an opportunity to perform the GARPUR webinars in the framework of ISGAN webinars program, performed within the LEONARDO ENERGY platform. This meant, opening the GARPUR training to a much wider audience than initially considered – wider in terms of geographic repartition, type and number of participants - in order to maximize GARPUR training's impact.

These discussions led to agree on the organisation of two GARPUR webinars to be held in the framework of the ISGAN ACADEMY program managed by Comillas University: these webinars can have a technical content, but their duration must be limited to 1 hour. This seemed appropriate to present the GARPUR principles and test results, following the progressive approach developed above.

The next sections describe these two webinars implemented with ISGAN ACADEMY.

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<sup>1</sup> In continuation of the dissemination workshop of the CIGRE event in Paris on August 24<sup>th</sup> (with European and non-European participants)

### 3 WEBINAR SESSIONS

**Webinar 1 was held on May 23<sup>rd</sup> 2017, 2 pm CET.**

The webinar introduction can be read on the following page: [http://go.leonardo-energy.org/170523ISGAN27\\_Join.html](http://go.leonardo-energy.org/170523ISGAN27_Join.html).

The agenda and speakers are presented in the table below.

Slot in webinar 1	Duration	outline	Proposed speaker
Introduction: GARPUR philosophy	5'	<ul style="list-style-type: none"> <li>Project &amp; consortium presentation</li> <li>Webinar agenda</li> </ul>	Oddbjørn Gjerde
Description of the methodology	10'	<ul style="list-style-type: none"> <li>Limits of today's N-1 approach</li> <li>Challenges addressed by GARPUR</li> <li>The RMAC principles and potential benefits</li> </ul>	Louis Wehenkel
Application of RMAC to real time operation: case study at Landsnet	20'	<ul style="list-style-type: none"> <li>RMAC applied to real time</li> <li>Landsnet pilot tests presentation</li> <li>Preliminary results of pilot tests</li> </ul>	Samuel Perkin
Conclusions: Benefits of RMAC use, teaser on GQP	10'	<ul style="list-style-type: none"> <li>Synthesis on the benefits of the RMAC approach</li> <li>High level description of GQP functions and use</li> <li>Teaser for second webinar: introducing the other pilot tests</li> </ul>	Louis Wehenkel
Questions and answers	15'	<ul style="list-style-type: none"> <li>Questions and answers</li> </ul>	all

The pdf presentations and the video recording of the webinar are available at the following page: <http://www.garpur-project.eu/news/recordings-and-slides-of-the-garpur-webinar-on-tso-reliability-management-available>

182 people registered to the webinar, including contacts from IEEE, REN, RTE, STATNETT, NATIONAL GRID, Iberdrola, and numerous European Universities. Some contacts came from the US, Russia, Middle East, North Africa, Latin America, Asia, Australia. Let's note that most registrants use personal email addresses and do not mention their organisation, which prevents from getting an overall picture of the audience.

59 "live" connections to the webinar were registered. Unfortunately, the web infrastructure of Leonardo Energy does not allow to learn about the profile of the connected people. At least, the chat feed allowed to acknowledge the attendance of people from ITT Bombay, MIT Energy Initiative, Statnett, National Grid,



Reykjavik University, Promaps Technology, Landsnet, GE Software Solutions, 'Sapienza' University of Rome, RSE, RTE, Ural federal university of Russia, Nazarbayev University of Astana in Kazakhstan.

Nor is there any statistics available on the people looking at the recorded webinar afterwards.

**Webinar 2 was held on October 2<sup>nd</sup> 2017, 2 pm CET.**

The agenda and speakers are presented in the table below.

The webinar introduction can be read on the following page: [http://go.leonardo-energy.org/171002ISGAN272\\_Join.html](http://go.leonardo-energy.org/171002ISGAN272_Join.html)

Slot in webinar 2	Duration	Outline	Proposed speaker
Introduction to GARPUR	5'	<ul style="list-style-type: none"> <li>Project &amp; consortium presentation</li> </ul>	Louis Wehenkel, ULG
Introduction to WP4,5,6	10'	<ul style="list-style-type: none"> <li>Application of the methodology to real time operation, asset management and system development</li> </ul>	Louis Wehenkel, ULG
LANDSNET pilot test	5'	<ul style="list-style-type: none"> <li>Presentation of the results of Landsnet pilot tests</li> </ul>	Guðjón Hugberg Björnsson, LANDSNET
RTE pilot test	10'	<ul style="list-style-type: none"> <li>Presentation of the results of RTE pilot tests</li> </ul>	Pascal Tournebise, RTE
ELIA pilot test	10'	<ul style="list-style-type: none"> <li>Presentation of the results of ELIA pilot tests</li> </ul>	Arnaud Vergnol, ELIA
Project Recommendations	5'	<ul style="list-style-type: none"> <li>Presentation of the results of Landsnet pilot tests</li> </ul>	Matthias Hofmann, STATNETT
Questions and answers	15'	<ul style="list-style-type: none"> <li>Questions and answers</li> </ul>	

The pdf presentations and the video recording of the webinar are available at the following page: <http://www.leonardo-energy.org/resources/1203/tso-reliability-management-a-probabilistic-approach-for-bett-599ae295248bc>

137 people registered to the webinar, and 40 “live” connections to the webinar were recorded.

## 4 CONCLUSIONS

These two webinars gathered a wide and diverse audience, and are considered a great success.

Three key success factors were identified:

- Relying on the ISGAN network, which is very large and extends worldwide, allowing a significant impact in terms of audience
- Using the LEONARDO ENERGY webinar infrastructure is a guarantee of quality in organisation and technical execution, including good guidance on how to prepare the webinar ppt.
- Promoting the event intensively on the social media participated to ensure a good European attendance.

Beside to the large impact in the dissemination of GARPUR results, this webinar approach therefore seems also relevant for future EU-funded projects of the H2020 programme, which intend to promote technical results in the field of power systems.