Project no.:
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

Start date of project: 2013-09-01
Duration: 4 years

D10.3a
Workshops proceedings and satisfaction questionnaires (first year)

Due delivery date: 2014-08-31
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TECHNOFI

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Dissemination Level		
PU	Public	x
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential , only for members of the consortium (including the Commission Services)	

Deliverable number:	D10.3a
Deliverable short title:	Workshops proceedings and satisfaction questionnaires (first year)
Deliverable title:	Workshops proceedings and satisfaction questionnaire exploitation for all the yearly interactive workshops occurring in WP10 (T10.3,T10.4 and T10.10)
Work package:	WP10 Dissemination and exploitation
Lead participant:	TECHNOFI

Revision Control			
Date	**Revision**	**Author(s)**	**Comments**

Quality Assurance, status of deliverable		
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Approved (Coordinator)	Oddbjørn Gjerde (SINTEF)	2014-08-29

Submitted		
Author(s) Name	**Organisation**	**E-mail**
Sophie Dourlens-Quaranta	Technofi	sdourlens@symple.eu

The research leading to these results has received funding from the European Union
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EXECUTIVE SUMMARY

To reach the dissemination objectives of GARPUR, several workshops are planned during GARPUR project lifetime, each targeting a specific audience:

- Transmission System Operators (project task 10.3),
- Regulatory bodies and policy makers (task 10.4),
- Impacted stakeholders: Distribution System Operators, power generators and technology providers (task 10.10).

During the first year of GARPUR (September 2013 – August 2014), two workshops were organised:

- A workshop towards TSOs, on 7 April 2014 in Brussels (ENTSO-E premises),
- A workshop towards regulatory bodies, on 30 June 2014 in Ljubljana (ACER premises).

These workshops allowed GARPUR partners to present the project and very first deliverables. Both TSOs and regulators expressed interest in the project and asked for further exchanges, in particular when GARPUR partners are able to present more technical aspects of their activities.

The presentations given at the two workshops can be found on the GARPUR website: http://www.garpur-project.eu/publications.

A third workshop, gathering the impacted stakeholders covered by task 10.10, is planned in fall 2014. The possibility to coordinate with other projects to jointly organize this workshop in order to maximize participation, combined with the (normal) lack of results of GARPUR during the first year of activities, led to postpone this workshop initially planned in M10 (June 2014).

First workshop towards TSOs

The workshop was attended by 35 participants, including 13 people representing 11 TSOs non partners in GARPUR and ENTSO-E secretariat.

Six presentations were given and were followed by questions and answers sessions:

- "Opening introduction - the overarching goals of the GARPUR project" by STATNETT,
- "Overview and organization of the GARPUR project" by SINTEF,
- "Functional analysis of probabilistic reliability management" by the Scientific Advisor (ULG),
- "Current practices for reliability management in complex systems: a review of drivers and barriers for new reliability standards" by AALTO,
- "Shaping the GARPUR quantification platform" by KUL,
- "The role of reference group" by STATNETT.

A satisfaction questionnaire was distributed at the end of the workshop and provided positive feedback and interesting remarks that will be taken into account for the next workshops.

First workshop towards regulatory bodies

At GARPUR's instigation, this workshop was co-organized with iTESLA and UMBRELLA projects. It was attended in total by 19 participants, including 3 ACER representatives and 4 NRAs representatives.

In conclusion for GARPUR, regulators demanded further exchange of views about the reliability criteria and the economic indicators. They asked the possibility to be involved in the discussions before new reliability criteria are finalized. They insisted that the next workshop (more technical) should be held as soon as possible. The next workshop towards regulators should therefore involve WP2 and WP3 partners and be held early 2015.

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1 INTRODUCTION

Dissemination activities are an important part of the GARPUR project. Objectives of dissemination activities are the following:

1. To convince the TSO community to implement a new reliability criteria to make the pan-European transmission network more flexible while keeping security at a socially acceptable level.
2. To convince policy makers and regulators to make the present pan-European transmission network reliability criteria evolve to increase its flexibility.
3. To involve other electricity market players (DSOs, generators, manufacturers) in the preparation of the future deployment of the project outputs.
4. To deliver the new project-based knowledge in a manner suited to meet the collected multi-stakeholder needs.
5. To stimulate the relevant players towards further demonstration activities to support the deployment of the new criteria according to an agreed road map.

Several workshops are planned during GARPUR project lifetime, each targeting a specific audience:

- Transmission System Operators (project task 10.3),
- Regulatory bodies and policy makers (task 10.4),
- Impacted stakeholders: Distribution System Operators, power generators and technology providers (task 10.10).

During the first year of the GARPUR project (September 2013 – August 2014), two workshops were organised:

- A workshop towards TSOs, on 7 April 2014, in Brussels (ENTSO-E premises),
- A workshop towards regulatory bodies, on 30 June 2014 in Ljubljana (ACER premises).

A third workshop, gathering the impacted stakeholders covered by task 10.10, is planned in fall 2014. Its proceedings will be covered by the next issue of this deliverable (D10.3b). The possibility to coordinate with other projects to jointly organize this workshop in order to maximize participation, combined with the (normal) lack of results of GARPUR during the first year of activities, led to postpone this workshop initially planned in M10 (June 2014).

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2 WORKSHOP TOWARDS TSOS

This workshop was held in ENTSO-E premises on 7 April 2014, the day before an ENTSO-E RDC meeting.

2.1 Attendees

The workshop was attended by 35 participants, including 13 people representing 11 TSOs non partners in GARPUR and ENTSO-E secretariat. The detailed attendance list is presented in Table 1.

Table 1 – Attendance list of the first workshop towards TSOs

Company name	Representative	email
TSOs non GARPUR partners		
AMPRION	Björn Wohlgemuth	bjoern.wohlgemuth@amprion.net
ELERING AS	Alexander Mazikas	Alexander.Mazikas@elering.ee
ENTSO-E	Ioannis Retsoulis	ioannis.retsoulis@entsoe.eu
ENTSO-E	Thong Vu Van	Thong.vuvan@entsoe.eu
FINGRID	Jussi MATILAINEN	Jussi.Matilainen@fingrid.fi
HOPS	Mate Lasić	Mate.Lasic@hops.hr
MAVIR	Péter KOVÁCS	kovacsp@mavir.hu
REE	Vicente González López	vgonzalez@ree.es
REE	Carlos Llanos	cllanos@ree.es
SVENSKA KRAFTNÄT	GÖRAN ERICSSON	GORAN.N.ERICSSON@SVK.SE
SWISSGRID / ENTSO-E SOC[1]	Andreas John	Andreas.John@swissgrid.ch
TENNET	Gert Aanhaanen	Gert.Aanhaanen@tennet.eu
TERNA	Antonio Iliceto	antonio.iliceto@terna.it
GARPUR partners		
01_SINTEF	Einar Jordanger	Einar.Jordanger@sintef.no
02_STATNETT	Gerard Doorman	gerard.doorman@statnett.no
02_STATNETT	Kjetil Uhlen	Kjetil.Uhlen@Statnett.no
02_STATNETT	Hakon Kile	Hakon.Kile@Statnett.no
02_STATNETT	Lars Kristian Vormedal	lars.vormedal@statnett.no
02_STATNETT	Adele Moen Slotsvik	Adele.Slotsvik@statnett.no
03_ELIA	Manuel Gálvez	manuel.galvez@elia.be
03_ELIA	Cindy Bastiaensen	cindy.Bastiaensen@elia.be
04_RTE	Stéphane Chatellier	stephane.chatellier@rte-france.com
04_RTE	Rémy Clément	remy.clement@rte-france.com
05_LANDSNET	Guðjón Hugberg Björnsson	gudjonh@landsnet.is
05_LANDSNET	Íris Baldursdóttir	iris@landsnet.is
05_LANDSNET	Gudmundur I Asmundsson	gudmunduri@landsnet.is
06_ESO	Konstantin Gerasimov	kkgerasimov@gmail.com
06_ESO	Nenko Gamov	ngamov@ndc.bg
07_CEPS	Marian Belyus	belyus@ceps.cz
08_ENERGINET	Geir Brønnmo	geb@energinet.dk
09_RU	Friðrik Már Baldursson	fmb@hr.is

[1] System Operation Committee

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10_KUL	Dirk Van Hertem	dirk.vanhertem@esat.kuleuven.be
10_KUL	Evelyn Heylen	Evelyn.Heylen@esat.kuleuven.be
10_KUL	Marten Ovaere	Marten.ovaere@kuleuven.be
11_ULG	Louis Wehenkel	louis.wehenkel@ulg.ac.be
11_ULG	Efthymios Karangelos	e.karangelos@ulg.ac.be
12_AALTO	Liisa Haarla	liisa.haarla@aalto.fi
17_TECHNOFI	Serge Galant	sgalant@symple.eu
17_TECHNOFI	Sophie Dourlens-Quaranta	sdourlens@symple.eu

2.2 Agenda

The workshop was held from 13:30 to 18:20, and was followed by a diner jointly organised with ENTSO-E. The detailed agenda is presented in Table 2.

Table 2 – Agenda of the first workshop towards TSOs

Time	Title	Responsible
13:30	Welcome of attendees	STATNETT (Gerard Doorman)
14:00	Opening introduction - the overarching goals of the GARPUR project	STATNETT (Gerard Doorman)
14:15	Overview and organization of the GARPUR project	SINTEF Energy Research (Einar Jordanger, acting coordinator)
14:30	Q/A	
14:45	Functional analysis of probabilistic reliability management	UNIVERSITY OF LIEGE (Louis Wehenkel, scientific advisor)
15:00	Q/A	
15:15	Coffee break	
15:30	Current practices for reliability management in complex systems: a review of drivers and barriers for new reliability standards	AALTO UNIVERSITY (Liisa Haarla)
15:50	Group discussion – "Drivers and barriers (for new reliability standards)"	AALTO UNIVERSITY (Liisa Haarla)
16:30	Coffee break	
16:45	Shaping the GARPUR quantification platform	KU LEUVEN (Dirk Van Hertem)
17:00	Discussion – Methods and Tools to be included in the Quantification Platform	KU LEUVEN (Dirk Van Hertem)
18:00	The role of reference group	STATNETT (Gerard Doorman)
18:15	Conclusions : the way forward with ENTSO-E members • TSOs in GARPUR • TSOs of the reference group • TSOs of ENTSO-E	STATNETT (Gerard Doorman)
18:20	End of meeting	
19:30	Joint dinner invited by TECHNOFI	

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2.3 Proceedings

The presentations can be found on the GARPUR website: http://www.garpur-project.eu/publications. The detailed minutes of the workshop can be found in Annex 1.

With the first presentation "Opening introduction - the overarching goals of the GARPUR project" (by STATNETT), the purpose of GARPUR, with the detailed scientific and technical objectives of the project, were presented to the audience. The relation with the N-1 rule was clarified.

With the second presentation "Overview and organization of the GARPUR project" (by SINTEF), GARPUR key figures, partners, work packages, timeline and milestones were presented.

Following the first two presentations, several participants suggested that new reliability criteria should be presented to ENTSO-E System and Development Committee (SDC) and System Operation Committee (SOC). The role of ENTSO-E was emphasized: GARPUR recommendations, if directed towards ENTSO-E, could be taken into account in future updates of the Network Codes.

With the third presentation "Functional analysis of probabilistic reliability management" (by the Scientific Advisor), the main ingredients of the generic functional analysis of reliability management proposed by GARPUR WP2 were presented. A focus was done on the short-term horizon of System Operation (coupling of real-time decision making with operational planning). A discussion followed with the audience, regarding the meaning of different terms (criticalities, mid-term vs. long-term…), the connection between reliability evaluation and economic evaluation, the relation with other projects as iTesla, Umbrella and eHighway2050, and the relation with ENTSO-E TYNDP.

With the fourth presentation "Current practices for reliability management in complex systems: a review of drivers and barriers for new reliability standards" (by AALTO), the work of GARPUR WP1 and the content of D1.1 and D1.2 were presented and discussed. The audience was invited to express on what they consider to be drivers or barriers to new reliability standards. A discussion followed about:

- The reliability criteria applied outside Europe,
- The need to involve regulators in the possible adoption of a risk-based approach (cost recovering),
- Data needed to adopt such approach,
- The customer point of view,
- Some differences between N-1 and probabilistic approaches (risk of black-out, the need to assess consequences of contingencies, the habits of the staff in real-time operation, the possibility to verify "by hand" that power flows are correct),

The fifth presentation "Shaping the GARPUR quantification platform" (by KUL) was accompanied by a more detailed document distributed to the audience and published on the website (http://www.garpur-project.eu/publications). A discussion followed about:

- The possible focus of the Quantification Platform on real-time,
- The scope and granularity of the model of the European network,
- Data standards (CIM),
- The training sessions with the GQP organized at the end of the project to convince the TSOs community of the performance of the new reliability criteria,
- The possible impact of new reliability criteria of Transmission Reliability Margins,
- Test cases for the GQP which could be proposed by SOC members.

The last presentation "The role of reference group" (by STATNETT) aimed at clarifying the role of the Reference Group and recruiting TSOs. Questions were raised about the exact role of Reference Group members and associated workload.

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2.4 Responses to satisfaction questionnaire

A satisfaction questionnaire was distributed at the end of the workshop, both to TSOs non partner of GARPUR and to GARPUR partners. It is copied in Annex 2 of this document. Responses were gathered as presented in Annex 3.

Seven questions called for a quantified answer, from 1 (in full disagreement) to 5 (fully agree). The average marks given by attendees are presented in Table 3.

Table 3 – Average marks to quantitative questions of the satisfaction questionnaire

#	Questions	Average marks
This meeting has helped you …		
1	… understanding the overreaching goal of the GARPUR project	4.7
2	… understanding the scientific challenges of the GARPUR project	4.1
3	… getting a clear picture of the drivers and barriers for using new reliability standards	4.1
4	… understanding the functioning and the role of the GQP	4.2
5	… understanding the role of the GARPUR Reference Group	3.9
You consider that…		
6	... enough time was dedicated to describing the key ambitions and challenges of GARPUR	4.6
7	… the R&D activities foreseen by the consortium are appropriate to meet the presented project ambitions	4.1

The following reasons were given to explain marks between 1 and 3:

- Question 2:
  - "Understanding the scientific challenges requires probably more than one working day for people not daily involved in reliability assessment".
  - "WP2 and WP3 need to be synchronized. There needs to be a balance between reliability criteria and social benefits".
- Question 4: "Still a bit high-level and abstract (but promising)".
- Question 5: "It would be a good thing to have the MoU ready for the workshop".
- Question 7: "Not enough overview about the research capacity - therefore hard to evaluate appropriateness of the activities".

Qualitative questions were raised and received the following answers:

9. How would you sum up in one sentence the main message of the meeting?

- "Nice challenge to hear different opinions of other TSOs".
- "GARPUR is ready to test conceptually different options for reliability criteria and to provide recommendation for next steps to evolve N-1".
- "The analysis of alternatives to N-1 approach is complex and controversial, because of all the impacts and consequences it would have on "Business as Usual" for the electricity sector and for all the society".
- "N-1 must not be always the right rule".
- "The GARPUR team is very interested in input from TSOs".

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- "TSOs have to find something that is more sophisticated than N-1 criteria in the field of network planning".
- "GARPUR is a European R&D project which involves all TSOs".

From GARPUR partners:

- "GARPUR will try to improve current reliability criteria, with participation of RD's and TSOs, looking at both technical and economic issues".
- "The TSOs show interest in the project".
- "GARPUR is going in the right direction".
- "Overview of the project ambitions, and need for feedback from non-consortium TSOs".
- "Very important to disseminate the findings to other TSOs (SOC, MC…) of ENTSO-E".
- "GARPUR will investigate the potential and realism of a probabilistic reliability criterion".
- "Can N-1 be replaced by probabilistic methods?"
- "Challenging R&D project. High risk project".
- "Inform TSOs of GARPUR and get feedback to some work already done in GARPUR".

10. Are there any important issues that you thought worth being discussed and were not addressed during the meeting? Or any topic you would have liked spending more time on?

- "Each country optimize its own grid, so what about the use of phase-shifter in a probabilistic planning?"
- "Not for this initial workshop, it has provided a very good and complete picture; for future workshops more time and details will be necessary".
- "Beside providing input information, how can TSOs help the project and what are the benefits of developing and using software like GQP?"

From GARPUR partners:

- "Goal of the Reference Group (not at the end of meeting!)".
- "What are the shortcomings of the current situation? (what we are going to 'repair')".
- "Influence of environmental issues".

11. What would you suggest to improve the agenda and organization of the next workshops with TSOs?

- "Some practical mean should be used to "force" all participants to the workshops to actively contribute".
- "Send material before the workshop / provide presentations in printed form at the workshop".

From GARPUR partners:

- "Another set-up of meeting room".
- "Present more initial results".
- "In next meetings, discussions on specific methodologies, test cases and previous experience should start".
- "Interactivity of "drivers and barriers" was good. More of that!"
- "TSOs should also present something".

12. Do you intend to join the GARPUR Reference Group?

- 3 "yes"
- 2 "no"
- 3 "maybe" (need to check available resources, depends on decision of management…)

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3 WORKSHOP TOWARDS REGULATORY BODIES

To organize this workshop, the contact was first established with one CEER member. Despite his interest in the subject, he considered it highly difficult to gather several representatives of regulators (NRAs, ACER) into one specific workshop dedicated to GARPUR. This was due to the high workload of regulators and the difficulty, in that context, to travel for an event which is not directly linked to their short-term duties. This difficulty was increased by the fact that the GARPUR project would be able, at this stage (June 2014), not to present results but only intentions.

It was therefore decided, instead of organizing a workshop in Brussels, that a small delegation would go to Ljubljana to meet ACER representatives, with the National Regulators involved by teleconference.

At GARPUR's instigation, this workshop was co-organised with iTESLA and UMBRELLA projects. The purpose was to give regulators a more complete presentation regarding European projects at the cutting-edge of research and innovation in power system reliability and control.

The workshop was held in ACER premises on 30 June 2014.

3.1 Attendees

The workshop was attended by 19 participants. The detailed attendance list is presented in Table 4.

Table 4 – Attendance list of the first workshop towards regulators

Company name	Representative	email	
Regulators			
ACER	Ernst Tremmel	Ernst.Tremmel@acer.europa.eu	
ACER	Mirela Dutoiu	Mirela.Dutoiu@acer.europa.eu	
ACER	Riccardo Vailati	Riccardo.VAILATI@acer.europa.eu	
CER (Ireland)	Robert O'Rourke		*by phone*
E-CONTROL (Austria)	Jakub Fijalkowski		*by phone*
EI (Sweden)	Lena Lange Jaakonantti		*by phone*
NCC (Lithuania)	Paulius Blažys		*by phone*
GARPUR partners			
SINTEF	Einar Jordanger	Einar.Jordanger@sintef.no	*by phone*
SINTEF	Oddbjørn Gjerde	Oddbjorn.Gjerde@sintef.no	*by phone*
STATNETT	Gerard Doorman	gerard.doorman@statnett.no	
TECHNOFI	Sophie DOURLENS-QUARANTA	sdourlens@symple.eu	
iTESLA partner			
RTE	Gabriel Bareux	Gabriel.bareux@rte-france.com	
UMBRELLA partners			
AMPRION GmbH	Michael Rogge	michael.rogge@amprion.net	*by phone*
ELES	Jan Kostevc	jan.kostevc@eles.si	
ETH Zurich	Thilo Krause	krause@eeh.ee.ethz.ch	*by phone*
RWTH Aachen	Tobias van Leeuwen	tl@iaew.rwth-aachen.de	*by phone*
TENNET GmbH	Helmut Paeschke	Helmut.Paeschke@tennet.eu	*by phone*
TransnetBW	Patrick Wajant	p.wajant@transnetbw.de	*by phone*
UDE	Klaus Köck	Klaus.Koeck@student.tugraz.at	*by phone*

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3.2 Agenda

The workshop was held from 14:30 to 17:00.

Table 5 – Agenda of the first workshop towards regulatory bodies

Time	Title	Responsible
14:30	Opening presentation	TECHNOFI (Sophie Dourlens-Quaranta)
14:45	Presentation of UMBRELLA project *+ Question and answers*	ELES (Jan Kostevc)
15:30	Presentation of iTESLA project *+ Question and answers*	RTE (Gabriel Bareux)
16:15	Presentation of GARPUR project *+ Question and answers*	STATNETT (Gerard Doorman)
17:00	End of meeting	

3.3 Proceedings

The presentations can be found on the GARPUR website: http://www.garpur-project.eu/publications.

A discussion occurred following the GARPUR presentation:

- Most questions were about WP2 and WP3 :
  - When will intermediate results be presented?
  - What is the exact meaning of “criteria”?
  - The definition of indicators would be very useful for the work of regulators and TSOs on network codes.
- Regulators also expressed interest in the GQP which may be very useful to them.
- Also regarding iTESLA and UMBRELLA, regulators are interested in concrete recommendations towards ENTSO-E for amending network codes, not in high-level, “vague” recommendations.

In conclusion for GARPUR, regulators demanded further exchange of views about the reliability criteria and the economic indicators. They asked the possibility to be involved in the discussions before new reliability criteria are finalized. They insisted that the next workshop (more technical) should be held as soon as possible. The next workshop towards regulators should therefore involve WP2 and WP3 partners and be held early 2015.

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ANNEX 1: DETAILED MINUTES FO THE FIRST WORKSHOP TOWARDS TSOS

Following the presentation "Overview and organization of the GARPUR project" (SINTEF)

- **SVENSKA:** New reliability criteria should be presented to ENTSO-E System and Development Committee (SDC).
- **SWISSGRID/SOC:** New reliability criteria should be presented to ENTSO-E System Operation Committee (SOC) and possibly integrated into the Network Code. Risk management is a pivotal concept for GARPUR (which risk should we take, which risk are we ready to accept).
- **REE:** GARPUR is "only" an FP7 project: it does not replace ENTSO-E. GARPUR recommendations should be towards ENTSO-E rather than towards EC or ACER. ENTSO-E is the entity taking decisions regarding reliability management.

Following the presentation "Functional analysis of probabilistic reliability management" (Scientific Advisor)

- **TENNET:** Criticalities are not only service disruptions: for example, decreasing the reliability level implies occupying teams, stressing them…
- **FINGRID:** "mid-term" may be confusing. Does operational planning belongs to mid-term horizon?
    - ***Response from Scientific Advisor*:** long-term = possible changes in structure; short-term = no changes in structure; mid-term = possible changes like new PSTs…
- **ENERGINET:** What are the connections between reliability evaluation and economic evaluation?
- **TENNET:** N-1 takes into consideration events occurring once every 10 years as well as events occurring once every 10 minutes. GARPUR proposes a smarter way of applying N-1.
- **FINGRID:** What are the connections with other FP7 projects (iTesla, Umbrella, eHighway2050)? Will results of these projects be used by GARPUR to avoid duplication of work?
    - ***Response from Scientific Advisor*:** Yes, but GARPUR is the only one covering the 3 time horizons.
- **REE:** Will SEI be calculated consistently with the TYNDP?
    - ***Response from RU***: yes.

Following the presentation "Current practices for reliability management in complex systems: a review of drivers and barriers for new reliability standards" (AALTO)

- **REE:** Have you reviewed reliability criteria applied outside Europe? Response from Task 2.1 leader: worldwide literature has been reviewed, but the questionnaire was sent only to European TSOs.
- **REE:** It would be interesting to assess the SoS level performed by the TSOs having answered the questionnaire.
- **AMPRION:** Is the questionnaire representative for the planning criteria applied in the whole Europe?
    - ***Response from AALTO*:** The new criteria will not be based on the questionnaire; the purpose of the questionnaire is to assess where we are at the moment.
- **SVENSKA** asks for the slides presented at the workshop.
- **SWISSGRID/SOC:** If we want to adopt a risk-based approach, we need regulators around the table (example with the Swiss regulator who allocate to the TSO a fixed amount for redispatching purposes).
- **LANDSNET:** Iceland can't afford N-1. SoS and SEI need to be balanced.
- **STATNETT:** The problem is not the data itself, but the trust in data.
- **ENTSO-E:** From a customer point of view, SoS is needed whatever the reliability criteria are.

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- ***Response from AALTO*:** The N-1 criterion does not guarantee that there are no black-outs.

- **REE:** With N-1 black-outs are limited. Large black-outs in Europe were due to a poor application of N-1.
  - ***Response from KUL*:** New, probabilistic reliability criteria do not necessarily imply to be less secure than N-1. Evaluating reliability is needed: some customers may be more secure, others less secure, just as today.
  - ***Response from Scientific Advisor*:** A possible comparison may be the speed limits on the highway: they depend on traffic and weather.
- **ENERGINET** remarks that with N-1 there is no need to quantify the consequences (since they are not accepted). With probabilistic approaches, need to assess consequences.
- **REE** mentions the habits of the staff in real-time operation.
- **STATNETT:** with N-1, it is possible to verify that power flows are correct "by hand", while with probabilistic approaches it is not possible.

Following the presentation "Shaping the GARPUR quantification platform" (KUL)

- SVENSKA**:** Why focusing first on real-time, while it is the most complicated?
- **AMPRION:** There are many challenges in performing these tests from a system development point of view. It will be very complex to get the complete Europe overview because lots of data will be needed (reference to TYNDP).
  - ***Response from KUL*:** The whole EU network will not be modelled. Only a few options will be tested. Existing software will be used (iTesla, Umbrella).
- **REE** would like to implement within the GQP their reference case by their own.
  - ***Response from SINTEF*:** This would be out of the scope of GARPUR.
- **STATNETT:** data standards (CIM) would be useful to GARPUR.
- **AMPRION:** For the high acceptance by the TSOs community, GARPUR should contact SDC and SOC.
  - ***Response from ELIA*:** Training sessions with the GQP are planned at the end of the project to convince the TSOs community of the performance of the new reliability criteria.
- **AMPRION:** GARPUR will deliver concepts, not operational tools. So what is the purpose of these training sessions?
  - ***Response from TECHNOFI*:** GARPUR will deliver a prototype tool, with capabilities linked with budget and scope of pilot tests (which may be improved thanks to the Reference Group). After the end of the GARPUR project, the prototype may be further developed and access to non-GARPUR stakeholders may be granted, just as what has been done with the OPTIMATE prototype.
- **REE:** Regulators could ask for a more efficient way to reach reliability requirement but would never accept losing "one gram" of reliability.
  - ***Response from KUL*:** Thanks to new reliability criteria, Transmission Reliability Margins (TRM) could be reduced with no loss in reliability.
- **SWISSGRID/SOC will ask SOC members to propose some test cases for the GQP.**
  - ***Response from STATNETT*:** Please don't limit yourself because of data: only the description of an interesting case would be of interest for the project.

Following the presentation "The role of reference group" (STATNETT)

- **AMPRION:** What is meant by "support role"?

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Seventh Framework Programme under Grant Agreement No 608540.

- ***Response from STATNETT*:** Active participation in workshops, validation that the project goes into the right direction.

- **FINGRID:** What would be the workload of RG members?

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ANNEX 2: SATISFACTION QUESTIONNAIRE DISTRIBUTED AT THE FIRST WORKSHOP TOWARDS TSOS

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

First GARPUR workshop towards ENTSO-E members

7 April 2014 - ENTSO-E premises

EVALUATION QUESTIONNAIRE

Participant name: _____ **Organization**: _____

For all the questions below, please rate with marks between 1 (in full disagreement) and 5 (fully agree).

This meeting has helped you …	mark
1. … understanding the overreaching goal of the GARPUR project	1 2 3 4 5
2. … understanding the scientific challenges of the GARPUR project	1 2 3 4 5
3. … getting a clear picture of the drivers and barriers for using new reliability standards	1 2 3 4 5
4. … understanding the functioning and the role of the GARPUR Quantification Platform	1 2 3 4 5
5. … understanding the role of the GARPUR Reference Group	1 2 3 4 5
You consider that …	
6. … enough time was dedicated to describing the key ambitions and challenges of GARPUR	1 2 3 4 5
7. … the R&D activities foreseen by the consortium are appropriate to meet the presented project ambitions	1 2 3 4 5

8. Your comments to explain marks between 1 and 3 (if any):

9. How would you sum up in one sentence the main message of the meeting?

10. Are there any important issues that you thought worth being discussed and were not addressed during the meeting? Or any topic you would have liked spending more time on?

11. What would you suggest to improve the agenda and organization of the next workshops with TSOs?

12. Do you intend to join the GARPUR Reference Group?

Thank you for your participation!

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ANNEX 3: ANALYSIS OF RESPONSES TO THE SATISFACTION QUESTIONNAIRE DISTRIBUTED AT THE FIRST WORKSHOP TOWARDS TSOS

	Outside TSOs									
Please rate with marks between 1 (in full disagreement) and 5 (fully agree).	FINGRID	TERNA	TENNET	REE	REE	HOPS	ELERING	MAVIR	Anonymous	
	J. Matilainen	A. Iliceto	G. Aanhaanen	V. Gonzalez	C. Llanos	M. Lasic	A. Mazikas	P. Kovacs		
This meeting has helped you …										
1. … understanding the overreaching goal of the GARPUR project	5	5	4	5	5	4	4	5	4	
2. … understanding the scientific challenges of the GARPUR project	3	5	3	3	4	5	4	4	5	
3. … getting a clear picture of the drivers and barriers for using new	4	5	4	4	4	3	5	4	3	
4. … understanding the functioning and the role of the GQP	4	5	4	5	5	3	4	4	4	
5. … understanding the role of the GARPUR Reference Group	4	5	4	5		3	4	4	3	
You consider that …										
6. … enough time was dedicated to describing the key ambitions and	5	5	5	4	5	4	4	4	5	
7. … the R&D activities foreseen by the consortium are appropriate to meet the presented project ambitions	4	4	4	4	4	3	3	4	5	
8. Your comments to explain marks between 1 and 3 (if any)				Understanding the scientific challenges requires probably more than one working day for people not daily involved in reliability assessment			Not enough overview about the research capacity - therefore hard to evaluate appriopriarity of the activities		It would be a good thing to have the MoU ready for the workshop	
9. How would you sum up in one sentence the main message of the meeting?		Informative, focused	Nice challenge to hear different opinions of other TSOs	GARPUR is ready to test conceptually different options for reliability criteria and to provide recommendation for next steps to evolve N-1	The analysis fo alternatives to N-1 approach is complex and controversial, because of all the impacts and consequences it would have on "Business as Usual" for the electricity sector and for all the society	N-1 must not be always the right rule.	The GARPUR team is very interested in input from TSOs	TSOs have to find something that is more sophisticated than N-1 criteria in the filed of network planning	GARPUR is a european R&D project which involves all TSOs !	
10. Are there any important issues that you thought worth being discussed and were not addressed during the meeting? Or any topic you would have liked spending more time on?		No	Each country optimize its own grid, so what about the use of phase-shifter in a probabilistic planning?		Not for this initial workshop, it has provided a very good and complete pictyure; for future workshops more time and details will be necessary.		Beside providing input information, how can TSOs help the project and what are the benefits of developping and using software like GQP?			
11. What would you suggest to improve the agenda and organization of the next workshops with TSOs?		Some practical mean should be used to "force" all participants to the workshops to actively					The presentations could be provided in printed form at the workshop.	Please send material before the workshops !		
12. Do you intend to join the GARPUR Reference Group?	Yes	Yes	No, maybe my colleague Ana Cupuliga - TenneT)	We will see.	We have to check available resources.	Not for now.	Hard to tell, depends on the decision of management.	No		

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	GARPUR partners										
	ELIA	**ESO**	**ESO**	**RTE**	**CEPS**	**ENERGINET**	**LANDSNET**	**STATNETT**	**AALTO**
Please rate with marks between 1 (in full disagreement) and 5 (fully agree).	Manuel & Cindy	K. Gerasimov	N. Gamov	R. Clément	M. Belyus	G. Bronno	G. Asmundsson	L. Vormedal	L. Haarla
This meeting has helped you …									
1. … understanding the overreaching goal of the GARPUR project	NA	NA	5	5	5	NA	5	4	5
2. … understanding the scientific challenges of the GARPUR project	NA	NA	5	4	5	4	3	4	5
3. …getting a clear picture of the drivers and barriers for using new	4	NA	4	4	5	4	4	4	5
4. … understanding the functioning and the role of the GQP	4	NA	5	4	5	3	4	4	5
5. … understanding the role of the GARPUR Reference Group	1	NA	5	4	5	3	4	4	5
You consider that …									
6. … enough time was dedicated to describing the key ambitions and	5	4	5	5	4	5		4	5
7. … the R&D activities foreseen by the consortium are appropriate to meet the presented project ambitions	3	4	5	5	5	NA		4	5
8. Your comments to explain marks between 1 and 3 (if any)	3: there was a good discussion on this with participation of TSOs not participating in GARPUR					4. Still a bit high-level and abstract (but promising)	WP2 and WP3 need to be synchronized. There needs to be a balance between reliability criteria and social benefits.		
9. How would you sum up in one sentence the main message of the meeting?	GARPUR will try to improve current reliability criteria, with participation of RD's and TSOs, looking at both technical and economical issues	The TSOs show interest in the project.	GARPUR is going in the right direction	Overview of the project ambitions, and need for feedback from non consortium TSOs	Very important to disseminate the findings to other TSOs (SOC, MC…) of ENTSO-E	GARPUR will investigate thepotential and realism of a probabilistic reliability criterion	Can N-1 be replaced by probabilistic methods?	Challenging R&D project. High risk project.	Inform TSOs of GARPUR and get feedback to some work already done in GARPUR
10. Are there any important issues that you thought worth being discussed and were not addressed during the meeting? Or any topic you would have liked spending more time on?	Goal of the Reference Group (not at the end of meeting!)	Not at this stage.				What are the shortcomings of the current situation? (that we are going to "repair")	Influence of environmental issues		No
11. What would you suggest to improve the agenda and organization of the next workshops with TSOs?	Another set-up of meeting room. Present more initial results	In next meetings, discussions on specific methodologies, test cases and previous experience should start		Different shape of the meeting room	To send the presentations in advance	Interactivity of "drivers and barriers" was good. More of that :-)	Send out presentations before the meeting		TSOs should also present something
12. Do you intend to join the GARPUR Reference Group?	NA		NA		NA	NA		NA	NA

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