

Deliverable 9.2.2

User group feedback report 2



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Executive Summary

This deliverable is the second report about the feedback received by the OS4ES User Group.

While

- the history of the OS4ES User Group,
- the list of current User Group members and
- the details of User Group meetings during the reporting period from July 2014 until September 2015

are provided in the deliverables D9.3.1, D9.3.1a and D9.2.1 this deliverable concentrates on the feedback received by the User Group during the reporting period October 2015 until July 2016.

Therefore it provides an overview of all activities initiated and conducted by the OS4ES consortium for the OS4ES User Group and lists the input and replies received by these activities (physical meetings, webinars and phone calls). Finally it is concluded if the objectives for having a User Group as laid out in the Description of Work [1] could be reached.

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1 Introduction

This deliverable presents the feedback of the OS4ES User Group (UG) received during the reporting period from October 2015 until July 2016. It features the following sections:

- Section 1 Overview of the content of this deliverable.
- Section 2 Feedback received at the second physical UG meeting in Frankfurt, at the monthly web meetings and in bilateral talks between project partners and UG members.
- Section 3 Summary of received feedback detailed in section 2 and conclusion if the aims for setting up and having a User Group in the OS4ES project could be reached so far.

2 Feedback from the OS4ES User Group

Already in the stage of project proposal setup the consortium analyzed which companies might be interested in the OS4ES project and be potential customers of the project results. The massive interest of the approached companies resulted in the establishment of a preliminary OS4ES stakeholder Industrial User Group which at this point of time consisted of nine companies (see D9.3.1 [2] Table 3).

Since the project start more User Group members could be attracted by means of the OS4ES website, participation in conferences, bilateral talks with existing business contacts of consortium partners and OS4ES publications. Currently the User Group has 25 members from 23 companies and institutions (see D9.3.1a [3] Table 2).

A series of User Group meetings has been held since the submission of D6.2.1 - User Group Feedback report 1 [4]. For the sake of completeness a tabular overview of all User Group meetings held so far is given in Table 1. It includes the number, date and type of User Group Meeting, scope and participating User Group members.

Number of UG meeting	Date/Type	Scope	UG members participating
1	21.11.2014 / web meeting	Introduction to OS4ES Report on D1.1 Identification of benefits for UG members	H. Krings (Phoenix Contact) G. Grosch (Senertec) H. Kirrmann (ABB)
2	28.01.2015 / physical meeting in Hamburg, Germany	Presentation of the results of D1.1 and D2.1 Impact of the UG	H. Beeck (Vattenfall) G. Grosch (Senertec) O. Heitmann and J. Sudeikat (Hamburg Energie) H. Krings (Phoenix Contact) H. Schäfer (HUAS) H. Wiechmann (EnBW) per web meeting: M. Conrad (IDS) H. Dawidczak (SIEMENS) C. Franke (ABB) U. Hofmann (University of Salzburg)

Number of UG meeting	Date/Type	Scope	UG members participating
3	20.02.2015 / web meeting	Sequence diagrams of the following UCs annotated with communication requirements: <ul style="list-style-type: none"> • Volt/VAr, • Dwelling information exchange, • Primary control 	M. Conrad (IDS) J. Sudeikat (Hamburg Energie)
4	24.4.2015 / web meeting	Presentation of the use cases “Marketization of balance group management” and “Demand response”	H. Cheung (Eneco) M. Conrad (IDS) H. Dawidczak (SIEMENS) H. Krings (Phoenix Contact) H. Wiechmann (EnBW)
5	22.05.2015 / web meeting	Registry and Energy Services	H. Cheung (Eneco) M. Conrad (IDS) H. Dawidczak (SIEMENS) H. Wiechmann (EnBW)
6	10.07.2015 / web meeting	OS4ES data model	N. Bjuglja (IdE) Ch. Hübner (Ifak) H. Dawidczak (SIEMENS) H. Krings (Phoenix Contact)
7	21.08.2015 / web meeting	Generic interface to utilize existing telecom infrastructure	N. Bjuglja (IdE), G. Grosch (Senertec)
8	18.09.2016 / web meeting	Definition of test cases for the application prototypes	M. Conrad (IDS) H. Dawidczak (SIEMENS) H. Krings (Phoenix Contact) H. Wiechmann (EnBW)
9	16.10.2015 / web meeting	Matching algorithms of DER capabilities with requirements from EMS	H. Dawidczak (SIEMENS) H. Wiechmann (EnBW) G. Grosch (Senertec)
10	04.12.2015 / web meeting	Lab and field tests	H. Dawidczak (SIEMENS) N. Bjuglja (IdE)

Number of UG meeting	Date/Type	Scope	UG members participating
11	23.02.2016 / physical meeting in Frankfurt, Germany	Overview of the OS4ES architecture, lab and field tests and exploitation	H. Beeck (Vattenfall) N. Brgulja (IdE)
12	07.04.2016 web meeting	OS4ES applications and lab and field tests	Holger Krings (Phoenix Contact), Hauke Beeck (Vattenfall), Nermin Brjula (IdE), Gunter Grosch (Senertec), Christian Hübner (Ifak)
13	19.05.2016 / web meeting	OS4ES exploitation	G. Grosch (Senertec)

Table 1: User Group meetings held during the project runtime

Apart from the User Group meetings a series of bilateral contacts between the OS4ES consortium partners and members of the UG have been held (see Table 2). These contacts tackled specific issues that do not concern the whole UG but affect just one company / institution of the UG. Among those e.g. integration of devices from the UG member companies in OS4ES lab and field test have been tackled.

Number of UG meeting	Date/Type	Scope	UG members participating
1	07.05.2015 / web meeting	Registry services "Register" and "Search"	H. Dawidczak (SIEMENS) T. Dufaure (SIEMENS)
2	17.06.2015 phone call	IEC 61850-8-2	T. Dufaure (SIEMENS)
3	04.02.2016 web meeting	Use of Senertec CHPs for lab tests	G. Grosch (Senertec)
4	10.03.2016 phone call	Integration of Phoenix Contact devices in OS4ES test environment	H. Krings (Phoenix Contact)
5	23.03.2016 web meeting	Integration of Senertec CHPs in HUAS lab tests	G. Grosch (Senertec)
6	07.04.2016 phone call	Test of the OS4ES components	Nermin Brjula (IdE)

Number of UG meeting	Date/Type	Scope	UG members participating
7/8/9/10/11/12	15.04.2016, 22.04.2016, 28.04.2016, 05.05.2016, 12.05.2016, 18.05.2016 / web meeting	Standardization of the OS4ES data model within IEC 61850 TF90-15	H. Dawidczak (SIEMENS)
13	08.07.2016	Integration of Phoenix Contact devices in OS4ES test environment	H. Krings (Phoenix Contact)
14	08.07.2016	Integration of Senertec's CHP(s) and possibly e-mobility devices in OS4ES test environment	G. Grosch (Senertec)
15	18.07.2016	Integration of Senertec CHP	G. Grosch (Senertec)

Table 2: Bilateral contacts during the project runtime

The following section concentrates on the feedback that has been received during the User Group meetings and in bilateral contacts between OS4ES consortium members and members of the OS4ES User Group during the reporting period of this deliverable (1st October 2015 until 30th July 2016). Furthermore, the answers provided and steps taken by the OS4ES consortium upon the feedback of the User Group are described.

16.10.2015 (Webinar):

Matching algorithms of DER capabilities with requirements from EMS

The work on matching algorithms is presented to the participants. The following questions have been asked by User Group members and have been answered by the presenter and/or other consortium members:

Question 1: Is not Automatic Frequency Control a requirement of the DSO/TSO that a DER system must fulfill before it is connected to the system?

Answer: AFC is not a requirement of the Registry as of today, but it is anticipated that in future there is a need for DER systems that can offer such DER system energy services. It is agreed that the number of conventional power plants will decrease in future, so a substitute for these conventional plants is needed.

The security requirements regarding the registration of a DER system capable of offering AFC at the OS4ES registry is part of T4.4, which is not yet completed.

Question 2: Is it necessary for the matching algorithms to check the AFC capabilities of a DER system (see slide 18)? Shouldn't it be clear from the pre-qualification process if a DER System has these capabilities?

Answer: The DER system is responsible for the services offered. As not every DER system has the technical capabilities to offer frequency control, DER systems that have those capabilities update these in the Registry to make the aggregator find them.

Question 3: This question is related to the diagram on Autonomous Frequency Control (AFC) and is answered by a detailed description of this diagram by the presenter.

Upon another question the presenter mentions futures and options, which have not been part of the presentation. The futures determine which amount of power can be offered by the DER system for AFC. The presenter shows in D4.2 that the option line lies between the futures and the reserved power. The questioner who dialed in the web meeting only by phone and therefore is not able to see the screen with the presented slides is invited to download D4.2 from the user group site and to look at figure 4 and the describing text as this gives more details and provides a good understanding of the asked issue.

04.12.2015 (Webinar):

Lab and field tests

The various OS4ES test sites - namely the Tecnalia lab (Bilbao, Spain) and the HUAS lab (Hamburg, Germany) as well as the Hoog Dalem (Hoog Dalem, Netherlands) field test site - and use cases tested there are presented. The User Group members ask the following questions and receive the answers noted below:

Question 1: How does the scenario look in the Hoog Dalem field test in reality? How is flexibility (storage and load) done? What about billing?

Answer: USEF gives the connection to the market for interactions of the BRP and DSO with the Aggregator. The Aggregator has the link to the OS4ES Registry and the contracts with the Prosumers.

Question 2: Does the Aggregator and the prosumer have a kind of "flat rate contract"?

Answer: It should be a type of service solution. If the prosumer needs energy, he would pay more. And on the other side, if the Aggregator needs flexibility from the prosumer he would also pay more for this flexibility.

*04.02.2016 (Bilateral web meeting with Senertec):
Possibility of using Senertec CHP for lab tests*

Tecnalia gives an overview of OS4ES lab and field tests. The HUAS lab is identified as the most interesting test site for Senertec CHPs as they conduct the use cases on VPP in which active power is controlled (and also thermal power).

Senertec assumes that the CHP used in the lab test will be used for usual operation of a customer and also in some tests, and therefore is interested to know the following details:

- What are the requirements of the test lab for the CHPs?
- How often is CHP influenced (switched on/off etc.)?
- What would be the benefits for the customer?

Senertec also comments that for a lab installation maybe Senertec could offer to HUAS a kind of session for the scope/timeframe of the OS4ES project. Tecnalia suggests to involve the responsible person for the HUAS lab tests in future talks as he knows best about the possibilities of CHP integration and requirements for CHP operation.

The decisions taken are that FGH will arrange a web meeting with HUAS and Senertec in the last two weeks of March to discuss further details on a possible integration of Senertec's CHP(s). This web meeting has been held on 23rd March and is listed on the next page.

*23.02.2016 (Physical user group meeting in Frankfurt):
General architecture of the OS4ES system, exploitation of the OS4ES system and DER management applications and lab and field tests*

FGH welcomes the participants of the User Group, presents the agenda and initiates a short introduction of the UG meeting attendees.

Unfortunately only two UG members out of 6 who confirmed their attendance actually attended the UG meeting (three of them notified the consortium that they could not come due to medical reasons). However, the discussion was very vivid and helped to provide valuable input for the lab and field test and also for the exploitation strategy.

From the discussion it becomes obvious that the engagement of the stakeholders to join the OS4ES User Group is mainly motivated by the search for a good platform to build on and to see in how far the OS4ES platform will be beneficial for installations of wind power plants and attached batteries.

TNO gives a short introduction of the general architecture of OS4ES and answers some comprehension questions asked by the participating UG members.

Afterwards T-System presents the document "Update the exploitation plan" (see Annex A of D9.3.1a [3]) that has been sent to the UG members in advance to allow them to read it beforehand and to prepare some input for the meeting. Various questions are raised and suggestions are given. Both are noted down in the document.

As there is a big interest in USEF, TNO reports how USEF has evolved and presents the USEF field test in Hoog Dalem. The presentation is followed by positioning OS4ES in the USEF context.

The presentation on the lab tests has been skipped due to lack of time. It will be presented in the next UG web meeting.

At the end of the meeting the UG members provide the following feedback:

- It is suggested to have up to 2 physical meetings a year.
- Vattenfall has big interest in the project as it raises the same questions as currently discussed at their company. Although at the moment no proposals how to go forward and how to help the OS4ES project the further steps in the OS4ES project will be closely followed up.
- IdE is interested in setting up a demonstration environment with USEF and OS4ES. FGH proposes that IdE could act as an additional tester of the OS4ES components before the OS4ES prototype version is released and it is agreed to continue on this in bilateral talks.

10.03.2016 (Bilateral phone call between Koncar and Phoenix Contact)

Integration of Phoenix Contact devices in OS4ES test environment

The basic result of this phone call was that Phoenix Contact has IEC 61850 equipment that could be used in the lab/field trials. Further details need to be agreed on in following calls.

23.03.2016 (Bilateral web meeting between Senertec, HUAS and FGH)

Integration of Senertec CHPs in HUAS lab tests

HUAS gives an overview of their laboratory in Hamburg. It is then discussed what kind of Senertec CHPs and how many of them could be used in the HUAS lab tests. It might be possible that a Senertec customer in the city of Hamburg could provide a CHP for these tests. The following phases are envisaged in the lab field tests:

Phase 1: Installation and transfer of measured values

Installation would be done by HUAS with support from Senertec.

Phase 2: Test execution – Optimisation of the electrical system by means of OS4ES

Senertec asks if excess power is marketed virtually which is answered by HUAS with “yes”. Besides, Senertec mentions that it would be nice to have a user interface that show how excess power can be marketed. It should be avoided to switch on and off CHPs too often. Once a week is not critical but they should not be switched on and off every day in chronological intervals of 30 minutes. Details of the buffer storage are exchanged (750 l for the DACHS with 5.3 kW)

Senertec details some technical data of their CHPs that could be used in the lab test and stresses that it is essential for them to know what is expected of the participant of the lab

test and what are the advantages of such a participation. HUAS commits itself to provide an answer to this question asap.

07.04.2016 (Webinar)

OS4ES applications in lab and field tests

Tecnalia gives the presentation covering the OS4ES applications as well as the lab and field tests that could not be shown at the physical User Group meeting due to a lack of time.

Unfortunately, there was not much time for discussion and questions as the presentation took the complete hour of the web meeting. To allow UG members to “digest” the content of the presentation and to ask questions or provide comments on it, the presentation is uploaded to the User Group website right after the meeting.

Senertec recommended to include e-mobility in the field and lab tests as this is a hot topic now and also in the future. Senertec currently works on a project with the university of Schweinfurt-Würzburg and will provide some information and contact data to the OS4ES consortium that will be evaluated in how far e-mobility could be considered in the OS4ES field and lab test.

07.04.2016 (Bilateral phone call between IdE and FGH):

Test of the OS4ES components at IdE before official release of the OS4ES system

In this phone call the offer to IdE was renewed to test the OS4ES components at their company before the official release of the OS4ES system as it was already mentioned in the OS4ES UG Meeting in Frankfurt. IdE will check within their institution if they are going to accept this offer and what the implications would be.

15.04.2016, 22.04.2016, 28.04.2016, 05.05.2016, 12.5.2016 and 18.05.2016 (Webinars)

Standardisation of the OS4ES data model

Apart from the participation in standardization meetings of IEC 61850 TC57 WG17 there has been a series of bi-lateral web meetings with the leader of IEC 61850 TC57 WG17 TF90-15 (SIEMENS).

In these meetings with SIEMENS, IT4 and FGH described the OS4ES data model, discussed it and updated it according to the results of prior discussions. It is important to convince the TF90-15 leader of the OS4ES data model as he is the responsible for defining new necessary Logical Nodes for the integration of DER systems within electric power systems in a Technical Report, the results of which will go into Edition 2 of IEC 61850-7-420. If we can convince him of the OS4ES data model it will be easier to convince the other members of the task force and finally the standardization group working out edition 2 of IEC 61850-7-420.

19.05.2016 (Webinar)

Exploitation of the OS4ES System

T-System gives a short introduction in the roles of the OS4ES System and the concept of flexibility before presenting the Business Model Canvas.

Unfortunately only one member of the UG participated although five UG members indicated their availability before. Therefore the feedback received was very limited.

It has been recommended to take SchwarmDirigent (a product of Lichtblick) into account for the exploitation strategy to position OS4ES in contrast to the Lichtblick software which has a similar focus. However, a high fee needs to be paid for use of SchwarmDirigent which might limit its application.

08.07.2016 (Bilateral phone call between FGH and Phoenix Contact)

Integration of Phoenix Contact devices in OS4ES test environment

Devices that could be provided by Phoenix Contact for the lab tests are the charging poles that are installed at their premises. However, it needs to be checked with the experts of Phoenix Contact if those can be made accessible without too much effort on the Phoenix Contact side.

08.07.2016 (Bilateral phone call between FGH and Senertec)

Integration of Senertec's CHP(s) and possibly e-mobility devices in OS4ES test environment

FGH reminds Senertec to provide the contact to the e-mobility project at the University of Schweinfurt-Würzburg in order to check if e-mobility could be included in the OS4ES lab tests. Senertec asks for an advertising brochure of the OS4ES project to attract users of Senertec CHPs to participate in the lab tests in Hamburg.

18.07.2016 (Bilateral contact between HUAS and Senertec)

Integration of Senertec CHP(s) in OS4ES test environment

Senertec needs some good arguments why their customers should use the OS4ES system in order to win them as participants for the OS4ES lab tests. HUAS tells that some advertising material is currently being prepared by T-Systems and will be at hand very soon. Latest after the holidays this material will then be sent to Senertec to be forwarded to their customers.

3 Conclusion

As laid out in the Description of Work [1] the intention of having an OS4ES User Group was

1. to disseminate the OS4ES project contents to a group of experts from the industry, research institutions, supply companies, manufacturers and telecommunication providers, who in turn act as multipliers of the OS4ES project within their companies and to the outside;
2. to have an advisory body commenting the work and the achievements of the OS4ES consortium and provide important practical advice;
3. to stimulate discussion and exchange of knowledge among different user and developers groups, helping to extract expert knowledge to be used within the project.

The first objective, the dissemination of OS4ES project scope and results, has been fully reached.

The project results have been presented to the User Group in various web meetings, one physical meeting and bilateral conversations with members of the User Group. All presentations, deliverables and minutes of the User Group meetings are available for download on the User Group website so that also User Group members who missed a meeting are kept updated.

In terms of standardisation many bi-lateral UG web meetings have been held with the leader of the WG17 TF90-15 who does work that is related to the OS4ES work on the data model. Finally, he could be convinced that the OS4ES data model is also a feasible approach for the TF90-15 report which will form part of the 2nd Edition of IEC 61850-7-420. Hence, the OS4ES data model has been presented at the WG17 meeting in Beijing, China, in June. The TF 90-15 Report has been scheduled to be available as a first draft at the end of the year and it is expected that IEC 61850 Logical Nodes of the OS4ES data model will be considered for it.

The second aim has only been achieved partially.

The OS4ES consortium expected more feedback on deliverables and especially on the exploitation plan (see D9.3.1a [3] Annex A). As already stated in D9.2.1 [4] the reason for low input is mainly seen in a lack of time/resources of the UG members. In their daily business they can hardly afford the time to read the various and comprehensive OS4ES deliverables and provide detailed feedback on them. So the comments received are mainly based on the presentations given during web meetings, physical meetings and bilateral talks. It was really a pity that so many User Group members who confirmed their participation in the physical meeting in Frankfurt were absent due to sickness. Although all slides and documents presented on this meeting have been uploaded to the User Group section on the OS4ES web site and the members have been notified of the provision of these documents and been asked to provide input no further feedback was obtained.

Despite of this, the following feedback and practical advice has been received:

- Especially Vattenfall sees very high chances for wide take up of the OS4ES platform as a platform with OS4ES features is currently still missing on the market;
- Senertec and Phoenix Contact express their interest to provide DER equipment for the lab and field tests;
- IdE is interested in setting up a demonstration environment with USEF and OS4ES and will internally check the possibility to set up and test the OS4ES prototype at their site before the software is officially released;
- The IEC 61850 TC57 WG17 standardisation body sees the benefit of modelling DER system services as logical nodes and will consider the OS4ES data model approach in the Technical Report of TF 90-15 and consequently in the second edition of IEC 61850-7-420 (Basic communication structure – Distributed energy resources logical nodes);
- UG members show a big interest in USEF and its integration within the OS4ES project;
- E-mobility is still a hot topic and it would therefore be beneficial to include it in the OS4ES lab tests. Senertec offered to provide a contact to the University of Schweinfurt-Würzburg which runs an e-mobility project.
- SchwarmDirigent (a product of Lichtblick) should be considered in the OS4ES exploitation strategy as it seems to have a similar focus as the OS4ES system.

The third objective has been largely reached.

The UG members coming from different businesses stimulated discussions in the various meetings on the following aspects:

- exploitation of the OS4ES system;
- lab and field tests;
- standardisation activities.

Besides, they provided their expert knowledge on a lot of project issues, e.g.:

- integration of CHP(s) and e-mobility charging poles for the lab and field tests;
- support in setting up and testing an OS4ES system;
- comments on the OS4ES data model
- SchwarmDirigent, an obviously competing product to OS4ES

Although not all objectives could be fully reached the received input from the User Group has again been very valuable. It is good to have such an interested group of experts who invest their scarce time to contribute to this research project.

The following next steps are planned and will – among others – be reported in D9.2.3 User Group feedback report 3.

It is intended to have the next User Group web meeting in August when we can show the first OS4ES prototype with a simulation environment. A third physical User Group meeting is planned at the end of this year or early next year to present the next version of the OS4ES prototype with many additional features. In the meantime we will further work on the integration of UG member's devices in the lab and field tests and stay in contact with IdE for the possibility of pre-testing the OS4ES system at their site. The OS4ES consortium deems it very important to have these two opportunities – integration of UG member's devices in lab and field tests and testing the OS4ES system at IdE before official release – and will therefore strive to exploit them in order to maximize the dissemination and exploitation potential of the OS4ES project.

References

- [1] Grant Agreement Annex I – “Description of Work”
- [2] D9.3.1 Dissemination and exploitation plan
- [3] D9.3.1a Update of the dissemination and exploitation plan
- [4] D9.2.1 User Group Feedback Report 1