



European Research Infrastructure supporting Smart Grid Systems Technology Development, Validation and Roll Out

Work Package 03

NA3 - Organisation and Management of Trans-national Access User Projects

Deliverable D3.4

D-NA3.4: “First report on trans-national access results and lessons learned”

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Abbreviations

<i>EC</i>	European Commission
<i>EU</i>	European Union
<i>GA</i>	Grant Agreement
<i>ICT</i>	Information and Communication Technology
<i>NA</i>	Networking Activity
<i>PRR</i>	Proposal Review Report
<i>RI</i>	Research Infrastructure
<i>RTD</i>	Research and Technology Development
<i>TA</i>	Trans-national Access
<i>UG</i>	User Group
<i>USP</i>	User Selection Panel
<i>WP</i>	Work Package

Executive Summary

This document compiles and summarizes the trans-national access activity performed in ERIGrid from September 2016 (when the 1st Call for trans-national access us proposals was launched) until December 2018. The report describes from the “administrative” point of view the different calls, proposals received, and their evaluation by the user selection panel. Based on this information, an analysis of the degree of accomplishment of the trans-national access provision at beneficiary and project levels is carried out, showing a good progress to reach the demanding access objectives of the project and the remarkable impact that ERIGrid is producing in the smart grids European and international research community.

1 Introduction

The ERIGrid project tries to mitigate the lack of validation schemes for smart grids configurations, based on a holistic and cyber-physical approach, and supports the technology development and the roll out of smart grid solutions by the joint development of testing methods and validation procedures.

The core of project is the Trans-national Access (TA) to the integrated Research Infrastructure (RI), operated at 19 distributed installations, located in 11 countries. The ERIGrid TA activity, placed at the disposal of the European research community (and also to the international one, with some limitations), includes free of charge access to these infrastructures, technological and scientific support and funding to cover travel and accommodation during stays.

This document compiles and summarizes the TA activity during the first two years of access provision in ERIGrid.

1.1 Purpose of the Document

The objective of the document is to report on all TA activities performed in ERIGrid from September 2016 (when the 1st Call for TA proposals was launched) until December 2018. The mechanisms, steps and conditions of the TA scheme in ERIGrid have been stated in Deliverables D3.1 [1], D3.2 [2] and D3.3 [3] that were submitted before the 1st Call for proposals was opened.

This deliverable describes from the “administrative” point of view the different calls, proposals received, their evaluation by the User Selection Panel (USP); based on the presentation of this information, the document presents the degree of accomplishment of the TA provision at partner and project levels.

1.2 Scope of the Document

For a more efficient management and supervision of the TA activities in ERIGrid, avoiding overlapping of the involved Work Packages (WP) (i.e. WP03 - NA3, WP11 - TA1, and WP12 - TA2), two levels are considered during the entire TA process: the project-wide level and the infrastructure level.

NA3 is in charge of the management of the TA at “project-wide level”, which involves the TA Calls preparation and launching, reception of proposals, partner pre-screening, USP evaluation and notifications to users. On the contrary, for the approved proposals, all interactions with users during the preparation of the project implementation and during the laboratory access are supervised by TA1 and TA2 at “infrastructure level”; this includes also the follow-up of the mandatory reporting by users.

This division of responsibilities is illustrated in the diagram of Figure 1. Following this approach, this deliverable will report on the TA activities at “project-wide level” as mentioned above. A summary of user project technical results and good practices followed during the users’ implementations in the RIs will be compiled in Deliverables D11.1 (TA1) “D-TA1, Summary Report of TA1 Activities” and D12.1 “D-TA2, Summary Report of TA2 Activities”.

1.3 Structure of the Document

This report is structured as follows. Section 2 and 3 revises the different calls and the received proposals. The evaluation results provided by the USP are presented in Section 4. Section 5 summarizes the first of the two user workshops to be organised until the end of the project. Description of the current and expected TA provision is done in Section 6. The report ends with the relevant conclusions in Section 0.

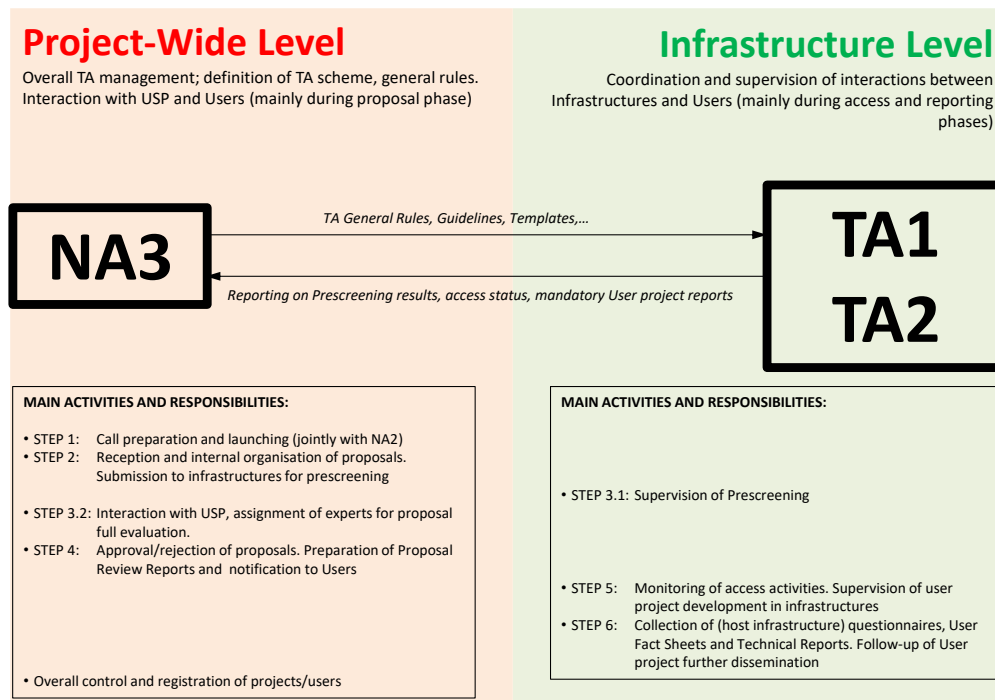


Figure 1: TA management and supervision structure in ERIGrid

2 Trans-national Access Process

As described in Deliverable D3.1 [1], the general call timeline is shown in Figure 2. As a reference, the duration of the call and the associated user stays will last for around 8 months, with the following main time periods:

- The call will remain open for 3 months.
- The received proposals will be evaluated within one month after the closing date of each call.
- The stay period depends on the user project: 1-4 weeks typically and limited to a maximum of 3 months if well justified.
- Finally, the User Group (UG) has a month to carry out the mandatory reporting of the project.

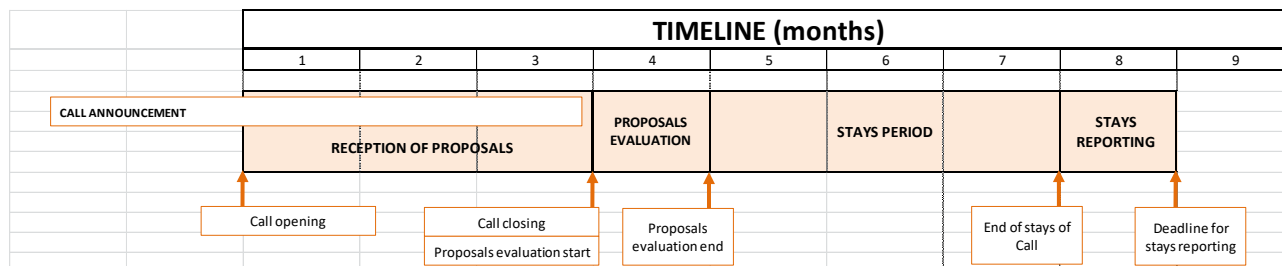


Figure 2: Reference timeline for the TA calls

The reference deadlines of the above steps in the access process are really challenging (based on the accumulated experience up to now). Some flexibility is provided by ERIGrid for the sake of maximizing the access provision: the complete evaluation step normally takes 2 months, and the consortium is allowing an extra month to the users for reporting on the access results. Besides, the stay period is allocated within the next 6-9 months after notification to users.

3 Calls for Trans-national Access

The TA access in ERIGrid is implemented through successive public calls, published every 6 months. At the date of submission of this report, 5 Calls for TA proposals have been launched and closed. The timeline of the calls is presented in Figure 3.

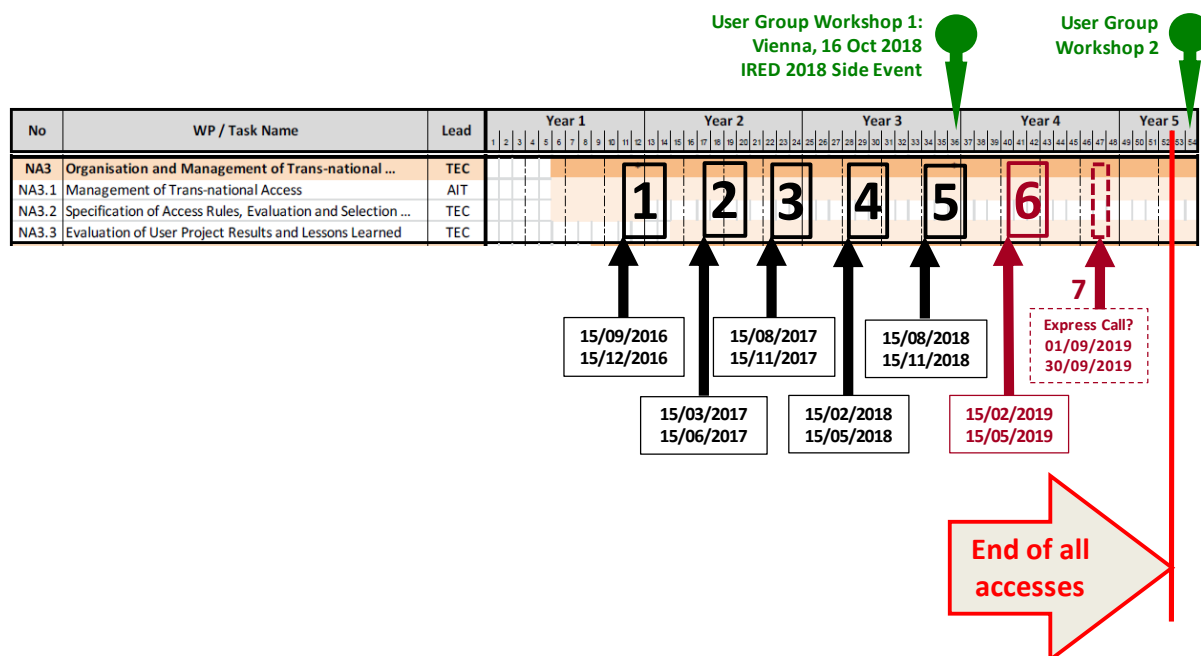


Figure 3: Timeline of TA Calls

A total of 6 calls for TA proposals has been planned during the course of ERIGrid. If necessary and depending on the TA budget situation, an additional 7th Call could be opened (this would be an “express-call”, meaning that the call duration would be shorter, the proposal evaluation should be faster, etc.). Obviously, the implementation of all approved user projects must be completed 1-2 months before the end of ERIGrid to allow some time for reporting (users and hosts), reimbursement of TA expenses to the users, etc.

A summary of the assessment of the user proposals in the calls launched so far is the following:

- *1st Call for TA Proposals (15/09/2016 – 15/12/2016)*: 14 proposals received, 14 proposals approved by the USP and finally accepted, 1 proposal withdrawn by the user afterwards.
- *2nd Call for TA Proposals (15/03/2017 – 15/06/2017)*: 13 proposals received, 12 proposals approved by the USP and finally accepted.
- *3rd Call for TA Proposals (15/08/2017 – 15/11/2017)*: 8 proposals received, 8 proposals approved by the USP and finally accepted.
- *4th Call for TA Proposals (15/02/2018 – 15/05/2018)*: 26 proposals received, 24 proposals approved by the USP, of which 2 proposals are on-hold due to unfeasibility in the pre-screening by infrastructures.
- *5th Call for TA Proposals (15/08/2018 – 15/11/2018)*: 24 proposals received, 24 proposals under pre-screening and evaluation by the USP.

This means that *85 proposals* have been received in the above-mentioned calls. *37 user projects* have been already implemented in the corresponding RIs. An overview of the status of the user proposals/projects is provided in Figure 4 (the complete and updated list is maintained by ERIGrid and is at the disposal of the European Commission (EC)).

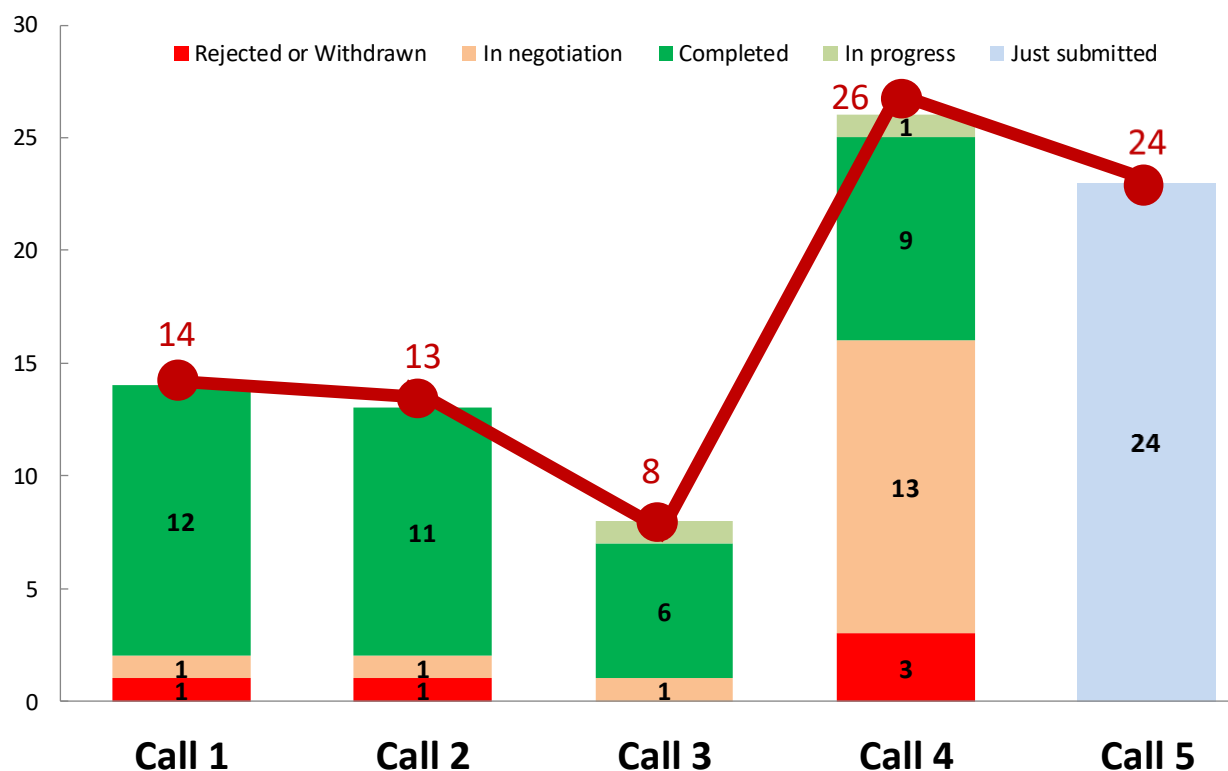


Figure 4: Overview of the status of the user proposals/projects

When the access is completed at the corresponding RI(s), the TA UG must prepare the technical reporting of the implemented project: (i) Fact Sheet (extended abstract of 1-5 pages), and (ii) the Technical Report. These mandatory documents contain the first scientific output generated by the users, who have benefit from the ERIGrid TA opportunity.

Technical Reports have been received already from the users for 20 completed projects, mostly from 1st and 2nd Calls. The reporting is still in progress for another 17 implemented projects. All documents are kept in the project internal repository and uploaded also to the ERIGrid website for public availability (see <https://erigid.eu/transnational-access/selected-projects/>) when they are available.

3.1 1st Call for Trans-national Access Proposals (15/09/2016 – 15/12/2016)

This section compiles the proposals received in the 1st Call for TA proposals launched from 15th September 2016 to 15th December 2016. For each proposal the title, user organization/s, host infrastructure/s and access status are presented. For the type of user organizations, the following codes apply: HE (Higher Education), RO (Research Organization), I (Industry), O (Others: Association, Non-Governmental Organization, etc.).

Call Summary

- 14 proposals received and accepted, 1 withdrawn by user
- Type of organisation: 1 from Industry + 13 from Universities / Research Institutions
- Expected access duration: 2-12 weeks; 4 weeks (average)
- User Groups from:
 - EU: 8-9 proposals (Germany, Spain, Italy, France, UK, Denmark)
 - Associated Countries: 3-4 proposals (Turkey, Switzerland)
 - Non-EU: 2 proposals (USA, India)

Table 1: Overview of TA proposals from 1st Call

1	TEAM-VAR	Networked feedback control of distributed energy resources for real time voltage regulation			
		User Group Organisations:	ETH Zurich	Switzerland	HE
		Host Research Installation:	DTU: SYSLAB /ICL		
		Access Status:	Terminated	15 access days	
2	INTRE-PID	Intelligent Transformer for Renewable Energy Prosumers Integration and Deployment			
		User Group Organisations:	ORMAZABAL COTRADIS	Spain	I
		Host Research Installation:	Fraunhofer IEE: SysTec		
		Access Status:	Terminated	15 access days	
3	GaMDER	Gamified Management of Distributed Energy Resources			
		User Group Organisations:	Istanbul Technical University	Turkey	HE
			MAKEL Companies Group	Turkey	I
			INESCTEC	Portugal	RO
		Host Research Installation:	RSE: DER-TF		
		Access Status:	Terminated	15 access days	
4	DiNODR	Distribution Network Oriented Demand Response			
		User Group Organisations:	Istanbul Technical University	Turkey	HE
			Western Macedonia University of Applied Sciences (TEIWM)	Greece	HE
		Host Research Installation:	DTU: SYSLAB/ICL		
Access Status:	Terminated	15 access days			
5	FT Operation	Fault-Tolerant Operation of a Wind Turbine with Control Hardware in the Loop Tests			
		User Group Organisations:	University of Liverpool	UK	HE
		Host Research Installation:	ICCS-NTUA: EESL		
		Access Status:	Terminated	15 access days	
6	REPRMs	Reliability Enhancement in PV Rich Microgrids with Plug-in-Hybrid Electric Vehicles and Data Centres			
		User Group Organisations:	National Institute of Technology Warangal	India	HE
		Host Research Installation:	SINTEF: NSGL		
		Access Status:	Terminated	6 access days	
7	DUSCP	Dicle University Smart Campus Project			
		User Group Organisations:	Aalborg University	Denmark	HE
			Dicle University	Turkey	HE
			Batman University	Turkey	HE
		Host Research Installation:	CRES: DG-Lab		
		Access Status:	Terminated	17 access days	
8	Smart beats Copper	Smart Grids Testbed for Hardware and Software in the Loop Testing of PV Integration into a Future DSO Network based on a Secure Energy Information Network			
		User Group Organisations:	Ulm University of Applied Sciences	Germany	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated	12 access days	

9	B2G-DEMO	<i>Demonstration of the applicability of bidirectional electric vehicle chargers in buildings</i>			
		User Group Organisations:	Universitat Politècnica de Catalunya	Spain	HE
		Host Research Installation:	DTU: SYSLAB/ICL		
		Access Status:	Under negotiation		---
10	SimOpt-Build	<i>Testing of Simulation Models and Optimization Methods to Setup an Optimal Infrastructure the Flexibility in Demand Response of Buildings</i>			
		User Group Organisations:	University of Applied Sciences Stuttgart	Germany	HE
		Host Research Installation:	DTU: SYSLAB/ICL		
		Access Status:	Withdrawn by user		---
11	NOMA-DIC	<i>Smart eNergy grid Optimization with Multi-Agent Distributed predlctive Control</i>			
		User Group Organisations:	Politecnico di Milano	Italy	HE
		Host Research Installation:	ICCS-NTUA: EESL		
		Access Status:	Terminated		20 access days
12	3D-Power	<i>Data-Driven Detection of Events in Power Systems (3D-Power): Machine Learning Based Event Detection in Power Distribution Network with high DER Penetration Using PMU Measurement and HIL Test beds</i>			
		User Group Organisations:	Florida State University	USA	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated		20 access days
13	AQUA	<i>Analysis of power QUALity through smart EV charging processes</i>			
		User Group Organisations:	Universität Passau	Germany	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated		14 access days
14	Eval-log-gers	<i>Evaluation of different data logger technology and data processing techniques for field testing of small locally manufactured wind turbines</i>			
		User Group Organisations:	University Paul Sabatier Laboratory LAAS of CNRS	France	HE/RO
			Tripalium Network	France	O
			Re-Innovation UK	UK	I
		Host Research Installation:	ICCS-NTUA: EESL		
Access Status:	Terminated		10 access days		

3.2 2nd Call for Trans-national Access Proposals (15/03/2017 – 15/06/2017)

This section compiles the proposals received in the 2nd Call for TA proposals launched from 15th March 2017 to 15th June 2017. For each proposal the title, user organization/s, host infrastructure/s and access status are presented. For the type of user organizations, the following codes apply: HE (Higher Education), RO (Research Organization), I (Industry), O (Others: Association, Non-Governmental Organization, etc.).

Call Summary

- 13 proposals received, 12 accepted
- Type of organisation: 2 from Industry + 11 from Universities / Research Institutions
- Expected access duration: 2-10 weeks; 3.6 weeks (average)

- User Groups from:
 - EU: 9 proposals (Greece, Spain, UK, Finland, Latvia, Belgium, Denmark)
 - Associated Countries: 1 proposal (Switzerland)
 - Non-EU: 3 proposals (USA, Nepal, Singapore)

Table 2: Overview of TA proposals from 2nd Call

1	Multi-Is-land	<i>Experimental investigation on the performance characteristics of anti-islanding techniques in the prospect of high PV penetration level</i>			
		User Group Organisations:	Democritus University of Thrace	Greece	HE
		Host Research Installation:	TECNALIA		
		Access Status:	Terminated	19 access days	
2	DER-T4PM	<i>Distributed Energy Resources as Tools for Power Management</i>			
		User Group Organisations:	University of Greenwich	UK	HE
		Host Research Installation:	ICCS-NTUA: EESL		
		Access Status:	Terminated	18 access days	
3	CHROME	<i>Converter Harmonic Model Measurement</i>			
		User Group Organisations:	Tampere University of Technology	Finland	HE
		Host Research Installation:	DNVGL: FPGL		
		Access Status:	Terminated	15 access days	
4	Filters	<i>Comparative Study of the Control of Passive, Active and Hybrids Filters for mitigation of Harmonics and reactive power compensation</i>			
		User Group Organisations:	Universidad Nacional de Educación a Distancia (UNED)	Spain	HE
		Host Research Installation:	---		
		Access Status:	Not approved	---	
5	ECOS-MIC	<i>Developing and Evaluating an Economic Assessment Framework for Microgrids, Based on the Concept of Economies of Scope</i>			
		User Group Organisations:	University of Antwerp	Belgium	HE
		Host Research Installation:	CRES: DG-Lab		
			DTU: SYSLAB/ICL		
			RSE: DER-TF		
			VTT: SG-Oulu		
Access Status:	Terminated	20 (5x4) access days			
6	ROCOF	<i>Real-time Price-based Energy Management Strategies of Commercial building</i>			
		User Group Organisations:	Institute of Physical Energetics (IPE)	Latvia	RO
		Host Research Installation:	SINTEF: NSGL		
		Access Status:	Terminated	5 access days	
7	HARSH	<i>Harmonic stability under sympathetic transformer inrush</i>			
		User Group Organisations:	Aalborg University	Denmark	HE
		Host Research Installation:	DNVGL: FPGL		
		Access Status:	Terminated	5 access days	

8	TCMG	<i>Transient Control in Microgrids</i>			
		User Group Organisations:	Ecole Polytechnique Fédérale de Lausanne (EPFL)	Switzer- land	HE
		Host Research Installation:	SINTEF: NSGL		
		Access Status:	Terminated	14 access days	
9	EPB	<i>Power Hardware in the Loop Testing of Phase Rebalancing Impact (Ensto Phase Balancer)</i>			
		User Group Organisations:	Ensto Utility Networks, Power Electronic Solutions	Finland	I
		Host Research Installation:	University of Strathclyde: PNDC		
		Access Status:	Terminated	10 access days	
10	VoSISDN	<i>Validation of using Smart Inverters for Supporting the Distribution Network</i>			
		User Group Organisations:	National Renewable Energy Laboratory (NREL)	USA	RO
		Host Research Installation:	University of Strathclyde: PNDC		
		Access Status:	Under negotiation	---	
11	DD-CVC	<i>Decentralized and Distributed Coordinated Voltage Control: coordinated control of DERs to enhance LV distribution network voltage profile</i>			
		User Group Organisations:	Nanyang Technological Uni- versity	Singapore	HE
		Host Research Installation:	University of Strathclyde: D-NAP		
		Access Status:	Terminated	11 access days	
12	LMSWT- Nepal	<i>Locally Manufactured Small Wind Turbines for Rural Electrification in Nepal</i>			
		User Group Organisations:	Kathmandu Alternative Power and Energy Group (KAPEG)	Nepal	I
		Host Research Installation:	ICCS-NTUA: EESL		
		Access Status:	Terminated	10 access days	
13	HAR- MONIC	<i>Enhanced Generic Load Modelling using Harmonic Profiles</i>			
		User Group Organisations:	Democritus University of Thrace	Greece	HE
		Host Research Installation:	University of Strathclyde: D-NAP		
		Access Status:	Terminated	9 access days	

3.3 3rd Call for Trans-national Access Proposals (15/08/2017 – 15/11/2017)

This section compiles the proposals received in the 3rd Call for TA proposals launched from 15th August 2017 to 15th November 2017. For each proposal the title, user organization/s, host infrastructure/s and access status are presented. For the type of user organizations, the following codes apply: HE (Higher Education), RO (Research Organization), I (Industry), O (Others: Association, Non-Governmental Organization, etc.).

Call Summary

- 8 proposals received and accepted
- Type of organisation: 2 from Industry + 6 from Universities / Research Institutions
- Expected access duration: 2-5 weeks; 3.7 weeks (average)
- User Groups from:

- EU: 4 proposals (Italy, Spain, France)
- Associated Countries: 3 proposals (Turkey, Israel, Switzerland)
- Non-EU: 1 proposal (USA)

Table 3: Overview of TA proposals from 3rd Call

1	IDR	<i>Improved droop regulation for minimum power losses operation in islanded microgrids</i>			
		User Group Organisations:	University of Palermo	Italy	HE
		Host Research Installation:	CEA-INES: PRISMES		
		Access Status:	Terminated	28 access days	
2	DSM-RSAMRE	<i>DSM and VC based Reliability and Stability Analysis of Microgrid with Renewable Energy</i>			
		User Group Organisations:	Dicle Üiversity	Turkey	HE
			Batman University	Turkey	HE
			University of Ljubljana	Slovenia	HE
			University of Belgrade	Serbia	HE
		Host Research Installation:	TUDelft: ESE-Lab		
Access Status:	Terminated	20 access days			
3	MIC-TESYN	<i>Microgrid tests with synchronverter</i>			
		User Group Organisations:	Synvertec Ltd.	Israel	I
			Tel Aviv University	Israel	HE
		Host Research Installation:	University of Strathclyde: PNDC		
Access Status:	Under negotiation	---			
4	DISCOVERER	<i>Distributed and Intelligent System for Coordination and Optimization of Voltage to Empower Renewables and Electric Resources</i>			
		User Group Organisations:	ORMAZABAL COTRADIS	Spain	I
			ORMAZABAL Corporate Technology	Spain	RO
		Host Research Installation:	Fraunhofer IEE: SysTec		
Access Status:	Terminated	10 access days			
5	DAM-S4IRMA	<i>Distributed Adaptive MPC agentS for Integrated energy Resources MAnagement in smart buildings</i>			
		User Group Organisations:	Politecnico di Milano	Italy	HE
		Host Research Installation:	DTU: SYSLAB/ICL		
Access Status:	In progress	---			
6	SPEAR-HEAD	<i>Study of modular power electronics architectures as an enabler for multi-tier oriented rural electrification</i>			
		User Group Organisations:	LAAS – Laboratory of Analysis and Architecture of Systems	France	RO
			Aire de Conception Energetique, ACE	France	O
			L&R Engineering	Argentina	I
			ALEEA	France	O
			Technical University of Munich	Germany	HE
		Host Research Installation:	ICCS-NTUA: EESL		
Access Status:	Terminated	9 access days			

7	TIPI-GRID	<i>Transient Stability of Interference of Photovoltaic Inverters Reactive Power control by the GRID voltage and Medium Voltage Transformer</i>			
		User Group Organisations:	ZHAW Zurich University of Applied Science	Switzerland	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated	14 access days	

8	4D-Power	<i>Data-Driven Detection of Events in Distribution Power Systems</i>			
		User Group Organisations:	Florida State University (CI2Lab)	USA	HE
			Power Standards Lab	USA	I
			OPAL-RT	France/Canada	I
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated	29 access days	

3.4 4th Call for Trans-national Access Proposals (15/02/2018 – 15/05/2018)

This section compiles the proposals received in the 4th Call for TA proposals launched from 15th February 2018 to 15th May 2018. For each proposal the title, user organization/s, host infrastructure/s and access status are presented. For the type of user organizations, the following codes apply: HE (Higher Education), RO (Research Organization), I (Industry), O (Others: Association, Non-Governmental Organization, etc.).

Call Summary

- 26 proposals received, 2 rejected, 1 withdrawn by user
- Type of organisation: 6 from Industry + 20 from Universities / Research Institutions
- Expected access duration: 1-12 weeks; 3.9 weeks (average)
- User Groups from:
 - EU: 16 proposals (Spain, Sweden, UK, Germany, Austria, The Netherlands, Belgium, Denmark, Finland, Slovenia, Poland, Greece)
 - Associated Countries: 5 proposals (Switzerland, Norway, Turkey)
 - Non-EU: 5 proposals (Russia, India, Singapore, USA)

Table 4: Overview of TA proposals from 4th Call

1	AdFMS	<i>Advanced Fault Monitoring System</i>			
		User Group Organisations:	Streamer	Russia	I
		Host Research Installation:	OCT: UDEX		
		Access Status:	Under negotiation	---	

2	WM-POMS	<i>Wide area Monitoring of Power Oscillations and determination of Mode Shapes using PMU signals</i>			
		User Group Organisations:	G.B. Pant Institute of Engineering and Technology	India	HE
			University of Agder	Norway	HE
			FinGrid	Finland	I
		Host Research Installation:	SINTEF: NSGL		
		Access Status:	Under negotiation	---	

3	PVGRID-HIL	Design of the vector control algorithms for photovoltaic grid-connected systems in distorted utility grids using the Controller-Hardware-in-the-Loop Simulation technique			
		User Group Organisations:	Universidad Politécnica de Cartagena	Spain	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated	19 access days	
4	ASM SPS	Asynchronized Synchronous Motor based Shipboard Power System for All Electric Ship			
		User Group Organisations:	University of Liverpool	UK	HE
		Host Research Installation:	ICCS-NTUA: EESL		
		Access Status:	Terminated	19 access days	
5	onPDnet	Online Partial Discharge measurements in real distribution networks			
		User Group Organisations:	Haefely Test AG	Switzerland	I
		Host Research Installation:	OCT: UDEX		
		Access Status:	Terminated	15 access days	
6	TVRLCM	Testing and validation of two-stage rate limit control method for the hybrid energy storage system			
		User Group Organisations:	Nanyang Technological University	Singapore	HE
		Host Research Installation:	VTT: MP-Espoo		
		Access Status:	Withdrawn by user	---	
7	DEF-HIL	Definition of Hardware-in-the-Loop related performances and components			
		User Group Organisations:	Fraunhofer IEE	Germany	RO
			AIT	Austria	RO
		Host Research Installation:	AIT Fraunhofer IEE		
		Access Status:	Terminated	9+10 access days	
8	CESEPS	Co-Evolution of Smart Energy Products and Services			
		User Group Organisations:	University of Twente	The Netherlands	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Terminated	10 access days	
9	LiBRE	Efficiency Characterisation and Interoperability Validation of Lithium-Battery-Based Hybrid Power Plant for Rural Areas Electrification			
		User Group Organisations:	Enfinity	Belgium	I
		Host Research Installation:	CRES: DG-Lab		
		Access Status:	Terminated	20 access days	
10	OptBiEE-SA _g -NA	Optimal bidding of a EES unit aggregator under uncertainty: Numerical Analysis			
		User Group Organisations:	DTU	Denmark	HE
		Host Research Installation:	RSE: DER-TF		
		Access Status:	Under negotiation	---	

11	SunHILL	Sundom Hardware-In-the Loop living Lab			
		User Group Organisations:	University of Vaasa	Finland	HE
		Host Research Installation:	OFFIS: SESA-Lab		
		Access Status:	Terminated	30 access days	
12	DEFINIT	Decentralized Fault Identification for distribution grids using a limited number of measurements of LV voltage and current and MV current			
		User Group Organisations:	DEPsys	Switzerland	I
		Host Research Installation:	University of Strathclyde: PNDC		
		Access Status:	Under negotiation	---	
13	LCC	Low cost solar concentrator			
		User Group Organisations:	WalOpt	Belgium	I
			CRM Group	Belgium	O
		Host Research Installation:	CRES: DG-Lab		
Access Status:	Terminated	5 access days			
14	D-POV-ERED	Dynamic Performance assessment of Variable Electricity Renewable-based generation units in Distribution systems			
		User Group Organisations:	Washington State University	USA	HE
		Host Research Installation:	University of Strathclyde: D-NAP		
		Access Status:	Under negotiation	---	
15	RIMGrid	Resiliency improvement of microgrid through optimal load scheduling and optimal network reconfiguration			
		User Group Organisations:	Sri Vasavi Engineering College	India	HE
			National Institute of Technology Warangal	India	HE
		Host Research Installation:	---		
		Access Status:	Not approved	---	
16	RF-SYNCH	Robust and fast grid synchronization of distributed energy sources			
		User Group Organisations:	Coventry University	UK	HE
		Host Research Installation:	---		
		Access Status:	On-hold (unfeasible)	---	
17	FTC4GCM	Fault Tolerant Control(FTC) for grid-connected microgrid with sensor and actuator faults			
		User Group Organisations:	Batman University	Turkey	HE
			Dicle University	Turkey	HE
			University of Ljubljana	Slovenia	HE
		Host Research Installation:	---		
Access Status:	Not approved	---			
18	TEAM-VAR 2	Networked feedback control of distributed energy resources for real-time voltage regulation			
		User Group Organisations:	ETH Zurich	Switzerland	HE
		Host Research Installation:	DTU: SYSLAB/ICL		
		Access Status:	Under negotiation	---	

19	Open DISCO	OPEN-Source Security Assessment Framework for DIStributed Control in the Smart Energy Grid			
		User Group Organisations:	Universität Hamburg	Germany	HE
		Host Research Installation:	University of Strathclyde: D-NAP		
		Access Status:	Terminated	8 access days	
20	Rap-GForce	Rapidly Deployable Grid-Forming Control in a Meshed Power Network			
		User Group Organisations:	Aalborg University	Denmark	HE
		Host Research Installation:	DNVGL: FPGL		
		Access Status:	Under negotiation	---	
21	IISLT	Interoperability/Interchangeability via Simulation and Laboratory Testing			
		User Group Organisations:	RWTH Aachen University	Germany	HE
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Under negotiation	---	
22	PERSEID	Modeling and stability analysis tools to contribute to the high Penetration of power electronicS convErters In the Distribution power systems			
		User Group Organisations:	Universidad Carlos III de Madrid	Spain	HE
		Host Research Installation:	SINTEF: NSGL		
		Access Status:	Under negotiation	---	
23	PV Sys-tems	PV Systems impact into the Distributed Network			
		User Group Organisations:	University of Agder	Norway	HE
		Host Research Installation:	---		
		Access Status:	On-hold (unfeasible)	---	
24	COHERE	Controlled operation of flexible electric and heating loads in a residential energy hub			
		User Group Organisations:	Chalmers University of Technology	Sweden	HE
		Host Research Installation:	VTT: SG-Oulu		
		Access Status:	Under negotiation	---	
25	ProMeter-Interface	Advanced Metering Interface for Smart Grid Prosumers			
		User Group Organisations:	AGH University of Science and Technology	Poland	HE
		Host Research Installation:	RSE: DER-TF CRES: DG-Lab		
		Access Status:	In progress	---	
26	iReact-NG	Validation activities for the iReact-NG solution			
		User Group Organisations:	EMTECH SPACE P.C.	Greece	I
		Host Research Installation:	AIT: SmartEST		
		Access Status:	Under negotiation	---	

3.5 5th Call for Trans-national Access Proposals (15/08/2018 – 15/11/2018)

This section compiles the proposals received in the 5th Call for TA proposals launched from 15th August 2018 to 15th November 2018. For each proposal the title and user organization/s are presented; host infrastructure/s are not assigned yet since the proposals are still in the pre-screening and USP evaluation phase. For the type of user organizations, the following codes apply: HE (Higher

Education), RO (Research Organization), I (Industry), O (Others: Association, Non-Governmental Organization, etc.).

Call Summary

- 24 proposals received
- Type of organisation: 2 from Industry + 22 from Universities / Research Institutions
- Expected access duration: 2-12 weeks; 3.8 weeks (average)
- User Groups from:
 - EU: 11 proposals (Italy, Greece, France, Spain, UK, The Netherlands, Germany, Denmark, Ireland)
 - Associated Countries: 3 proposals (Norway, Turkey, Serbia)
 - Non-EU: 10 proposals (India, Japan, Brazil, Pakistan, Iran, South Africa, Saudi Arabia, USA, Ecuador)

Table 5: Overview of TA proposals from 5th Call

1	IsDHDG	Islanding Detection in Integrated Hybrid DG System			
		User Group Organisations:	NIT Raipur	India	HE
			Dublin Institute of Technology	Ireland	HE
			Motilal Nehru National Institute of Technology Allahabad	India	HE
		Host Research Installation:	---		
Access Status:		Evaluation by USP	---		
2	Standard-Charge	IEC 61850 Standard Based Integrated EV Charging Management in Smart Grids			
		User Group Organisations:	Fukushima Renewable Energy Institute, AIST (FREIA)	Japan	RO
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
3	VFG-VPP(AS)	Validation of Flexibility to Generators - Offered by Virtual Power Plant (for Ancillary Services)			
		User Group Organisations:	Enel Produzione, GTG-Innovation	Italy	I
			University of Genova	Italy	HE
		Host Research Installation:	---		
Access Status:		Evaluation by USP	---		
4	Smart Multi-Is-land	Experimental validation of a novel smart anti-islanding algorithm for installations of multiple DERs			
		User Group Organisations:	Democritus University of Thrace	Greece	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
5	PHIL4FLI	Implementing a Power-Hardware-In-the-Loop testing platform for experimentally validating a new MAS-based fault location and isolation system dedicated to distribution networks with high penetration of photovoltaic systems			
		User Group Organisations:	G2Elab, Grenoble INP	France	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	

6	ML4PMU	Advanced Machine Learning for Distribution PMU Data			
		User Group Organisations:	Western Norway University of Applied Science	Norway	HE
			Florida State University	USA	HE
		Host Research Installation:	---		
Access Status:		Evaluation by USP	---		
7	Open-Data4SG	Open Dataset for Smart Grids data			
		User Group Organisations:	Universidade Federal de Itajubá - UNIFEI	Brazil	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
8	HOLIS-TICA	Holistic Optimization of Losses using an Improved Synergy of Technologies under an Innovative Coordination Algorithm			
		User Group Organisations:	Ingelectus Innovative Electrical Solutions SL	Spain	I
			ORMAZABAL Corporate Technology	Spain	RO
			ORMAZABAL COTRADIS	Spain	I
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
9	SHCS	Self-Healing Control Strategy (SHCS) for a Grid-Connected Doubly-Fed Induction Generator-Based Wind Turbine (DFIG-WT) with Sensor Accuracy Uncertainty			
		User Group Organisations:	University of Liverpool	UK	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
10	IEMS	Intelligent Energy Management System (IEMS) Based on Smart Power-Electronic Converters in the Home-Micro-Grids (H-MG)s included renewable energy and energy storages			
		User Group Organisations:	Northumbria University	UK	HE
			Babol University of Technology	Iran	HE
		Host Research Installation:	---		
Access Status:		Evaluation by USP	---		
11	HILT AS-DRES	Hardware-in-the-Loop Testing of Ancillary Services of Distributed Renewable Energy Sources			
		User Group Organisations:	Universidad de Sevilla	Spain	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
12	DSCMG	Distributed Secondary Control for Microgrid			
		User Group Organisations:	COMSATS University Islamabad	Pakistan	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
13	MLIEPV	Machine learning based inertia emulation in Photovoltaic system			
		User Group Organisations:	COMSATS University Islamabad	Pakistan	HE
			Capital University of Science & Technology Islamabad	Pakistan	HE
		Host Research Installation:	---		
Access Status:		Evaluation by USP	---		

14	LFC4-IMEVs	<i>The effects of the time delay on the load frequency control system in Islanded microgrid with electric vehicles</i>			
		User Group Organisations:	Batman University	Turkey	HE
			Dicle University	Turkey	HE
			University of Belgrade	Serbia	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP		---		

15	ARTUPS	<i>Offline testing of adaptive reclosing technique for providing uninterrupted power supply to microgrid system</i>			
		User Group Organisations:	NIT Raipur	India	HE
			Dublin Institute of Technology	Ireland	HE
			Motilal Nehru National Institute of Technology Allahabad	India	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP		---		

16	HERDER	<i>HEuRistic Approaches to Overcome Impacts of Distributed Energy Resources</i>			
		User Group Organisations:	Kadir Has University	Turkey	HE
			Middle East Technical University	Turkey	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP		---		

17	WAHPS	<i>Wide Area Harmonic Propagation Study</i>			
		User Group Organisations:	Eindhoven University of Technology	The Netherlands	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP		---

18	vIED	<i>Validation of Virtual IED developed for large-scale system-security studies using real-time co-simulation and physical lab environment</i>			
		User Group Organisations:	OFFIS e.V	Germany	RO
		Host Research Installation:	---		
		Access Status:	Evaluation by USP		---

19	PV Inv Char	<i>Inverter characterization, determine efficiency, conformance checks and measure harmonic distortions of a solar PV inverter connected to controlled loads</i>			
		User Group Organisations:	Council for Scientific and Industrial Research	South Africa	RO
			University of Johannesburg	South Africa	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP		---		

20	EVACC	<i>An Autonomous Charge Controller for EVs Using Online Sensitivity Estimation</i>			
		User Group Organisations:	Prince Mohammad Bin Fahd University	Saudi Arabia	HE
			King Fahd University of Petroleum and Minerals	Saudi Arabia	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP		---		

21	VILLAS-4ERIGrid	Virtually Interconnected Laboratories for LArge systems Simulation/emulation in ERIGrid			
		User Group Organisations:	RWTH Aachen University	Germany	HE
			DTU	Denmark	HE
			TU Delft	The Netherlands	HE
		Host Research Installation:	---		
Access Status:	Evaluation by USP	---			
22	EBAS-DCM	Event based ancillary services by DC microgrids			
		User Group Organisations:	Siksha O Anusandhan University	India	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
23	CAPS2	CAP System for two phases			
		User Group Organisations:	Catholic University of Cuenca	Ecuador	HE
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	
24	MGCS-LTV	Microgrid Control System Laboratory Testing And Validation			
		User Group Organisations:	AIT Austrian Institute of Technology	Austria	RO
		Host Research Installation:	---		
		Access Status:	Evaluation by USP	---	

4 Trans-national Access Proposal Evaluation and User Selection Panel

4.1 Trans-national Access User Proposal Evaluation

The evaluation of the user project proposals in ERIGrid is done in two phases: (i) pre-screening by the ERIGrid infrastructures, and (ii) full evaluation by the USP. The entire evaluation process was expected to be completed within one month after the deadline for the submission of proposals, but in practice it is taking around 2 months.

The pre-screening is the first assessment of the technical, economic, and organizational feasibility of the received proposal done by the three research infrastructures selected (preferred) by the UG. Technical problems, risks, and related cost are considered. No further evaluation criteria are employed at this stage. The aim of pre-screening is to filter out and avoid the unnecessary work by the USP in evaluating and approving a proposal that cannot be implemented due to technical or economical infeasibility at the selected infrastructures (or even in any ERIGrid infrastructure). Since the beginning of the TA Calls, it has been proven that pre-screening is a crucial tool in the TA process.

All received proposals that pass the pre-screening are subsequently fully evaluated by the USP following the principles of transparency, fairness and impartiality. The concrete experts (normally 3-4 members of the USP) for the evaluation of each proposal are appointed by the ERIGrid TA Manager (i.e., Emilio Rodriguez, TECNALIA) and the ERIGrid Project Coordinator (i.e., Thomas Strasser, AIT) depending on the proposal topic and the availability of the USP members. In general, the ERIGrid TA Manager and the ERIGrid Project Coordinator do not participate in the proposal evaluation but shall guarantee the compliance of the proposal with the eligibility rules of the TA.

There are no meetings of the USP in ERIGrid; each USP member only keeps a private interaction with the Project Coordinator and the TA Manager in order to avoid cross-influences in the evaluations with other USP members. The names of the USP members evaluating a proposal are not known by the proposing user group. On the contrary, the user group members and their organisations are visible in the proposal to be evaluated by the USP (i.e. proposals are not anonymized during their evaluation).

The criteria for the assessment of the proposals successfully pre-screened (i.e., feasible) are the following:

- a) *Scientific/Technical merit (score: 0-5)*: Scientific and technical relevance, originality and innovation, methodology, robust and realistic test/evaluation approach.
- b) *Improve know-how and capacity of the RI (score: 0-5)*: Improvement of know-how within the RI, enhancement of RI technologies and methods, alignment with ERIGrid scenarios/use cases/test cases, synergies with other projects and cooperation with other infrastructures.
- c) *Compliance with EU policies and priorities (score: 0-5)*: Compliance with European RTD policies and priorities. Social impact. Impact on EU industry (e.g., standardization and competitiveness). Sustainable growth interest. New users that have not previously used the installation, users working in countries where no equivalent research infrastructure exist, young researchers, female researchers.
- d) *General quality of the proposal (score: 0-5)*: Completeness and organization of the proposal, clear definition of the objectives and expected results, relevance of the proposed dissemination actions, justified requested amount of access.

For each proposal, the USP expert will issue a score, which will be the sum of the above four individual scores. The final score of the proposal will be calculated as the mean value of the scores issued by the USP members evaluating the proposal. Also, in this phase, each USP member provides comments and suggests modifications to improve the project or resubmit the proposal within

the call deadline or to future calls. A Proposal Review Report (PRR) is prepared based on the evaluation information of the USP members and sent to the User Group when notifying the proposal evaluation result (accepted or rejected). An example of this Proposal Evaluation Report is included in the Annex.

4.2 User Selection Panel Membership

The USP is a group of 54 members from international organisations (“external experts”) and from ERIGrid partners (“internal experts”) with diverse profiles (academia, industry) and covering the different domains of the smart grid area (power systems, ICT, etc.). An updated list of the membership of the USP is maintained by ERIGrid and it is at the disposal of the EC. At the moment, the USP is formed by 40 external experts and 14 internal experts. The presence of “internal experts” is advisable and contributes to assess better if the received proposals are aligned with ERIGrid approaches and goals.

Current members of the USP are included in Table 6 and Table 7.

Table 6: Overview of external experts of the ERIGrid USP

External Experts					
Reinhilde d’Hulst	VITO	Belgium	Damien Picault	ENEDIS	France
Sami Repo	Tampere University of Technology	Finland	Sebastian Rohjans	Hamburg University of Applied Sciences	Germany
Haris Patsios	University of Newcastle	UK	Mathias Noe	KIT - Technical University of Karlsruhe	Germany
Stamatis Karnouskos	SAP	Germany	Jörn Geisbüsch	KIT - Technical University of Karlsruhe	Germany
João Francisco Alves Martins	Universidade Nova de Lisboa	Portugal	Dominique Roggo	HES-SO - University of Applied Sciences Western Switzerland	Switzerland
Luca Ferrarini	Politecnico di Milano	Italy	Jan Desmet	UGHENT	Belgium
Petr Kadera	CVUT	Czech Republic	Joseph Mutale	University of Manchester	UK
Valeriy Vyatkin	Alto University	Finland	Metody G Georgiev	TU Sofia	Bulgaria
Andrea Bengini	University of South Carolina	USA	Rad Stanev	TU Sofia	Bulgaria
Pierluigi Siano	University of Salerno	Italy	Jürgen Sachau	Luxembourg University	Luxembourg
Pierluigi Mancarella	University of Manchester University of Melbourne	UK Australia	Irena Wasiak	TU Lodz	Poland
Amro M. Farid	Dartmouth University	USA	Carlos Moreira	INESC TEC	Portugal
Konstantina Mentesidi	GIZ GR	Greece	David Rua	INESC TEC	Portugal

External Experts					
Alessandra Parisio	University of Manchester	UK	Mihaela Albu	MicroDERlab	Romania
Spyros Skarvelis-Kazakos	University of Sussex	UK	George E. Georgiou	FOSS Cyprus	Cyprus
Panayiotis Moutis	Carnegie Mellon University	USA	Jay Johnson	Sandia National Laboratories	USA
Ulf Häger	Technische Universität Dortmund	Germany	Luis Arribas de Paz	CIEMAT	Spain
Carlos Veganzones	UPM - Technical University of Madrid	Spain	José M. Maza-Ortega	University of Sevilla	Spain
Sergio Martínez	UPM - Technical University of Madrid	Spain	Alvaro Luna Alloza	Research Center on Renewable Energy Systems (SEER-UPC)	Spain
Giri Venkataramanan	University of Wisconsin-Madison	USA	Anna M. Kosek	TNO	Netherlands

Table 7: Overview of internal experts of the ERIGrid USP

Internal Experts					
Roland Bründlinger	AIT Austrian Institute of Technology	Austria	Diana Strauß-Mincu	DERlab	Germany
Filip Pröbstl Andrén	AIT Austrian Institute of Technology	Austria	Henrik Bindner	DTU	Denmark
Eduardo Zabala	TECNALIA	Spain	Panos Kotsampopoulos	ICCS-NTUA	Greece
Salvador Ceballos	TECNALIA	Spain	Van Hoa NGUYEN	Grenoble INP	France
Mihai Calin	DERlab	Germany	Davood Babazadeh	OFFIS	Germany
Andrei Morch	SINTEF Energy Research	Norway	Ian Gilbert	Ormazabal Corporate Technology	Spain
Anna Kulmala	VTT	Finland	Kari Mäki	VTT	Finland

The USP membership has been kept stable since it was created for the evaluation of the 1st Call for TA proposals in September 2016. Just two changes have been performed:

- Berent Evenblij (TNO, The Netherlands) left his company in October 2018, leaving also the ERIGrid USP.
- Ove S. Grande (SINTEF Energy Research, Norway) retired at the beginning of 2018 and was replaced by Andrei Morch also from SINTEF Energy Research in Norway.

4.3 User Selection Panel Evaluations of Trans-national Access Proposals

The following sections include the assignment of USP members to the proposals received in the TA Calls, and the corresponding scores cast by them. The aim is to have at least 3 evaluations per proposal; however, this is not always possible since the USP experts work on a voluntary basis and not always they have enough availability to assess the assigned proposals in time.

4.3.1 Evaluation of 1st Call Proposals

The following table shows the evaluation results of the 1st Call.

Table 8: Evaluation results of 1st Call proposals

1TEAM-VAR			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Filip Prössl Andrén	18,0	17,8	APPROVED
Ulf Häger	16,0		
Reinhilde d'Hulst	19,5		
2INTREPID			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Pierluigi Mancarella	---	11,5	APPROVED
Berent Evenblij	6,0		
Roland Bründlinger	17,0		
3GaMDER			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Pierluigi Siano	20,0	15,3	APPROVED
Luca Ferrarini	11,0		
João Francisco Alves Martins	15,0		
4DiNODR			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Pierluigi Siano	15,0	15,3	APPROVED
Anna M. Kosek	14,0		
Petr Kadera	17,0		
5FT Operation			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Giri Venkataramanan	---	17,5	APPROVED
Carlos Veganzones	19,0		
Salvador Ceballos	16,0		
6REPRMs			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Konstantina Mentesidi	14,5	11,8	APPROVED
Spyros Skarvelis-Kazakos	14,0		
Giri Venkataramanan	7,0		

7 DUSCP			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Damien Picault	11,0	10,7	APPROVED
Diana Strauß-Mincu	13,0		
Roland Bründlinger	8,0		
8 Smart beats Copper			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Sebastian Rohjans	15,5	14,5	APPROVED
Stamatis Karnouskos	13,0		
Valeriy Vyatkin	15,0		
9 B2GDEMO			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Haris Patsios	11,0	13,3	APPROVED
Spyros Skarvelis-Kazakos	14,0		
Eduardo Zabala	15,0		
10 SimOptBuild			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Amro M. Farid	---	15,4	APPROVED
Alessandra Parisio	11,8		
Sebastian Rohjans	19,0		
11 NOMADIC			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Petr Kadera	4,0	9,9	APPROVED
Alessandra Parisio	15,8		
Panayiotis Moutis	10,0		
12 3D-Power			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Andrea Benigni	13,0	15,8	APPROVED
Mihai Calin	16,0		
Konstantina Montesidi	18,5		
13 AQUA			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Haris Patsios	19,0	16,3	APPROVED
Henrik Bindner	11,0		
Eduardo Zabala	19,0		

14 Eval-loggers			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Sami Repo	---	16,5	APPROVED
Sergio Martínez	17,0		
Mihai Calin	16,0		

4.3.2 Evaluation of 2nd Call Proposals

The following table shows the evaluation results of the 2nd Call.

Table 9: Evaluation results of 2nd Call proposals

1 Multi-Island			
USP MEMBER	SCORE	MEAN SCORE	RESULT
George E. Georghiou	17,0	15,8	APPROVED
Jay Johnson	12,0		
Damien Picault	---		
Diana Strauß-Mincu	18,0		
Jörn Geisbüsch	16,0		
2 DERT4PM			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Ulf Häger	9,0	12,8	APPROVED
Rad Stanev	20,0		
Spyros Skarvelis-Kazakos	9,0		
Filip Prössl Andrén	13,0		
Sami Repo	---		
3 CHROME			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Irena Wasiak	17,0	15,0	APPROVED
Mihaela Albu	---		
Haris Patsios	---		
Andrea Bengini	10,0		
Salvador Ceballos	18,0		
4 FILTERS			
USP MEMBER	SCORE	MEAN SCORE	RESULT
PROPOSAL REJECTED (not sent to USP)			

5ECOSMIC			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Joseph Mutale	---	15,0	APPROVED
Konstantina Mentesidi	11,0		
Alvaro Luna Alloza	---		
Eduardo Zabala	19,0		
Ove S. Grande	---		
6ROCOF			
USP MEMBER	SCORE	MEAN SCORE	RESULT
João Francisco Alves Martins	13,0	14,8	APPROVED
Pierluigi Siano	18,0		
Kari Mäki	---		
Sebastian Rohjans	14,0		
Davood Babazadeh	14,0		
7HARSH			
USP MEMBER	SCORE	MEAN SCORE	RESULT
José M. Maza-Ortega	19,0	19,3	APPROVED
Berent Evenblij	---		
Carlos Veganzones	20,0		
Roland Bründlinger	19,0		
Giri Venkataramanan	---		
8TCMG			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Metody G Georgiev	20,0	17,3	APPROVED
David Rua	---		
Luis Arribas de Paz	19,0		
Panayiotis Moutis	15,0		
Panos Kotsampopoulos	15,0		
9EPB			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Dominique Roggo	17,0	15,3	APPROVED
Jan Desmet	---		
Sergio Martínez	---		
Henrik Bindner	16,0		
Ian Gilbert	13,0		

10 VoSISDN			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Jürgen Sachau	---	12,7	APPROVED
Reinhilde d'Hulst	15,0		
Carlos Moreira	8,0		
Van Hoa Nguyen	15,0		
Mihai Calin	---		

11 DD-CVC			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Luca Ferrarini	14,0	14,3	APPROVED
Petr Kadera	15,0		
Anna M. Kosek	---		
Konstantina Mentesidi	14,0		
Mihai Calin	---		

12 LMSWT-Nepal			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	14,0	13,5	APPROVED
Mathias Noe	17,0		
Mihaela Albu	12,0		
Sergio Martínez	---		
Henrik Bindner	11,0		

13 HARMONIC			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Amro M. Farid	---	11,7	APPROVED
Valeriy Vyatkin	---		
Stamatis Karnouskos	13,0		
Pierluigi Mancarella	---		
Alessandra Parisio	10,3		

4.3.3 Evaluation of 3rd Call Proposals

The following table shows the evaluation results of the 3rd Call.

Table 10: Evaluation results of 3rd Call proposals

1 IDR			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Konstantina Mentesidi	12,0	11,0	APPROVED
David Rua	16,0		
Sami Repo	---		
Carlos Moreira	5,0		
Diana Strauß-Mincu	---		
2 DSM-RSAMRE			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Reinhilde d'Hulst	9,0	11,8	APPROVED
Pierluigi Siano	18,0		
Spyros Skarvelis-Kazakos	8,0		
Kari Mäki	---		
Panos Kotsampopoulos	12,0		
3 MICTESYN			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	15,0	16,0	APPROVED
Haris Patsios	---		
Roland Bründlinger	17,0		
Ian Gilbert	16,0		
Alvaro Luna Alloza	---		
4 DISCOVERER			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Metody G Georgiev	20,0	15,5	APPROVED
Jay Johnson	15,0		
Ulf Häger	---		
Dominique Roggo	15,0		
Jan Desmet	12,0		
5 DAMS4IRMA			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Petr Kadera	18,0	15,8	APPROVED
Panayiotis Moutis	13,0		
Alessandra Parisio	14,0		
Filip Pröbstl Andrén	16,0		
Anna Kosek	18,0		

6 SPEARHEAD			
USP MEMBER	SCORE	MEAN SCORE	RESULT
José M. Maza-Ortega	16,0	13,5	APPROVED
Berent Evenblij	6,0		
Salvador Ceballos	15,0		
Andrea Benigni	17,0		
Giri Venkataramanan	---		

7 TIPI-GRID			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Rad Stanev	20,0	17,8	APPROVED
Damien Picault	16,0		
George E. Georghiou	15,0		
Henrik Bindner	---		
Luis Arribas de Paz	20,0		

8 4D-Power			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Mihaela Albu	18,0	16,0	APPROVED
Mihai Calin	---		
João Francisco Alves Martins	---		
Davood Babazadeh	14,0		
Van Hoa Nguyen	16,0		

4.3.4 Evaluation of 4th Call Proposals

The following table shows the evaluation results of the 4th Call.

Table 11: Evaluation results of 4th Call proposals

1 AdFMS			
USP MEMBER	SCORE	MEAN SCORE	RESULT
João Francisco Alves Martins	13,0	14,0	APPROVED
Sergio Martínez	---		
Ian Gilbert	14,0		
Mathias Noe	15,0		

2 WMPOMS			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Mihaela Albu	---	16,0	APPROVED
Carlos Veganzones	---		
Irena Wasiak	17,0		
Filip Prössl Andrén	15,0		

3PVGRIDHIL			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Jay Johnson	11,0	13,0	APPROVED
Damien Picault	15,0		
Ulf Häger	14,0		
Carlos Moreira	12,0		
4ASM SPS			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	---	14,5	APPROVED
Metody G Georgiev	---		
Rad Stanev	19,0		
Salvador Ceballos	10,0		
5onPDnet			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Sergio Martínez	---	17,0	APPROVED
Rad Stanev	---		
Filip Prösl Andrén	19,0		
Henrik Bindner	15,0		
6TVRLCM			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Spyros Skarvelis-Kazakos	12,0	14,3	APPROVED
Luca Ferrarini	16,0		
Konstantina Mentesidi	15,0		
Jürgen Sachau	---		
7DEF-HIL			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Álvaro Luna	---	16,7	APPROVED
Sebastian Rohjans	18,0		
Panos Kotsampopoulos	16,0		
Davood Babazadeh	16,0		
8CESEPS			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Reinhilde d'Hulst	16,0	16,0	APPROVED
Berent Evenblij	---		
Anna Kulmala	16,0		
Diana Strauß-Mincu	---		

9LiBRE			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Spyros Skarvelis-Kazakos	14,0	14,0	APPROVED
Giri Venkataramanan	---		
David Rua	---		
Eduardo Zabala	14,0		
10OptBiEESAgg-NA			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Moreira	15,0	14,0	APPROVED
Reinhilde d'Hulst	14,0		
Pierluigi Siano	17,0		
Alessandra Parisio	10,0		
11SunHILL			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Stamatis Karnouskos	18,0	18,0	APPROVED
Amro Farid	---		
Sebastian Rohjans	20,0		
Van Hoa Nguyen	16,0		
12DEFINIT			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Irena Wasiak	15,0	16,0	APPROVED
Metody G Georgiev	17,0		
Ian Gilbert	16,0		
Salvador Ceballos	---		
13LCC			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Luis Arribas	10,0	13,3	APPROVED
Konstantina Mentesidi	18,0		
Kari Maki	---		
Panos Kotsampopoulos	12,0		
14D-POVERED			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Haris Patsios	---	12,0	APPROVED
Luca Ferrarini	12,0		
Thomas Strasser	12,0		
Jan Desmet	---		

15 RIMGrid			
USP MEMBER	SCORE	MEAN SCORE	RESULT
David Rua	---	8,0	NOT APPROVED
Thomas Strasser	8,0		
Giri Venkataramanan	---		
Jörn Geisbüsch	8,0		
16 RF-SYNCH			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Panayiotis Moutis	10,0	13,0	APPROVED
Sami Repo	---		
José M. Maza-Ortega	16,0		
Jürgen Sachau	---		
17 FTC4GCM			
USP MEMBER	SCORE	MEAN SCORE	RESULT
João Francisco Alves Martins	7,0	9,0	NOT APPROVED
Mathias Noe	11,0		
Jörn Geisbüsch	---		
Roland Bründlinger	---		
18 TEAM-VAR 2			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Petr Kadera	19,0	18,3	APPROVED
Panayiotis Moutis	17,0		
Ulf Häger	17,0		
Eduardo Zabala	20,0		
19 Open DISCO			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Stamatis Karnouskos	15,0	14,0	APPROVED
Valeriy Vyatkin	---		
Anna Kosek	---		
Filip Pröbstl Andrén	13,0		
20 Rap-GForce			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Berent Evenblij	17,0	16,5	APPROVED
Haris Patsios	---		
Sami Repo	---		
Dominique Roggo	16,0		

21 IISLT			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Anna Kosek	---	16,5	APPROVED
Valeriy Vyatkin	---		
Andrea Bengini	17,0		
Davood Babazadeh	16,0		
22 PERSEID			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Alvaro Luna	---	17,0	APPROVED
Pierluigi Mancarella	---		
Emilio Rodriguez	16,0		
Van Hoa Nguyens	18,0		
23 PV Systems			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Damien Picault	13,0	14,5	APPROVED
Jay Johnson	16,0		
George E. Georghiou	---		
Diana Strauß-Mincu	---		
24 COHERE			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Pierluigi Siano	18,0	14,3	APPROVED
Andrea Bengini	10,0		
Pierluigi Mancarella	---		
Alessandra Parisio	15,0		
25 ProMeterInterface			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Mihaela Albu	---	12,5	APPROVED
José M. Maza-Ortega	12,0		
Dominique Roggo	13,0		
Jan Desmet	---		
26 iReact-NG			
USP MEMBER	SCORE	MEAN SCORE	RESULT
Luis Arribas	17,0	17,0	APPROVED
George E. Georghiou	---		
Filip Pröbstl Andrén	17,0		
Henrik Bindner	---		

5 First Trans-national Access User Workshop

In cooperation with NA2, a first TA user workshop has been organised in Vienna, Austria on 16 October 2018, as a side event of the IRED 2018 Conference. The workshop entitled “Laboratory-based Services for Smart Grids: Best Practices from the ERIGrid Project”, had as main goals to disseminate the TA project results and facilitate exchange and feedback within the user groups, consortium members and other stakeholders.

As shown in Figure 5, the intense one-day workshop was split into two sessions: (i) morning session “Facilitating effective lab testing by lab users”, and (ii) afternoon session “Improved laboratory-based services for smart grids”. The first session was the proper place to disseminate the user groups’ investigations, present their project results, share experiences and extend their contact network. A selection of 6 user projects were presented to an international audience of almost 40 experts, coming not only from the EU but also from Canada and Japan.

<div>   </div> <p>Laboratory-based Services for Smart Grids: Best Practices from the ERIGrid Project</p> <p>ERIGrid Side Event at IRED 2018 16 October 2018</p> <p>Session “Facilitating effective lab testing by lab users” Moderator: Thomas Strasser, AIT Austrian Institute of Technology</p> <p>08:30 – Registration and Networking</p> <p>09:00 – Welcome and Introduction – Thomas Strasser, AIT Austrian Institute of Technology, Austria</p> <p>09:10 – Hardware in the loop validation of regulation droop coefficients for minimum power losses in islanded microgrid – Outcomes and Results of the IDR TA Project, Tran Thi Tu Quynh, Eleonora Riva Sanseverino, Quoc Tuan Tran (CEA), and Tung Lam Nguyen (GINP), University of Palermo, Italy</p> <p>09:40 – Data-Driven Detection of Events in Distribution Power Systems – Outcomes and Results of the 3D-Power and 4D-Power TA Projects – Reza Arghandeh and Jose Cordova (FSU), Western Norway University of Applied Science, Norway</p> <p>10:10 – Coffee Break</p> <p>10:30 – Optimized parameter settings of reactive power Q(V) control by Photovoltaic inverter – Outcomes and Results of the TIPI-GRID TA Project – Franz Baumgartner, ZHAW Winterthur, Switzerland</p> <p>11:00 – Design and Validation of a Smart Charging Algorithm for Power Quality Control in Electrical Distribution System – Outcomes and Results of the AQUA TA Project – Ammar Alyousef, Dominik Danner, Friederich Kupzog (AIT), and Hermann de Meer, University of Passau, Germany</p> <p>11:30 – Comparison of Power Hardware-in-the-Loop Approaches for the Testing of Smart Grid Controls – Outcomes and Results of the Smart beats Copper TA Project – Falko Ebe, Basem Idlib, David E. Stakic, Shuo Chen, Christoph Kondzialka, Matthias Casel, Gerd Heilscher, Ulm University of Applied Sciences, Germany</p> <p>12:00 – Lunch and Lab Tour (AIT SmartEST)</p>	<div>   </div> <p>Session “Improved laboratory-based services for smart grids” Moderator: Gunter Arnold, Fraunhofer IEE</p> <p>13:30 – Introduction – Gunter Arnold, Fraunhofer IEE</p> <p>13:45 – Improved and Harmonised Smart Grid ICT – Oliver Gehrke, Danmarks Tekniske Universitet (DTU)</p> <p>14:15 – Real-time simulation and hardware-in-the-loop methods – Ron Brandl, Fraunhofer IEE</p> <p>14:45 – System Integration Testing Procedures – Luigi Pellegrino, Ricerca sul Sistema Energetico (RSE)</p> <p>15:15 – Coffee break</p> <p>15:45 – Smart Grid Interoperability – Evangelos Kotsakis, Joint Research Center (JRC) – European Commission</p> <p>16:15 – CAPRICA: A Testbed Demonstrating A Cyber-Secure Synchronous Power Island – Kieran McLaughlin, Queen's University Belfast</p> <p>16:45 – Laboratory-based services for smart grids within the scope of SIFRN activities – Jun Hashimoto, Fukushima Renewable Energy Institute, AIST (FREA)</p> <p>17:15 – Discussion & Wrap-up – Gunter Arnold, Fraunhofer IEE</p> <p>18:00 – End of the Workshop</p> <p>19:30 – Networking dinner</p>
---	---

Figure 5: Agenda of the 1st ERIGrid user workshop held on 16/10/2018 in Vienna, Austria

The user projects presented in the workshop were the following:

- *IDR* project, presented by Tran Thi Tu Quynh from University of Palermo, Italy (Figure 6a).
- *3D-Power* project, presented by Reza Arghandeh from Western Norway University of Applied Science, Norway (Figure 6b).
- *4D-Power* project, presented by Reza Arghandeh from Western Norway University of Applied Science, Norway (Figure 6b).
- *TIPI-GRID* project, presented by Franz Baumgartner from ZHAW Winterthur, Switzerland

(Figure 6c).

- *AQUA* project, presented by Ammar Alyousef from University of Passau, Germany (Figure 6d).
- *Smart Beats Copper* project, presented by Falko Ebe from Ulm University of Applied Sciences, Germany (Figure 6e).



Figure 6: Impressions of the 1st ERIGrid user workshop held on 16/10/2018 in Vienna, Austria

In addition to the workshop presentations (publicly available), the corresponding posters were installed around in the workshop room and led also to interesting discussions during the coffee breaks. Finally, a visit to AIT's SmartEST laboratory was also organised during the lunch break.

The second user workshop will take place at the end of the project, probably integrated within the ERIGrid final event.

6 Provision of Trans-national Access

6.1 Summary of Trans-national Access Achievements and Outlook

Considering the situation of the first 4 calls for TA proposals described in the above sections, the provision of the access is the following:

- 61 proposals received
- 37 projects already implemented in the RI
 - 91 users
 - 544 access days (of the 1090 access days compromised in the Grant Agreement): *49.9% of the compromised access days* (some days have been accomplished at the begin of the third reporting period)

Considering the 4 previous calls and assuming that all 5th Call proposals will be feasible and accepted (optimistic estimation)¹:

- 85 proposals received
- 77 projects to be implemented in the lab: *104.8% of the compromised access days*
- Industrial TA projects
 - 13 projects are proposed by industrial organisations as UG leader (16.9% of the accepted user projects)
 - 18 projects involve industrial organisations as leader or member of the user group, which are 23.4% of the accepted user projects (not too far away from the goal of 30%)
- Non-EU proposals
 - 19 proposals have come from non-EU countries (India, USA, Singapore, Nepal, Russia, Japan, Brazil, Pakistan, Iran, South Africa, Saudi Arabia, Ecuador)
 - This is the 23.5% of the total access days, a bit above the 20% reference limit
- Internal TA projects: 8 TA projects between ERIGrid partners (10.2% of the total access days, which is around the 10% reference limit)
- Multi-RI TA projects: 3 multisite projects (*ECOSMIC* uses 4 RIs, *ProMeterInterface* uses 3 RIs, and *VILLAS4ERIGrid* uses 2 RIs)

6.2 Degree of Provision

Further to the overall numbers of the previous section, this section describes in more detail the provision of TA and the degree of accomplishment of the TA compromises by the ERIGrid partners *up to the date of submission of this report*.

The Grant Agreement (GA) states the minimum quantity of access to be provided by each installation in terms of access days^{2,3}. Table 12 below also includes an estimation of the corresponding number of TA projects and users linked to the access days.

¹ These figures do not consider 7 received proposals: on-hold projects (*RF SYNCH*, *PV Systems*), rejected proposal (*FILTERS*), withdrawn-by-user proposals (*SimOptBuild*, *TVRLCM*), and not accepted by USP proposals (*FTC4GCM*, *RIMGrid*).

² On 16/10/2018 the ERIGrid Steering Committee approved certain TA budget shift between partners. This TA budget shift is not considered in Table 2 yet.

³ Access week for CEA (PRISMES installation).

Table 12: Provision of access as stated in the Grant Agreement of ERIGrid

Access provider short name	Short name of infrastructure	Installation		Installation country code	Type of access	Unit of access	Unit cost (€)	Min. Quantity of access to be provided	Access costs		Estimated number of users	Estimated number of projects
		Number	Short name						On the basis of UC	As actual costs		
1 - AIT	SmartEST	1	SmartEST	AT	TA-ac	day		175		161227	36	12
2 - CEA	PRISMES	1	PRISMES	FR	TA-ac	week		10		114733	15	5
3 - KAPE - CRES	DG-Lab	1	DG-Lab	EL	TA-uc	day	1426	60	85583		10	5
5 - DNV GL	FPGLab	2	FPGLab	NL	TA-uc	day	6723.21	14	94125		6	3
6 - DTU	SYSLAB/ICL	1	SYSLAB/ICL	DK	TA-ac	day		50		237188	20	10
8 - GRENOBLE INP	PREDIS	1	PREDIS	FR	TA-ac	day		50		27941	10	5
9 - ICCS	EES-lab	1	EES-lab	EL	TA-uc	day	1801	100	180064		16	8
10 - Fraunhofer	SysTec	1	SysTec	DE	TA-ac	day		30		52101	6	3
11 - OCT	UDEX	1	UDEX	ES	TA-uc	day	5635	30	169057		9	3
12 - OFFIS EV	SESA-Lab	1	SESA-Lab	DE	TA-ac	day		50		37188	20	10
13 - RSE SPA	DER-TF	1	DER-TF	IT	TA-uc	day	3094	55	170169		14	7
14 - SINTEF	REL	1	REL	NO	TA-ac	day		30		57096	10	5
15 - TECNALIA	SGTL	1	SGTL	ES	TA-ac	day		86		61568	20	9
16 - TU Delft	ESE-Lab	1	ESE-Lab	NL	TA-ac	day		75		68125	30	15
17 - USTRATH	D-NAP	1	D-NAP	UK	TA-ac	day		75		170770	14	7
17 - USTRATH	PNDC	1	PNDC	UK	TA-ac	day		10		41429	4	2
18 - VTT	MP-Espoo	1	MP-Espoo	FI	TA-ac	day		45		85347	8	4
18 - VTT	SG-Oulu	1	SG-Oulu	FI	TA-ac	day		30		56898	4	2
19 - HEDNO	L&RS-lab	1	L&RS-lab	EL	TA-uc	day	655.37	75	49153		40	8
TOTAL						day		1090			292	123

The distribution of TA proposals/projects per partner for already terminated and future projects according to the 5 Calls launched is shown in Figure 7.

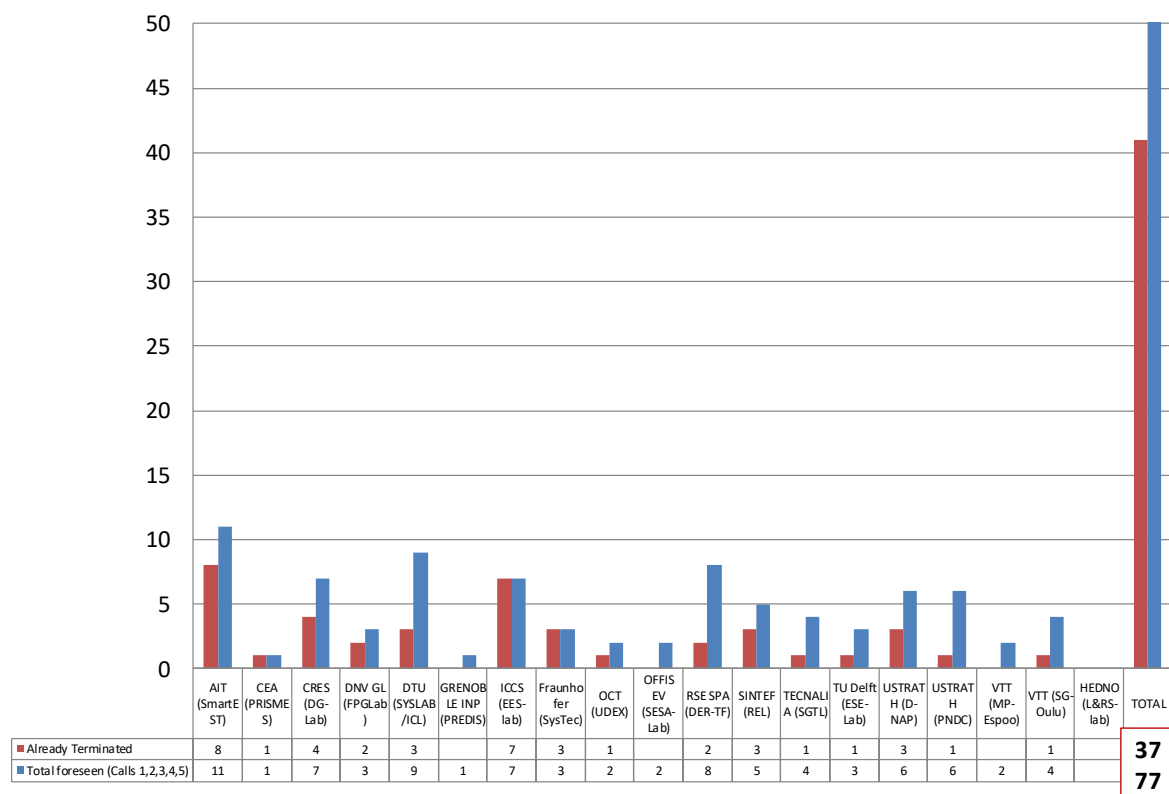


Figure 7: Number of User Projects per Installation

In terms of provided access days (already implemented user projects), the 37 completed projects are distributed as presented in Figure 8. Additional details for the associated number of projects and number of users are shown in Figure 9.

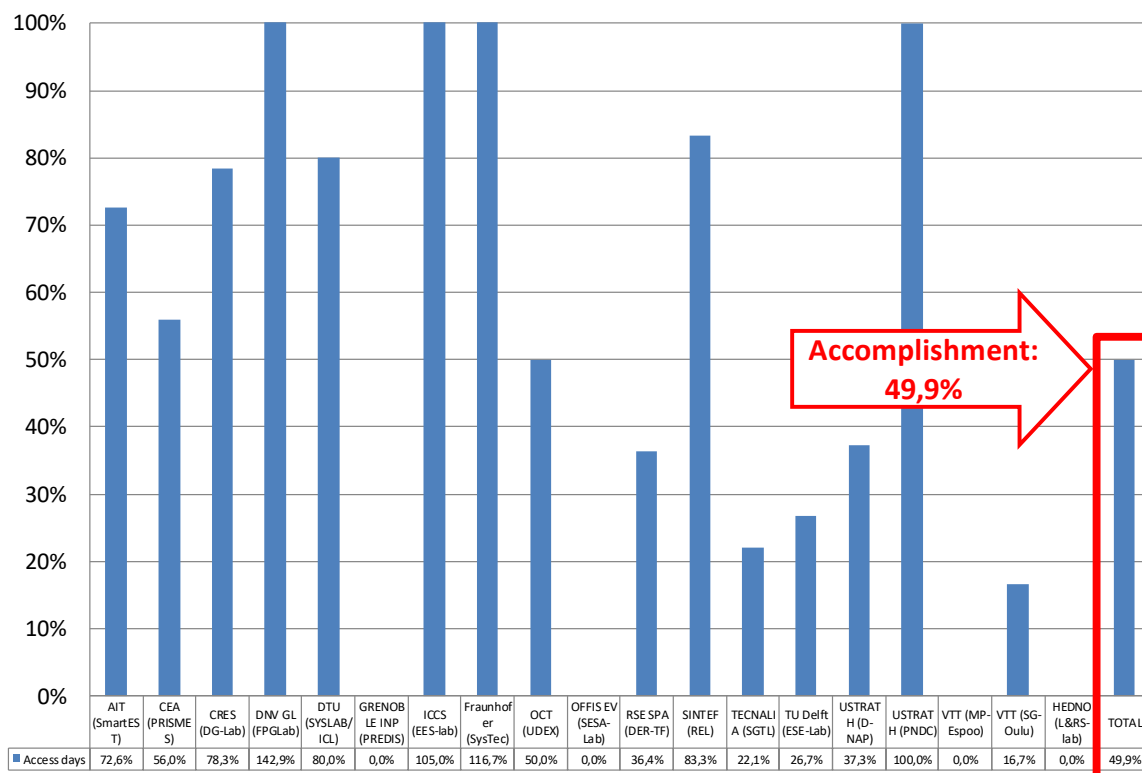


Figure 8: Provided TA by installations (access days linked to terminated user projects)

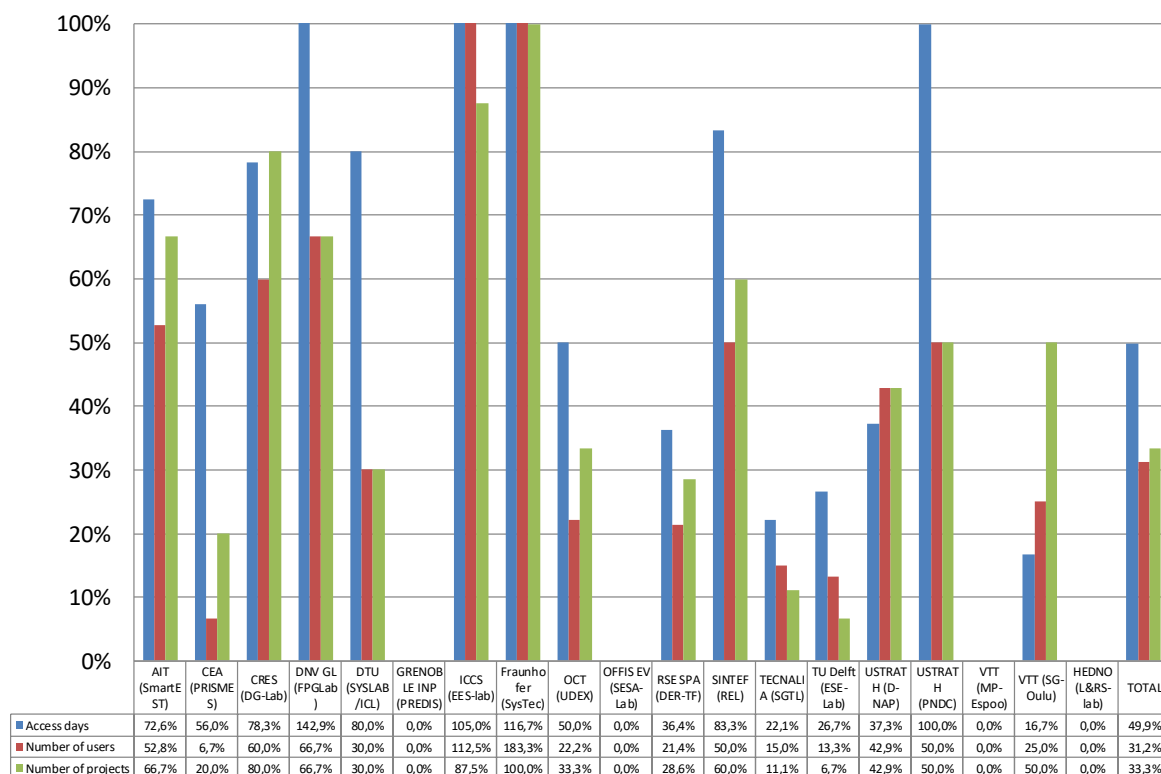


Figure 9: Provided TA by installations (access days, number of users, number of terminated user projects)

The same analysis can be performed when considering also the 5th Call and assuming the best scenario (i.e. all proposals now under pre-screening and USP evaluation will be feasible and approved). This exercise results are shown in Figure 10 and Figure 11.

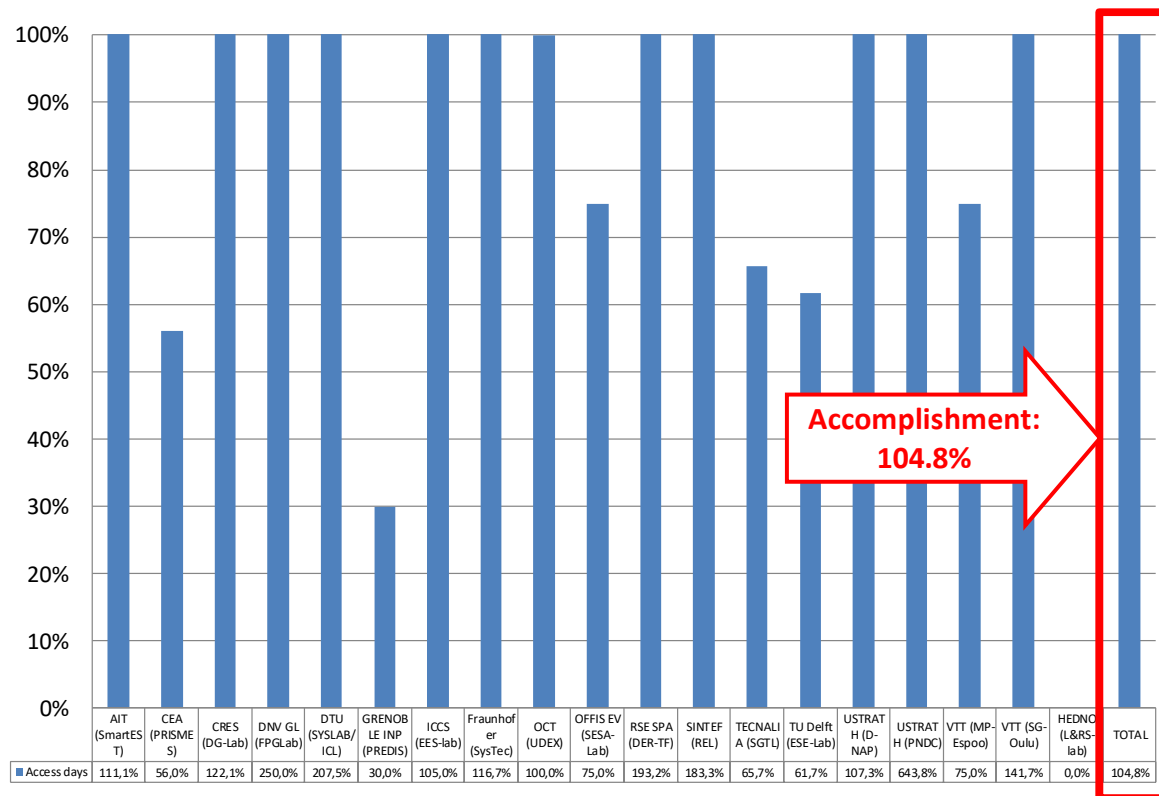


Figure 10: Foreseen provision of access days by installations

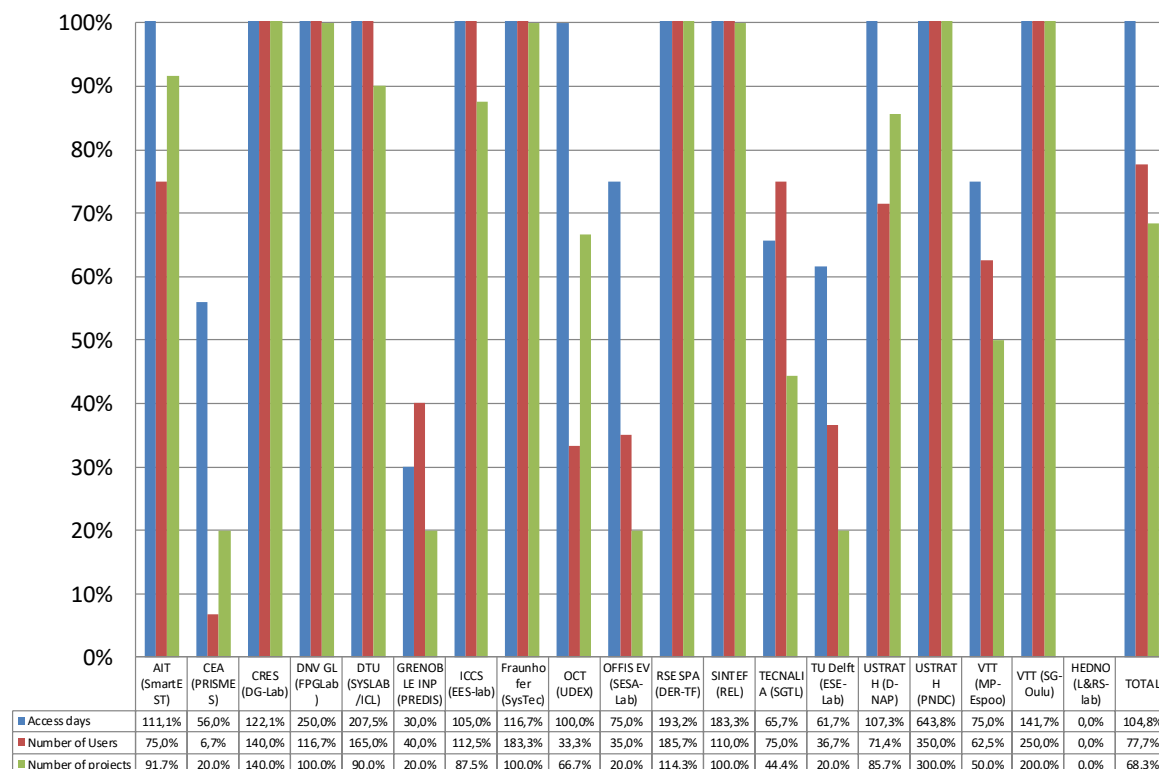


Figure 11: Foreseen provision of TA by installations (access days, number of users, number of user projects)

7 Conclusions

As describe in this report the TA activity in ERIGrid is clearly consolidated: 5 calls for proposals have been launched and closed, with an overall 85 proposals received and evaluated (or in process of evaluation) by a strong USP formed by 54 experts.

At the moment, 37 user projects have been implemented, which means 544 access days (of a total of 1090): 49.9% of the compromised TA provision. Additional 40 projects are being negotiating for implementation between the user groups and the host infrastructures or are under evaluation by the USP. Taking into account these figures and considering that 1 or 2 calls are planned until the end of ERIGrid in April 2020, the initially challenging TA goals seem reachable.

In this period, the first TA user workshop has been also organised with the presentation of a selection of user projects in a great networking atmosphere where feedback was exchanged between users and stakeholders, and the TA opportunity and benefits were further disseminated.

The great success of the TA scheme in ERIGrid is leading to budgetary problems for some research infrastructures, which have gone beyond their expectations and spent the allocated TA budget. TA budget shift between partners has been considered to cope with this situation, trying to maximize the provision of access at project level.

8 References

- [1] Deliverable D3.1, “D-NA3.1, General rules for the ERIGrid trans-national access”, WP3, ERIGrid project, November 2016.
- [2] Deliverable D3.2, “D-NA3.2, Regulation of the stay of the Users at the ERIGrid infrastructures”, WP3, ERIGrid project, March 2017.
- [3] Deliverable D3.3, “D-NA3.3, Reporting the trans-national access activities by the user groups”, WP3, ERIGrid project, March 2017.

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9.3 Example of Proposal Review Report

An example of PRR is presented in this section. The proposal/project data have been anonymized (call number, proposal reference, proposal acronym and user group organisation). Reviewers names are always anonymous to the user. In the report it is presented the final score of the proposal (average value of the individual scores provided by the involved USP reviewers), and the comments of these independent experts to the different assessment categories.



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ERIGrid TRANSNATIONAL ACCESS PROPOSAL REVIEW REPORT

TA Call No.	X
ERIGrid Reference	XX.XXX-YYYY
User Project Acronym	

TOTAL SCORE	19.3 / 20
STATUS	APPROVED

User Group Organisation	
-------------------------	--

1. SCIENTIFIC / TECHNICAL MERIT

Scientific and technical relevance, originality and innovation, methodology, robust and realistic test/evaluation approach.

Comments by Reviewer 1:

The technical and scientific relevance of the proposal is significant. The user group members have previous experience in the analysis of power electronics stability analysis. In this sense, the drawbacks of assuming a simplified model for the power system have properly addressed. The introduction of complex network models is original, being considered as a contribution to the current state of the art. The proposed methodology is adequate because both time and frequency domain simulations are performed in addition to experimental validation. The planned time schedule is totally realistic with the pursued objectives.

Comments by Reviewer 2:

- Research outcomes can be scientific relevant, because allows to validate the developed impedance based method to include the non-linear effect of transformer inrush current core saturation, in system level harmonic stability analysis, in a realistic 200 kW installation, connected to the HV 10kV Public AC and using physical transformers.
- The main originality and innovation points are that the proposed frequency domain method provides a joint platform for the analysis for the inter-dynamics among multiple power electronics devices and the power grid that connects them, including also non-linear effects.
- The methodology, time schedule program, and evaluation approach that suggest the user group, researching along 7 months, with a 4 week in host Lab, is realistic and useful.

Comments by Reviewer 3:

Relevance, innovation and methodology extensively described in the proposal. The proposed research is well in lin with Erigrid Objectives and relevant in the sense of EU targets.



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2. IMPROVEMENT OF KNOW-HOW / CAPACITY OF THE RESEARCH INFRASTRUCTURE

Improvement of know-how within the Research Infrastructures, enhancement of RI technologies and methods, alignment with ERIGrid scenarios/use cases/test cases, synergies with other projects and cooperation with other infrastructures.

Comments by Reviewer 1:

The main outcome of the proposal is to provide a new design methodology for the Voltage Source Converter (VSC) control algorithms to avoid unexpected harmful situations in its field installation. Note that nowadays the ubiquity of VSCs in power labs (interfacing renewable energy sources, energy storage systems, etc.) is a fact. Therefore, the hosting RI and other ERIGrid RIs may take advantage of this new design methodology. In addition, the user group members have pointed out the synergies with other European ongoing projects.

Comments by Reviewer 2:

DNV GL Flexible Power Grid Lab is the most adequate to do the experimental validation tests.. The proposed research project help built knowledge in advanced power converter control and offer a holistic view for the risks of system level stability issues. That can be convenient for DNV GL Flexible Power Grid Lab towards grow its excellence for the testing of power electronics supporting the power grid transition towards power electronics dominant grid. For these reasons, can contribute to improve technologic know-how.

- The proposed research work, finds synergy with same EU research projects as: the "HARMONY EU ERC project (AAU leader); "PROMOTioN-EU Horizon 2020 Program" and "MIGRATE-EU Horizon 2020 Program"

-Eri-Grid Alignment: The analysis of harmonic stability is essential for the rapid deployment of renewable technologies and other smart-grid applications into the modern power grid hence enabling the transition towards sustainable and smart grid future.

Comments by Reviewer 3:

Clearly described in the proposal, project has been aligned with the preferred Host Institution.

3. COMPLIANCE WITH EU POLICIES AND PRIORITIES

Compliance with European RTD policies and priorities. Social impact. Impact on EU industry (e.g. standardization and competitiveness). Sustainable growth interest. New users, young researchers, female researchers.

Comments by Reviewer 1:

The proposal is aligned with the European RTD policy. As a matter of fact, it will be required to assure a secure power supply in the future European power system, where a massive penetration of VSCs is foreseen. It is also important to mention that the proposal may have impact in some European working groups (IEC and CIGRE) devoted to improve technology implementation in the area of renewable energies and power quality.



European Research Infrastructure supporting Smart Grid Systems Technology Development, Validation and Roll Out

Comments by Reviewer 2:

In the context of increasing renewable generation integrated to the future European network, both on-shore and off-shore power grid will face increased risks ranging from sub/super-synchronous oscillation to harmonics oscillation. The overall stability of power grid with the increased number of power electronics are of critical importance to ensure the future energy security of European power network. Hence the impedance based frequency domain method is the vehicle to achieve this goal.

Comments by Reviewer 3:

Clearly described in the proposal, compliance with a number of EU projects and targets.

4. GENERAL QUALITY OF THE PROPOSAL

Completeness and organization of the proposal, clear definition of the objectives and expected results, relevance of the proposed dissemination actions, justified requested amount of access.

Comments by Reviewer 1:

The general view of the proposal is excellent because the starting point, objectives, methodology and scheduling are totally justified. The expected results may have a high impact due to the importance that nowadays VSCs has in the power system. The maximization of the impact is guaranteed through a dissemination plan including PhD courses, journals and IEC/CIGRE working group meetings. The requested access to the RI has been justified including a detailed description of the equipments to be used.

Comments by Reviewer 2:

- The proposal is clear, and well described, and defines clearly the objectives and expected results.
- The exploitation and dissemination planning of the results is very reliable.

Comments by Reviewer 3:

Well written, clear and concise. Objectives, methodology, relevance and dissemination plan extensively described. Requested amount of resources seems appropriate for the planned research activity.

GENERAL COMMENTS AND SUGGESTIONS – RECOMMENDATIONS FOR IMPROVEMENT

Comments by Reviewer 1:

In spite of the quality of the proposal, it is recommended for the future to avoid the use of cut-and-paste text. Note that the beginning of the "State of the art" section has been exactly repeated in the "Detailed description of the proposed project" section.

Comments by Reviewer 2:

- The proposal is clearly and well structured.
- Methodology are well planned.
- Technical and scientific Relevance is high
- Suggestion: Apply new know how in harmonic stability analysis in new grid scenario with many big power electronics controlled generation nodes (p.e big offshore wind parks)

Comments by Reviewer 3:

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