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 D3.5

D-NA3.5: “Second report on trans-national access results and lessons learned”

Grant Agreement No:	**654113**
Funding Instrument:	**Research and Innovation Actions (RIA) – Integrating Activity (IA)**
Funded under:	**INFRAIA-1-2014/2015: Integrating and opening existing national and regional research infrastructures of European interest**
Starting date of project:	**01.11.2015**
Project Duration:	**54 months**

Contractual delivery date:	**30.4.2020**
Actual delivery date:	**22.6.2020**
Name of lead beneficiary for this deliverable:	**15 TECNALIA Research & Innovation**
Deliverable Type:	**Report (R)**
Security Class:	**Public (PU)**
Revision / Status:	**released**

Project co-funded by the European Commission within the H2020 Programme (2014-2020)

Document Information

Document Version: 03

Revision / Status: released

All Authors/Partners Emilio Rodríguez / TEC

Distribution List ERIGrid consortium members

Document History

Revision	Content / Changes	Resp. Partner	Date
1	Initial consolidated version generated	TEC	05.05.2020
2	Internal revision and comments	CRES, HED	12.05.2020
3	Editorial work, review, and minor improvements	AIT	21.06.2020

Document Approval

Final Approval	Name	Resp. Partner	Date
Review WP Level	Evangelos Rikos	CRES	07.05.2020
Review WP Level	Konstantinos Anastasakis	HED	12.05.2020
Review Steering Com. Level	Thomas Strasser	AIT	22.06.2020

Disclaimer

Copyright Notice

Table of contents

Abbreviations

COVID-19	COronaVIrus Disease 2019
EC	European Commission
EU	European Union
GA	Grant Agreement
ICT	Information and Communication Technology
NA	Networking Activity
PRR	Proposal Review Report
RI	Research Infrastructure
RTD	Research and Technology Development
TA	Trans-national Access
UG	User Group
USP	User Selection Panel
WP	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 proposals was launched, until the end of the project in April 2020.

The report describes from the administrative point of view the different calls, the proposals received, their evaluation by the User Selection Panel, and their final status regarding implementation in the different research infrastructures. Based on this information, an analysis of the degree of accomplishment of the Trans-national Access provision at individual infrastructure and project levels is carried out, demonstrating that the demanding access objectives of the project have been met, and that ERIGrid has produced a remarkable impact in the Smart Grids European and international research community concerning the laboratory implementation of multitude of research projects.

1 Introduction

The ERIGrid project has tried to mitigate the lack of validation schemes for Smart Grids configurations, based on a holistic and cyber-physical approach, and supported 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 has been 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), has included free of charge access to these infrastructures, technological and scientific support and funding to cover travel and accommodation during the stays.

This document compiles and summarizes the TA activity during the four 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 the project finalisation in April 2020. It is basically an update of Deliverable D3.4 [1] issued in December 2018. The mechanisms, steps and conditions of the TA scheme in ERIGrid were stated in Deliverables D3.1 [2], D3.2 [3] and D3.3 [4] that were submitted before the 1st Call for proposals was opened.

This Deliverable describes from the administrative point of view the different calls, the proposals received, their evaluation by the User Selection Panel (USP), and their final status regarding implementation; based on this information, the document presents the degree of accomplishment of the TA provision at individual research infrastructure 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 were considered during the entire TA process: the project-wide level and the infrastructure level.

NA3 was in charge of the management of the TA at “project-wide level”, which involved 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 were supervised by TA1 and TA2 at “infrastructure level”; this included 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 exemplary user project technical results and good practices followed during the users’ implementations in the RIs is compiled in Deliverables D11.1 “D-TA1, Summary Report of TA1 Activities” and D12.1 “D-TA2, Summary Report of TA2 Activities”.

1.3 Structure of the Document

The Deliverable is structured as follows. Sections 2 and 3 revise the different calls and the received proposals. The evaluation results provided by the USP are presented in Section 4. Section 5 summarizes the two user workshops organised during the course of the project. Description of the final TA provision is done in Section 6. The report ends with the relevant conclusions in Section 7.

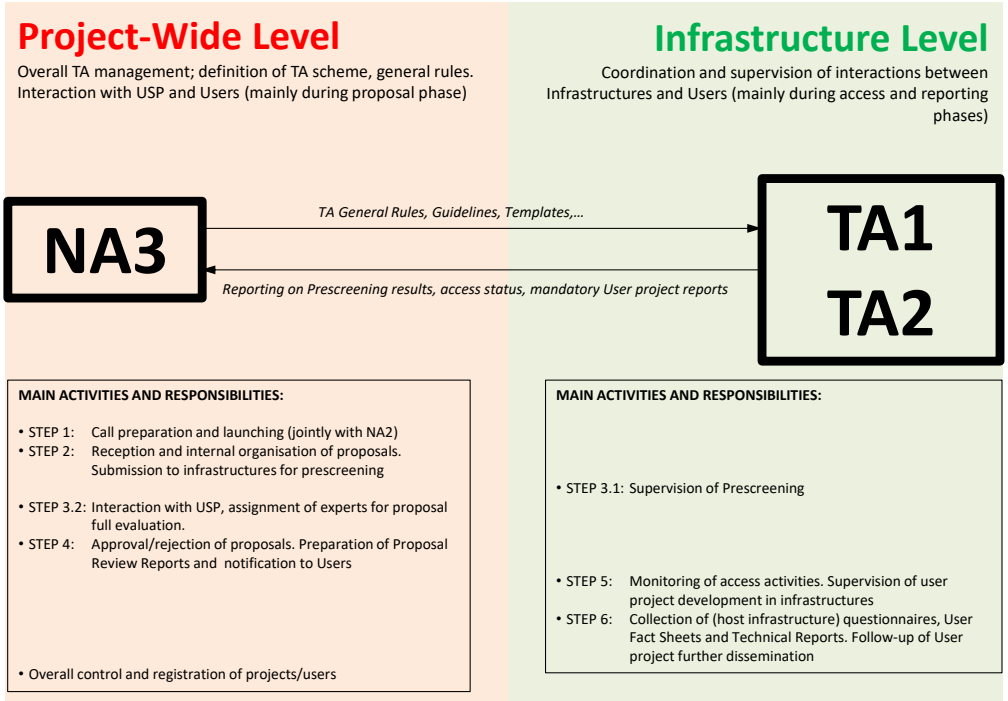

Figure 1: TA management and supervision structure in ERIGrid

2 Trans-national Access Process

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

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

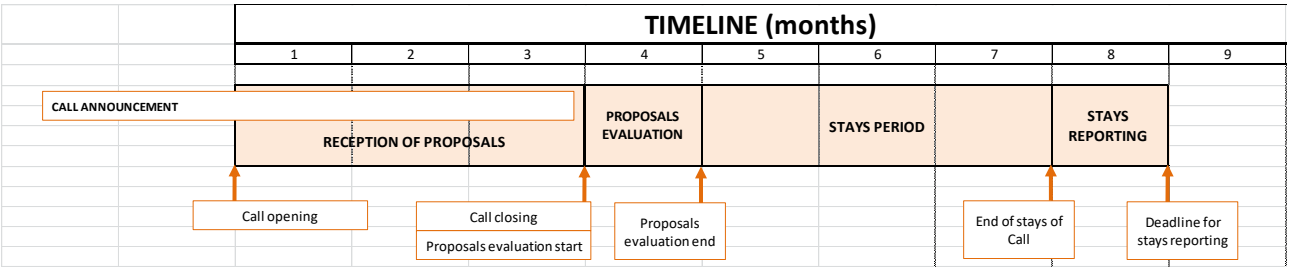

Figure 2: Reference timeline for the TA calls

The reference deadlines of the above steps in the access process were really challenging (based on the accumulated experience during the project). ERIGrid provided some flexibility for the sake of maximizing the access provision. More particularly, the complete evaluation step normally took 2 months, and the consortium allowed an extra month to the users for reporting on the access results. Besides, the access period was generally allocated within the next 6-9 months after notification to users.

3 Calls for Trans-national Access

The TA access in ERIGrid was implemented through successive public calls, published every 6 months. At the end of the project, 6 calls for TA proposals were launched and closed. The timeline of the calls is presented in Figure 3.

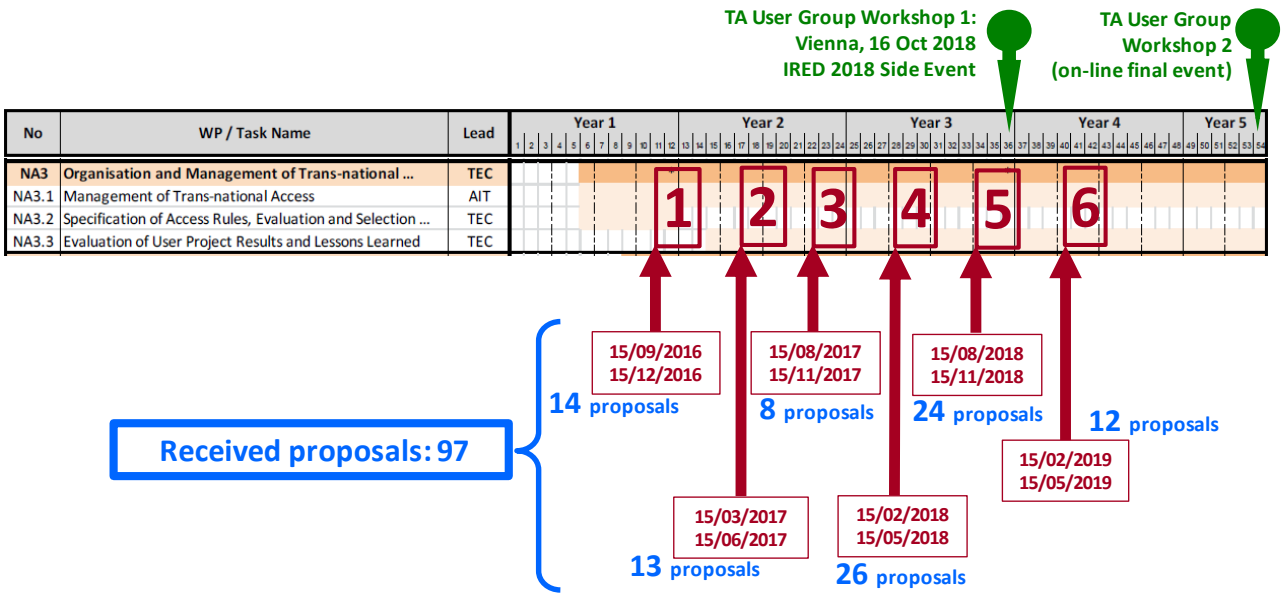

Figure 3: Timeline of TA calls

No further TA calls were launched due to TA budgetary restrictions for most partners. In addition, the implementation of all approved user projects had to be completed at least 1 month 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 situation of the user proposals in the 6 TA calls is the following:

- *1st Call for TA Proposals (15/09/2016 – 15/12/2016):* 14 proposals received, 14 proposals approved by the USP, 2 proposals 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, 1 proposal withdrawn by the user afterwards.
- *3rd Call for TA Proposals (15/08/2017 – 15/11/2017):* 8 proposals received, 8 proposals approved by the USP, 1 proposal withdrawn by the user afterwards.
- *4th Call for TA Proposals (15/02/2018 – 15/05/2018):* 26 proposals received, 24 proposals approved by the USP (of which 1 proposal remained on-hold due to unfeasibility), 2 proposals withdrawn by the user afterwards.
- *5th Call for TA Proposals (15/08/2018 – 15/11/2018):* 24 proposals received, 22 proposals approved by the USP (of which 2 proposals remained on-hold due to unfeasibility), 4 proposals withdrawn by the user afterwards, 1 proposal cancelled due to COVID-19.
- *6th Call for TA Proposals (15/02/2019 – 15/05/2019):* 12 proposals received, 9 proposals approved by the USP (of which 1 proposal remained on-hold due to unfeasibility), 1 proposal cancelled due to COVID-19.

This means that *97 proposals* were received in the above-mentioned calls. Figure 4 shows the number of proposals received per call and the ratio accepted/rejected proposals (based on the USP evaluation).

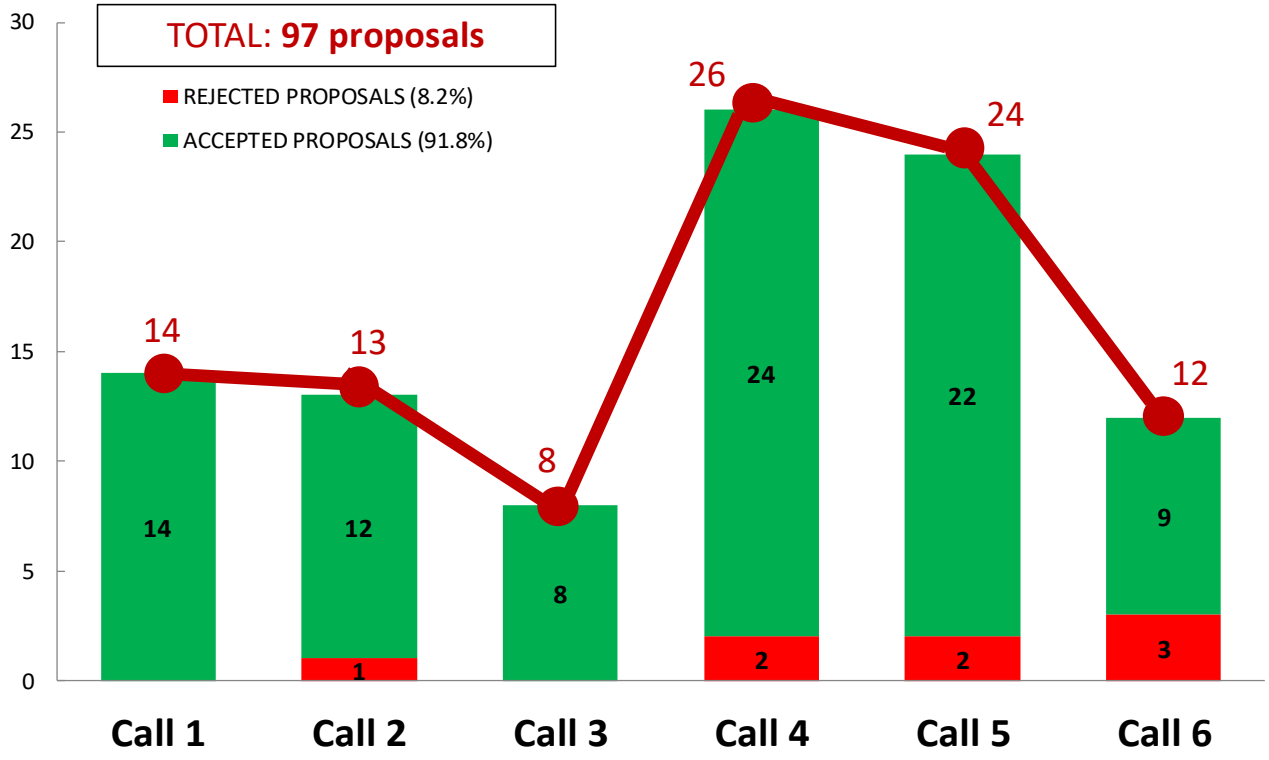

Figure 4: Overview of accepted/rejected proposals received for the TA calls

Until the end of ERIGrid *73 user projects* were implemented in the corresponding RIs. When the access was completed at the corresponding RIs, the TA UGs prepared the technical reporting of the implemented project: *(i)* Fact Sheet (extended abstract of 1-4 pages), and *(ii)* detailed Technical Report. These mandatory documents contain the first scientific output generated by the users, who have benefited from the ERIGrid TA opportunity. All documents are kept in the project internal repository and uploaded also to the ERIGrid website for public access (see *https://erigrid.eu/transnational-access/selected-projects/*).

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, 12 accepted (2 withdrawn by user)
- Type of organisation: 1 from Industry + 13 from Universities / Research Institutions
- 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**	**Switzer-land**	HE
		Host Research Installation:	**DTU: SYSLAB /ICL**		
		Access Status:	**Terminated**	**15 access days**	
2	**INTREPID**	***INtelligent Transformer for Renewable Energy Prosumers Integration and De-ployment***			
		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 Opera-tion**	***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 Vehi-cles and Data Centres***			
		User Group Organisations:	**National Institute of Technol-ogy Warangal**	**India**	HE
		Host Research Installation:	**SINTEF: NSGL**		
		Access Status:	**Terminated**	**6 access days**	
7	**DUSCP**	***Dicle Üniversity Smart Campus Project***			
		User Group Organisations:	**Aalborg University**	**Denmark**	HE
			Dicle Üniversity	**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	**B2GDEMO**	***Demonstration of the applicability of bidirectional electric vehicle chargers in buildings***			
		User Group Organisations:	**Universitat Politècnica de Catalunya**	**Spain**	HE
		Host Research Installation:	**DTU: SYSLAB/ICL**		
		Access Status:	**Withdrawn by user**	**---**	

10	**SimOpt-Build**	***Testing of Simulation Models and Optimization Methods to Setup an Optimal Infrastructure the Flexibility in Demand Response of Buildings***			
		User Group Organisations:	**University of Applied Sciences Stuttgart**	**Germany**	HE
		Host Research Installation:	**DTU: SYSLAB/ICL**		
		Access Status:	**Withdrawn by user**	**---**	

11	**NO-MADIC**	***Smart eNergy grid Optimization with Multi-Agent Distributed predIctive Control***			
		User Group Organisations:	**Politecnico di Milano**	**Italy**	HE
		Host Research Installation:	**ICCS-NTUA: EESL**		
		Access Status:	**Terminated**	**20 access days**	

12	**3D-Power**	***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***			
		User Group Organisations:	**Florida State University**	**USA**	HE
		Host Research Installation:	**AIT: SmartEST**		
		Access Status:	**Terminated**	**20 access days**	

13	**AQUA**	***Analysis of power QUAlity through smart EV charging processes***			
		User Group Organisations:	**Universität Passau**	**Germany**	HE
		Host Research Installation:	**AIT: SmartEST**		
		Access Status:	**Terminated**	**14 access days**	

14	**Evalloggers**	***Evaluation of different data logger technology and data processing techniques for field testing of small locally manufactured wind turbines***			
		User Group Organisations:	**University Paul Sabatier**	**France**	HE/R

			Laboratory LAAS of CNSR		O
			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 (1 withdrawn by user)
- Type of organisation: 2 from Industry + 11 from Universities / Research Institutions
- 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-Island**	***Experimental investigation on the performance characteristics of anti-islanding techniques in the prospect of high PV penetration level***			
		User Group Organisations:	**Democritus University of Thrace**	**Greece**	HE
		Host Research Installation:	**TECNALIA**		
		Access Status:	**Terminated**	**19 access days**	
2	**DERT4PM**	***Distributed Energy Resources as Tools for Power Management***			
		User Group Organisations:	**University of Greenwich**	**UK**	HE
		Host Research Installation:	**ICCS-NTUA: EESL**		
		Access Status:	**Terminated**	**18 access days**	
3	**CHROME**	***Converter Harmonic Model Measurement***			
		User Group Organisations:	**Tampere University of Technology**	**Finland**	HE
		Host Research Installation:	**DNVGL: FPGL**		
		Access Status:	**Terminated**	**15 access days**	
4	**Filters**	***Comparative Study of the Control of Passive, Active and Hybrids Filters for mitigation of Harmonics and reactive power compensation***			
		User Group Organisations:	**Universidad Nacional de Educación a Distancia (UNED)**	**Spain**	HE
		Host Research Installation:	**---**		

		Access Status:	**Not approved**	**---**	

5	**ECOSMIC**	***Developing and Evaluating an Economic Assessment Framework for Microgrids, Based on the Concept of Economies of Scope***			
		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**	***Real-time Price-based Energy Management Strategies of Commercial building***			
		User Group Organisations:	**Institute of Physical Energetics (IPE)**	**Latvia**	RO
		Host Research Installation:	**SINTEF: NSGL**		
		Access Status:	**Terminated**	**5 access days**	

7	**HARSH**	***Harmonic stability under sympathetic transformer inrush***			
		User Group Organisations:	**Aalborg University**	**Denmark**	HE
		Host Research Installation:	**DNVGL: FPGL**		
		Access Status:	**Terminated**	**5 access days**	

8	**TCMG**	***Transient Control in Microgrids***			
		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**	***Power Hardware in the Loop Testing of Phase Rebalancing Impact (Ensto Phase Balancer)***			
		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**	***Validation of using Smart Inverters for Supporting the Distribution Network***			
		User Group Organisations:	**National Renewable Energy La-boratory (NREL)**	**USA**	RO
		Host Research Installation:	**University of Strathclyde: PNDC**		
		Access Status:	**Withdrawn by user**	**---**	

11	**DD-CVC**	***Decentralized and Distributed Coordinated Voltage Control: coordinated control of DERs to enhance LV distribution network voltage profile***			
		User Group Organisations:	**Nanyang Technological Univer-sity**	**Singapore**	HE

		Host Research Installation:	**University of Strathclyde: D-NAP**		
		Access Status:	**Terminated**	**11 access days**	
12	**LMSWT-Nepal**	***Locally Manufactured Small Wind Turbines for Rural Electrification in Nepal***			
		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**	***Enhanced Generic Load Modelling using Harmonic Profiles***			
		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, 8 accepted (1 withdrawn by user)
- Type of organisation: 2 from Industry + 6 from Universities / Research Institutions
- 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**	***Improved droop regulation for minimum power losses operation in islanded microgrids***			
		User Group Organisations:	**University of Palermo**	**Italy**	HE
		Host Research Installation:	**CEA-INES: PRISMES**		
		Access Status:	**Terminated**	**28 access days**	
2	**DSM-RSAMRE**	***DSM and VC based Reliability and Stability Analysis of Microgrid with Renewable Energy***			
		User Group Organisations:	**Dicle Üniversity**	**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**	***Microgrid tests with synchronverter***			
		User Group Organisations:	**Synvertec Ltd.**	**Israel**	I
			Tel Aviv University	**Israel**	HE
		Host Research Installation:	**University of Strathclyde: PNDC**		
		Access Status:	**Withdrawn by user**	**---**	

4	**DISCOV-ERER**	***Distributed and Intelligent System for Coordination and Optimization of Voltage to Empower Renewables and Electric Resources***			
		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**	***Distributed Adaptive MPC agentS for Integrated energy Resources MAnagement in smart buildings***			
		User Group Organisations:	**Politecnico di Milano**	**Italy**	HE
		Host Research Installation:	**DTU: SYSLAB/ICL**		
		Access Status:	**Terminated**	**10 access days**	

6	**SPEAR-HEAD**	***Study of modular power electronics architectures as an enabler for multi-tier oriented rural electrification***			
		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**	***Transient Stability of Interference of Photovoltaic Inverters Reactive Power control by the GRID voltage and Medium Voltage Transformer***			
		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**	***Data-Driven Detection of Events in Distribution Power Systems***

		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, 24 accepted (2 withdrawn by user, 1 on-hold)
- Type of organisation: 6 from Industry + 20 from Universities / Research Institutions
- 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**	***Advanced Fault Monitoring System***			
		User Group Organisations:	**Streamer**	**Russia**	I
		Host Research Installation:	**OCT: UDEX**		
		Access Status:	**Withdrawn by user**	**---**	
2	**WM-POMS**	***Wide area Monitoring of Power Oscillations and determination of Mode Shapes using PMU signals***			
		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:	**Terminated**	**14 access days**	
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: SmartEST**		
			Fraunhofer IEE: SysTec		
		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-SAgg-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:	**Terminated**	**10 access days**	

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**	**25 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:	**Terminated**	**5 access days**	

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:	**Terminated**	**17 access days**	

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	**FTC4-GCM**	***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:	**Terminated**	**10 access days**	

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:	**Terminated**	**10 access days**	

21	**IISLT**	***Interoperability/Interchangeability via Simulation and Laboratory Testing***			
		User Group Organisations:	**RWTH Aachen University**	**Germany**	HE
		Host Research Installation:	**AIT: SmartEST**		
		Access Status:	**Terminated**	**15 access days**	

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:	**Terminated**	**18 access days**	

23	**PV Systems**	***PV Systems impact into the Distributed Network***			
		User Group Organisations:	**University of Agder**	**Norway**	HE
		Host Research Installation:	**ICCS-NTUA: EES-lab**		
		Access Status:	**Terminated**	**15 access days**	

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:	**Terminated**	**5 access days**	

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:	**Terminated**	**9+13 access days**	

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:	**Terminated**	**9 access days**	

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, 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

- 24 proposals received, 22 accepted (4 withdrawn by user, 2 on-hold, 1 cancelled due to COVID-19)
- Type of organisation: 2 from Industry + 22 from Universities / Research Institutions
- 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, Austria)
  - 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:	**TECNALIA: SGTL**		
		Access Status:	**Terminated**	**15 access days**	

2	**Standard-Charge**	***IEC 61850 Standard Based Integrated EV Charging Management in Smart Grids***			
		User Group Organisations:	**Fukushima Renewable Energy Institute, AIST (FREA)**	**Japan**	RO
		Host Research Installation:	**University of Strathclyde: D-NAP**		
		Access Status:	**Terminated**	**10 access days**	

3	**VFG-**	***Validation of Flexibility to Generators - Offered by Virtual Power Plant (for Ancillary Services)***

	VPP(AS)	User Group Organisations:	**Enel Produzione, GTG-Innovation**	**Italy**	I
			University of Genova	**Italy**	HE
		Host Research Installation:	**OFFIS: SESA-Lab**		
		Access Status:	**Terminated**	**40 access days**	

4	**Smart Multi-Island**	***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:	**TECNALIA: SGTL**		
		Access Status:	**Withdrawn by user**	**---**	

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:	**University of Strathclyde: D-NAP**		
		Access Status:	**Withdrawn by user**	**---**	

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:	**AIT: SmartEST**		
		Access Status:	**Cancelled due to COVID-19**	**---**	

7	**Open-Data4SG**	***Open Dataset for Smart Grids data***			
		User Group Organisations:	**Universidade Federal de Itajubá - UNIFEI**	**Brazil**	HE
		Host Research Installation:	**---**		
		Access Status:	**Not approved**	**---**	

8	**HOLISTICA**	***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:	**DTU: SYSLAB/ICL**		
		Access Status:	**Terminated**	**6 access days**	

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:	On-hold (unfeasible)	---	

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:	Not approved	---	

11	**HILT ASDRES**	***Hardware-in-the-Loop Testing of Ancillary Services of Distributed Renewable Energy Sources***			
		User Group Organisations:	**Universidad de Sevilla**	**Spain**	HE
		Host Research Installation:	TU Delft: ESE-Lab		
		Access Status:	Terminated	25 access days	

12	**DSCMG**	***Distributed Secondary Control for Microgrid***			
		User Group Organisations:	**COMSATS University Islamabad**	**Pakistan**	HE
		Host Research Installation:	OFFIS: SESA-Lab		
		Access Status:	Withdrawn by user	---	

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:	RSE: DER-TF		
		Access Status:	Withdrawn by user	---	

14	**LFC4-IMEVs**	***The effects of the time delay on the load frequency control system in Islanded microgrid with electric vehicles***			
		User Group Organisations:	**Batman University**	**Turkey**	HE
			Dicle University	**Turkey**	HE
			University of Belgrade	**Serbia**	HE
		Host Research Installation:	RSE: DER-TF		
		Access Status:	Terminated	9 access days	

15	**ARTUPS**	***Offline testing of adaptive reclosing technique for providing uninterrupted power supply to microgrid 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:	**TECNALIA: SGTL**		
		Access Status:	**Terminated**	**15 access days**	

16	**HERDER**	***HEuRistic Approaches to Overcome Impacts of Distributed Energy Resources***			
		User Group Organisations:	**Kadir Has University**	**Turkey**	HE
			Middle East Technical University	**Turkey**	HE
		Host Research Installation:	**RSE: DER-TF**		
		Access Status:	**Terminated**	**10 access days**	

17	**WAHPS**	***Wide Area Harmonic Propagation Study***			
		User Group Organisations:	**Eindhoven University of Technology**	**The Netherlands**	HE
		Host Research Installation:	**University of Strathclyde: PNDC**		
		Access Status:	**Terminated**	**6 access days**	

18	**vIED**	***Validation of Virtual IED developed for large-scale system-security studies using real-time co-simulation and physical lab environment***			
		User Group Organisations:	**OFFIS e.V**	**Germany**	RO
		Host Research Installation:	**VTT: MP-Espoo**		
		Access Status:	**Terminated**	**20 access days**	

19	**PV Inv Char**	***Inverter characterization, determine efficiency, conformance checks and measure harmonic distortions of a solar PV inverter connected to controlled loads***			
		User Group Organisations:	**Council for Scientific and Industrial Research**	**South Africa**	RO
			University of Johannesburg	**South Africa**	HE
		Host Research Installation:	**CEA: PRISMES**		
		Access Status:	**Terminated**	**22 access days**	

20	**EVACC**	***An Autonomous Charge Controller for EVs Using Online Sensitivity Estimation***			
		User Group Organisations:	**Prince Mohammad Bin Fahd University**	**Saudi Arabia**	HE
			King Fahd University of Petroleum and Minerals	**Saudi Arabia**	HE
		Host Research Installation:	**VTT: MP-Espoo**		
		Access Status:	**Terminated**	**13 access days**	

21	**VILLAS4-ERIGRID**	***Virtually Interconnected Laboratories for LArge systems Simulation/emulation in ERIGrid***			
		User Group Organisations:	**RWTH Aachen University**	**Germany**	HE
			DTU	**Denmark**	HE

			TUDelft	**The Nether-lands**	HE
		Host Research Installation:	**DTU: SYSLAB/ICL**		
			TUDelft: ESE-Lab		
		Access Status:	**Terminated**	**12+13 access days**	

22	**EBAS-DCM**	***Event based ancillary services by DC microgrids***			
		User Group Organisations:	**Siksha O Anusandhan University**	**India**	RO
		Host Research Installation:	**---**		
		Access Status:	**On-hold (unfeasible)**	**---**	

23	**CAPS2**	***CAP System for two phases***			
		User Group Organisations:	**Catholic University of Cuenca**	**Ecuador**	HE
		Host Research Installation:	**GRENOBLE INP: PREDIS**		
		Access Status:	**Terminated**	**14 access days**	

24	**MGCS-LTV**	***Microgrid Control System Laboratory Testing and Validation***			
		User Group Organisations:	**AIT Austrian Institute of Technology**	**Austria**	RO
		Host Research Installation:	**TECNALIA: SGTL**		
		Access Status:	**Terminated**	**17 access days**	

3.6 6th Call for Trans-national Access Proposals (15/02/2019 – 15/05/2019)

This section compiles the proposals received in the 6th call for TA proposals launched from 15th February 2019 to 15th May 2019. 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

- 12 proposals received, 9 accepted (1 on-hold, 1 cancelled due to COVID-19)
- Type of organisation: 4 from Industry + 8 from Universities / Research Institutions
- Expected access duration: 2-7 weeks; 3.4 weeks (average)
- User Groups from:
  - EU: 9 proposals (The Netherlands, Denmark, UK, Spain, Estonia, Cyprus, Germany, France)
  - Associated Countries: 2 proposals (Norway, Switzerland)
  - Non-EU: 1 proposal (Japan)

Table 6: Overview of TA proposals from 6th Call

1	**Moving Solar**	***What is influence of fast moving shadows on thin film solar PV***			
		User Group Organisations:	**IM Efficiency**	**The Nether-lands**	I

		Host Research Installation:	---		
		Access Status:	**Not approved**	---	

2	**ATMBP**	***Advanced thermal management of battery packs***			
		User Group Organisations:	**Aalborg University**	**Denmark**	HE
		Host Research Installation:	---		
		Access Status:	**Not approved**	---	

3	**Colour-Power**	***Power Flow Tracing Approach and Proof with Wavelet-Transform based signal processing***			
		User Group Organisations:	**Aston University**	**UK**	HE
		Host Research Installation:	**RSE: DER-TF**		
		Access Status:	**Cancelled due to COVID-19**	---	

4	**ADM-VPP**	***Demand management in developing countries, new methodology for the inclusion of large consumers and Virtual Power Plants***			
		User Group Organisations:	**Universitat Politècnica de València**	**Spain**	HE
		Host Research Installation:	---		
		Access Status:	**Not approved**	---	

5	**RTFM**	***Real-Time Flexibility Management in Power Systems***			
		User Group Organisations:	**Tallinn University of Technology**	**Estonia**	HE
		Host Research Installation:	---		
		Access Status:	**On-hold (unfeasible)**	---	

6	**CY-PRESS**	***Cyprus grid optimal integration and control of RES parks***			
		User Group Organisations:	**FOSS Research Centre for Sustainable Energy, University of Cyprus**	**Cyprus**	HE
		Host Research Installation:	**AIT: SmartEST**		
		Access Status:	**Terminated**	**15 access days**	

7	**VALERIA**	***Validation of low-voltage energy and renewables integration analysis***			
		User Group Organisations:	**elena international GmbH**	**Germany**	I
			Potsdam-Institute for Climate Impact Research	**Germany**	RO
			Humboldt University Berlin	**Germany**	HE
		Host Research Installation:	**TECNALIA: SGTL**		
		Access Status:	**Terminated**	**10 access days**	

8	**LCA**	***Evaluation of Non-Conventional Sensor Technologies for use in Medium Voltage "Dry Air" Gas Insulated Switchgear***			
		User Group Organisations:	**Nuventura GmbH**	**Germany**	I

		Host Research Installation:	**OCT: UDEX**		
		Access Status:	**Terminated**	**19 access days**	

9	**H2AI**	***a study of Hybrid reconfigurable inverter algoritHms associated with Artificial Intelligence for water pumping using modular power converters***			
		User Group Organisations:	**LAAS – Laboratory of Analysis and Architecture of Systems**	**France**	RO
			LAC – Laboratory of Automatic Control	**Argentina**	RO
			ACE – Aire de Conception Energetique	**France**	O
			National Technical University of Athens (WE-NTUA)	**Greece**	HE
		Host Research Installation:	**University of Strathclyde: D-NAP**		
		Access Status:	**Terminated**	**10 access days**	

10	**SSM**	***Soraytec Smart Meter***			
		User Group Organisations:	**Soraytec Scandinavia AS**	**Norway**	I
		Host Research Installation:	**University of Strathclyde: PNDC**		
		Access Status:	**Terminated**	**5 access days**	

11	**Z-NET – ERIGRID**	***Pre normalisation of grid impedance measurement in the power line communication frequency band - Grid impedance impact on PLC***			
		User Group Organisations:	**HES-SO Valais-Wallis**	**Switzerland**	HE
			SIG Genève (DSO)	**Switzerland**	I
			University of the Basque Country	**Spain**	HE
		Host Research Installation:	**TECNALIA: SGTL**		
		Access Status:	**Terminated**	**7 access days**	

12	**ICVP**	***International Consistency of Validation Platform for PV - Battery Hybrid System efficiency testing***			
		User Group Organisations:	**Fukushima Renewable Energy Institute, AIST (FREA)**	**Japan**	RO
		Host Research Installation:	**AIT: SmartEST**		
		Access Status:	**Terminated**	**10 access days**	

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 was 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 1 month after the deadline for the submission of proposals, but in practice it took around 2 months (there must be considered that the USP experts supported ERIGrid on a voluntary basis and sometimes with a limited availability during the proposal evaluation periods).

The pre-screening was 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 were considered. No further evaluation criteria were employed at this stage. The aim of pre-screening was to filter out and avoid the unnecessary work by the USP in evaluating and approving proposals that could not 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 was proven that pre-screening was a crucial tool in the TA process.

All received proposals that passed the pre-screening were 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 were appointed by the ERIGrid TA Manager (i.e., Emilio Rodríguez, TEC) 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 did not participate in the proposal evaluation but had to guarantee the compliance of the proposal with the eligibility rules of the TA.

There were no meetings of the USP in ERIGrid; each USP member only kept 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 who evaluated a proposal were not known by the proposing UG. On the contrary, the UG members and their organisations were visible in the proposals to be evaluated by the USP (i.e., proposals were not anonymized during their evaluation).

The criteria for the assessment of the proposals successfully pre-screened (i.e. feasible) were 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 cast a score, which was the sum of the above four individual scores. The final score of the proposal was calculated as the mean value of the scores issued by the USP members evaluating the proposal. Also, in this phase, each USP member provided comments and suggested modifications to improve the project or resubmit the proposal within the call deadline or to future calls. A Proposal Review Report (PRR) was prepared based on the evaluation

information of the USP members and sent to the UG 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 was a group of 55 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.). The USP was formed by 40 external experts and 15 internal experts. The presence of "internal experts" was advisable and contributed to assess better if the received proposals were aligned with ERIGrid approaches and goals.

An updated list of the membership of the USP has been maintained by ERIGrid during the course of the project and it has been always at the disposal of the EC. Members of the USP are included in Table 7 and Table 8.

Table 7: 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 Benigni	University of South Carolina	USA	Rad Stanev	TU Sofia	Bulgaria
Pierluigi Siano	University of Salerno	Italy	Jürgen Sachau	Luxembourg Univeristy	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
Alessandra Parisio	University of Manchester	UK	Mihaela Albu	MicroDERlab	Romania
Spyros Skarvelis-Kazakos	University of Sussex	UK	George E. Georghiou	FOSS Cyprus	Cyprus

External Experts					
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	Technical University of Madrid (UPM)	Spain	José M. Maza-Ortega	University of Sevilla	Spain
Sergio Martínez	Technical University of Madrid (UPM)	Spain	Alvaro Luna Alloza	SEER-UPC	Spain
Giri Venkataramanan	University of Wisconsin-Madison	USA	Anna M. Kosek	TNO	The Netherlands

Table 8: Overview of internal experts of the ERIGrid USP

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

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

- Berent Evenblij (TNO, The Netherlands) left his company in October 2018 and the ERIGrid USP as well.
- 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 was to have at least 3 evaluations per proposal; however, this was not always possible since the USP experts worked on a voluntary basis and not always they had 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 9: Evaluation results of 1st Call proposals

1	TEAM-VAR		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Filip Pröstl Andrén	18,0	**17,8**	**APPROVED**
Ulf Häger	16,0		
Reinhilde d'Hulst	19,5		

2	INTREPID		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Pierluigi Mancarella	---	**11,5**	**APPROVED**
Berent Evenblij	6,0		
Roland Bründlinger	17,0		

3	GaMDER		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Pierluigi Siano	20,0	**15,3**	**APPROVED**
Luca Ferrarini	11,0		
João Francisco Alves Martins	15,0		

4	DiNODR		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Pierluigi Siano	15,0	**15,3**	**APPROVED**
Anna M. Kosek	14,0		
Petr Kadera	17,0		

5	FT Operation		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Giri Venkataramanan	---	**17,5**	**APPROVED**
Carlos Veganzones	19,0		
Salvador Ceballos	16,0		

6	REPRMs		
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**

7	DUSCP		
Diana Strauß-Mincu	13,0	10,7	APPROVED
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 Mentesidi	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 10: 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 Pröstl 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)			

5	ECOSMIC		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**

5	ECOSMIC		
Joseph Mutale	---	15,0	APPROVED
Konstantina Mentesidi	11,0		
Alvaro Luna Alloza	---		
Eduardo Zabala	19,0		
Ove S. Grande	---		

6	ROCOF		
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		

7	HARSH		
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	---		

8	TCMG		
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		

9	EPB		
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 11: Evaluation results of 3rd Call proposals

1	IDR		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Konstantina Mentesidi	12,0	**11,0**	**APPROVED**

1	IDR		
David Rua	16,0	11,0	APPROVED
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 Pröstl Andrén	16,0		
Anna Kosek	18,0		

6	SPEARHEAD		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**

6	SPEARHEAD		
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 12: 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		

2	WMPOMS		
Filip Pröstl Andrén	15,0	16,0	APPROVED

3	PVGRIDHIL		
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		

4	ASM SPS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	---	14,5	APPROVED
Metody G Georgiev	---		
Rad Stanev	19,0		
Salvador Ceballos	10,0		

5	onPDnet		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Sergio Martínez	---	17,0	APPROVED
Rad Stanev	---		
Filip Pröstl Andrén	19,0		
Henrik Bindner	15,0		

6	TVRLCM		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Spyros Skarvelis-Kazakos	12,0	14,3	APPROVED
Luca Ferrarini	16,0		
Konstantina Mentesidi	15,0		
Jürgen Sachau	---		

7	DEF-HIL		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Álvaro Luna	---	16,7	APPROVED
Sebastian Rohjans	18,0		
Panos Kotsampopoulos	16,0		
Davood Babazadeh	16,0		

8	CESEPS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Reinhilde d'Hulst	16,0	16,0	APPROVED

8	CESEPS		
Berent Evenblij	---	16,0	APPROVED
Anna Kulmala	16,0		
Diana Strauß-Mincu	---		

10	OptBiEESAgg-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		

11	SunHILL		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Stamatis Karnouskos	18,0	18,0	APPROVED
Amro Farid	---		
Sebastian Rohjans	20,0		
Van Hoa Nguyen	16,0		

12	DEFINIT		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Irena Wasiak	15,0	16,0	APPROVED
Metody G Georgiev	17,0		
Ian Gilbert	16,0		
Salvador Ceballos	---		

13	LCC		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Luis Arribas	10,0	13,3	APPROVED
Konstantina Mentesidi	18,0		
Kari Maki	---		
Panos Kotsampopoulos	12,0		

14	D-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 Pröstl Andrén	13,0		

20	Rap-GForce		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Berent Evenblij	17,0	16,5	APPROVED
Haris Patsios	---		
Sami Repo	---		

20	Rap-GForce		
Dominique Roggo	16,0	16,5	APPROVED

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 Nguyen	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

26	iReact-NG		
George E. Georghiou	---	17,0	APPROVED
Filip Pröstl Andrén	17,0		
Henrik Bindner	---		

4.3.5 Evaluation of 5th Call Proposals

The following table shows the evaluation results of the 5th Call.

Table 13: Evaluation results of 5th Call proposals

1	IsDHDG		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Luis Arribas	17,0	15,7	APPROVED
Konstantina Mentesidi	16,0		
Reinhilde d'Hulst	14,0		
Panos Kotsampopoulos	---		

2	Standard-Charge		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
David Rua	17,0	17,0	APPROVED
Spyros Skarvelis-Kazakos	17,0		
Haris Patsios	---		
Filip Pröstl Andrén	17,0		

3	VFG-VPP(AS)		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Jürgen Sachau	---	12,5	APPROVED
David Rua	13,0		
Pierluigi Siano	---		
Julia Merino	12,0		

4	Smart Multi-Island		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
George E. Georghiou	---	17,0	APPROVED
Jay Johnson	17,0		
Konstantina Mentesidi	18,0		
Reinhilde d'Hulst	16,0		

5	PHIL4FLI		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
João Francisco Alves Martins	---	13,0	APPROVED

5	PHIL4FLI		
Petr Kadera	---	13,0	APPROVED
Mathias Noe	16,0		
Ian Gilbert	10,0		

6	ML4PMU		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Mihaela Albu	---	17,7	APPROVED
Stamatis Karnouskos	15,0		
Sebastian Rohjans	20,0		
Kari Maki	18,0		

7	OpenData4SG		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Valeriy Vyatkin	---	9,3	NOT APPROVED
Anna M. Kosek	11,0		
Stamatis Karnouskos	10,0		
Davood Babazadeh	7,0		

8	HOLISTICA		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Ulf Häger	17,0	18	APPROVED
Metody G Georgiev	---		
Dominique Roggo	19,0		
Andrei Morch	---		

9	SHCS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	19,0	17,5	APPROVED
João Francisco Alves Martins	---		
Ian Gilbert	16,0		
Salvador Ceballos	---		

10	IEMS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Haris Patsios	---	9,3	NOT APPROVED
Alessandra Parisio	5,0		
Giri Venkataramanan	---		
Andrei Morch	13,5		

11	HILT AS-DRES		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Pierluigi Siano	---	**17,0**	**APPROVED**
Jürgen Sachau	---		
Panos Kotsampopoulos	17,0		
Van Hoa Nguyen	17,0		

12	DSCMG		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Luca Ferrarini	14,0	**12,5**	**APPROVED**
Alvaro Luna	---		
Jörn Geisbüsch	11,5		
Anna Kulmala	12,0		

13	MLIEPV		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Anna M. Kosek	18,0	**11,9**	**APPROVED**
Sebastian Rohjans	4,5		
José M. Maza-Ortega	10,0		
Damien Picault	15,0		

14	LFC4IMEVs		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
José M. Maza-Ortega	9,0	**10,0**	**APPROVED**
Metody G Georgiev	---		
Jörn Geisbüsch	11,0		
Giri Venkataramanan	---		

15	ARTUPS		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Carlos Moreira	---	**13,5**	**APPROVED**
Irena Wasiak	9,0		
Rad Stanev	18,0		
Sami Repo	---		

16	HERDER		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Alessandra Parisio	9,0	**10,5**	**APPROVED**
Ulf Häger	8,0		
Rad Stanev	16,0		

16	HERDER		
Petr Kadera	9,0	10,5	APPROVED

17	WAHPS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Jan Desmet	---	15,5	APPROVED
Mihaela Albu	---		
Irena Wasiak	17,0		
Kari Maki	14,0		

18	vIED		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Sami Repo	---	15,5	APPROVED
Andrea Bengini	---		
Henrik Bindner	16,0		
Diana Strauß-Mincu	15,0		

19	PV Inv Char		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Jay Johnson	17,0	11,0	APPROVED
George E. Georghiou	12,0		
Damien Picault	4,0		
Roland Bründlinger	---		

20	EVACC		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Moreira	---	11,7	APPROVED
Spyros Skarvelis-Kazakos	12,0		
Panayiotis Moutis	9,0		
Filip Pröstl Andrén	14,0		

21	VILLAS4ERIGrid		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Alvaro Luna	---	18,7	APPROVED
Andrea Bengini	20,0		
Van Hoa Nguyen	18,0		
Davood Babazadeh	18,0		

22	EBAS-DCM		
USP MEMBER	SCORE	MEAN SCORE	RESULT

22	EBAS-DCM		
Luis Arribas	18,0	15,5	APPROVED
Luca Ferrarini	13,0		
Jan Desmet	---		
Mihai Calin	---		

23	CAPS2		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Dominique Roggo	12,0	14,1	APPROVED
Panayiotis Moutis	14,0		
Anna Kulmala	14,0		
Diana Strauß-Mincu	16,5		

24	MGCS-LTV		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Carlos Veganzones	18,5	17,8	APPROVED
Jay Johnson	15,0		
Anna Kosek	20,0		

4.3.6 Evaluation of 6th Call Proposals

The following table shows the evaluation results of the 6th Call.

Table 14: Evaluation results of 6th Call proposals

1	Moving Solar		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Dominique Roggo	6,0	7,7	NOT APPROVED
Roland Bründlinger	2,0		
Rad Stanev	15,0		
George E. Georghiou	---		

2	ATMBP		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Luis Arribas	10,0	8,0	NOT APPROVED
Jan Desmet	12,0		
Spyros Skarvelis-Kazakos	---		
Eduardo Zabala	2,0		

3	ColourPower		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Alessandra Parisio	14,0	16,5	APPROVED

3	ColourPower		
Metody G Georgiev	19,0	16,5	APPROVED
Stamatis Karnouskos	---		
Haris Patsios	---		

4	ADM-VPP		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Panayiotis Moutis	---	9,3	NOT APPROVED
Julia Merino	9,0		
Reinhilde d'Hulst	6,0		
Anna Kulmala	13,0		

5	RTFM		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Pierluigi Siano	---	13,0	APPROVED
Petr Kadera	9,0		
Luca Ferrarini	14,0		
Van Hoa Nguyen	16,0		

6	CYPRESS		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Jay Johnson	11,0	12,3	APPROVED
Alvaro Luna	12,0		
Damien Picault	10,0		
Reinhilde d'Hulst	16,0		

7	VALERIA		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Irena Wasiak	17,0	15,0	APPROVED
Jürgen Sachau	---		
Ulf Häger	16,0		
Davood Babazadeh	12,0		

8	LCA		
USP MEMBER	SCORE	MEAN SCORE	RESULT
Mathias Noe	17,0	14,8	APPROVED
Jörn Geisbüsch	15,5		
Ian Gilbert	12,0		
Henrik Bindner	---		

9	H2AI		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
João Francisco Alves Martins	16,0	**13,3**	**APPROVED**
José M. Maza-Ortega	---		
David Rua	---		
Julia Merino	11,0		
Thomas Strasser	13,0		

10	SSM		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Sebastian Rohjans	18,0	**17,0**	**APPROVED**
Mihaela Albu	---		
Valeriy Vyatkin	---		
Mihai Calin	16,0		

11	Z-NET – ERIGRID		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Anna Kosek	---	**18,0**	**APPROVED**
Mihaela Albu	---		
Konstantina Mentesidi	19,0		
Filip Pröstl Andrén	17,0		

12	ICVP		
USP MEMBER	**SCORE**	**MEAN SCORE**	**RESULT**
Luis Arribas	19,0	**16,3**	**APPROVED**
Konstantina Mentesidi	16,0		
Julia Merino	14,0		

5 Trans-national Access User Workshops

5.1 First Trans-national Access User Workshop

In cooperation with NA2, a first TA user workshop was 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 was presented to an international audience of almost 40 experts, coming not only from the EU but also from Canada and Japan.

Laboratory-based Services for Smart Grids:

Best Practices from the ERIGrid Project

ERIGrid Side Event at IRED 2018
16 October 2018

Session “Facilitating effective lab testing by lab users”

Moderator: Thomas Strasser, AIT Austrian Institute of Technology

08:30 – Registration and Networking

09:00 – Welcome and Introduction – Thomas Strasser, AIT Austrian Institute of Technology, Austria

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

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

10:10 – Coffee Break

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

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

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 Idlb, David E. Stakic, Shuo Chen, Christoph Kondzialka, Matthias Casel, Gerd Heilscher, Ulm University of Applied Sciences, Germany

12:00 – Lunch and Lab Tour (AIT SmartEST)

Session “Improved laboratory-based services for smart grids”

Moderator: Gunter Arnold, Fraunhofer IEE

13:30 – Introduction – Gunter Arnold, Fraunhofer IEE

13:45 – Improved and Harmonised Smart Grid ICT – Oliver Gehrke, Danmarks Tekniske Universitet (DTU)

14:15 – Real-time simulation and hardware-in-the-loop methods – Ron Brandl, Fraunhofer IEE

14:45 – System Integration Testing Procedures – Luigi Pellegrino, Ricerca sul Sistema Energetico (RSE)

15:15 – Coffee break

15:45 – Smart Grid Interoperability – Evangelos Kotsakis, Joint Research Center (JRC) – European Commission

16:15 – CAPRICA: A Testbed Demonstrating A Cyber-Secure Synchronous Power Island – Kieran McLaughlin, Queen's University Belfast

16:45 – Laboratory-based services for smart grids within the scope of SIRFN activities – Jun Hashimoto, Fukushima Renewable Energy Institute, AIST (FREA)

17:15 – Discussion & Wrap-up – Gunter Arnold, Fraunhofer IEE

18:00 – End of the Workshop

19:30 – Networking dinner

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

The TA user projects that were presented in the workshop are 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 TA 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.

5.2 Second Trans-national Access User Workshop

The second TA user workshop entitled "Facilitating Effective Laboratory Testing by Lab Users", took place on the 1st April 2020, as part of the ERIGrid Final Conference. Due to COVID-19 it was held on-line with around 100 participants.

Connecting European Smart Grid Infrastructures

Virtual ERIGrid Final Conference

1 April 2020

Session "ERIGrid Achievements"

10:00-10:10	Welcome and ERIGrid Overview
10:10-10:30	System-level Testing Approach
10:30-10:50	Laboratory Coupling Approach
10:50-11:10	Laboratory and Hardware-in-the-Loop based Assessment Methods
11:10-11:30	Simulation-based Assessment Methods
11:30-11:50	Education and Training Methods and Tools
11:50-12:00	Outlook ERIGrid 2.0

Session "Facilitating Effective Laboratory Testing by Lab Users"

13:30-13:50	Overview of Achievements of the ERIGrid Trans-national Access Programme
13:50-14:10	Application of OLTC Transformer and Distributed Generation for Voltage Control on Low Voltage Distribution Networks
14:10-14:30	Datalogging, Power Converters and Machine Learning: How ERIGRID has kick started my research on planned perennity in microgrids
14:30-14:50	Hardware-in-the-Loop Modelling, Simulation and Closed-Loop Testing of a distribution integrated PV Plant
14:50-15:10	VILLAS4ERIGrid: Geographically Distributed Real-time Simulation and PHIL between TU Delft, DTU Risø, Lyngby and RWTH Aachen
15:10-15:30	Extensive Impacts of SunHILL
15:30-15:50	Impact of Time variant Grid Impedance on Power Line Communication System

www.erigrid.eu
ERIGrid: European Research Infrastructure supporting Smart Grid Systems Technology Development, Validation and Roll Out

Supported by the H2020 Programme under Contract No. 654113

Figure 7: Agenda of the 2nd ERIGrid TA user workshop held on-line on 01/04/2020

After the morning session on “ERIGrid Achievements”, the afternoon session was fully dedicated to the TA activity in ERIGrid. Following an introduction made by the ERIGrid TA Manager about the TA Programme deployed in ERIGrid and its main accomplishments, the floor was given to 6 exemplary TA users who presented their project results and experiences after implementation in the ERIGrid RIs. The TA user projects that were presented in the workshop are the following:

- *HOLISTICA* project, presented by Alena Ulasenka from OCT, Spain.
- *Eval-Loggers*, *SPEARHEAD* and *H2AI* projects, presented by Luiz Villa from University of Toulouse / LAAS-CNRS, France.
- *CYPRESS* project, presented by Christina Papadimitriou from FOSS / University of Cyprus, Cyprus.
- *VILLAS4ERIGrid* project, presented by Steffen Vogel from RWTH Aachen University.
- *SunHILL* project, presented by Katja Sirviö from University of Vaasa, Finland.
- *Z-NET* project, presented by Dominique Roggo from HES-SO Valais Wallis, Switzerland.

Despite the virtual nature of the event, there were many questions and comments through the available chat platforms (GoToMeeting and Slack). The workshop presentations are made publicly available through the project webpage and the ERIGrid Zenodo Community (*https://zenodo.org/communities/erigrid/*, i.e., *https://zenodo.org/record/3769631*).

6 Provision of Trans-national Access

6.1 Summary of Trans-national Access Achievements

At the end of ERIGrid, after the mentioned 6 calls for TA proposals, the aggregated provision of the access is the following:

- 97 TA proposals received
- 8 proposals rejected by the USP [8.2%]
- 89 proposals accepted by the USP [91.8%]
  - 10 projects withdrawn by the users [10.3%]
  - 2 projects cancelled due to COVID-19 [2.1%]
  - 4 projects on-hold[1] due to technical/economic unfeasibility at RIs [4.1%]
  - *73 projects implemented* successfully at RIs [75.3%], involving the provision of *1043 access days* [*103%* of the demanding project objective: 1015 access days], and a total of *175 users*
- *Industrial TA projects*
  Concerning the initial challenge of attracting industries to the ERIGrid opportunity, final achievement has not been far from the 30% reference: out of the 73 projects implemented, 20 of them [27.4%] are industrial projects, for which an industry has been the leader (14 projects) or member (6 projects) of the user group.
- *Multi-site TA projects*
  4 TA projects have been implemented at several RIs: “ECOSMIC” has used 4 RIs, “ProMeterInterface” has used 2 RIs, “DEF-HIL” has used 2 RIs, and “VILLAS4ERIGrid” has used 2 RIs.
- *Non-EU TA projects*
  Despite the fact that ERIGrid has been focused on the provision of access to organisations located in the EU and Associated countries, a limited access has been also provided to non-EU organisation (reference limit: 20% of the total access): *14 TA projects* coming from India, USA, Singapore, Nepal, Japan, South Africa, Saudi Arabia, and Ecuador have been implemented, involving *206 access days* [19.8% of the provided access days].
- *Internal-TA projects*
  The main ERIGrid goal has been to provide TA to the project RIs to “external” users (i.e., researchers working at organisations that are not partners of the ERIGrid consortium). However, a limited access (reference limit: 10% of the total access) has been allowed as well to “internal” users (i.e., researchers working at ERIGrid partner organisations). Obviously, the internal-TA proposals have followed the same evaluation procedure as the rest of the proposals. A total of *7 internal-TA projects* involving *101 access days* [9.7% of the provided access days] have been implemented during the course of ERIGrid.

6.2 Trans-national Access Budget Shifts (“TA Pool”)

The Grant Agreement (GA) states the initial minimum quantity of access to be provided by each installation in terms of access days.

The provision of access by the different partners during the execution of ERIGrid has not been uniform; some partners ran out of available access days after several TA project implementations for the initial calls, while others were providing a limited number of access days. In order to maximize the number of provided access days at project level, there was a possibility to transfer part of the original TA budget from some partner to others to cope with this “asymmetric” access provision within the ERIGrid consortium.

[1] “On-hold” projects refer to proposals accepted by the USP that finally were not able to be implemented in the course of ERIGrid due to unsolved technical aspects in the installations or lack of available TA budget. The affected user groups will be encouraged to submit these proposals to ERIGrid 2.0.

However, the TA budget shifts were not straightforward since the individual access costs were not the same for the different partners: for example, a reduction of 5 access days for *Partner#1* did not mean an increase of 5 access days for *Partner#2* (i.e., the provision of access for some partners was more expensive than for others).

To deal with this situation, a mechanism called “TA Pool” was introduced. By means of this TA Pool, *Partner#1* could offer voluntarily part of its unused TA budget (and the corresponding access days at its *cost#1*) to the pool, from where other *Partner#2* able to provide extra-access could take that budget (and the corresponding access days according to its *cost#2*).

In this way, 3 TA Pool sessions were cleared to dynamically adjust the TA budget to the individual needs depending on the TA projects to be implemented after the successive TA calls. After the 3 TA Pool sessions and a final GA amendment, the minimum quantity of access to be provided by each installation in terms of access days was updated.

6.3 Degree of Provision

Further to the overall numbers of the Section 6.1, this section describes in more detail the final provision of TA and the degree of accomplishment of the TA compromises by the ERIGrid partners compared to the project objectives.

Associated to the 73 completed TA projects and 175 users, the total 1043 access days have been provided by the individual installations as shown in Figure 8. In addition to the absolute number of access days provided, Figure 9 presents the degree of provision (%) with respect to the TA commitments at individual and project levels.

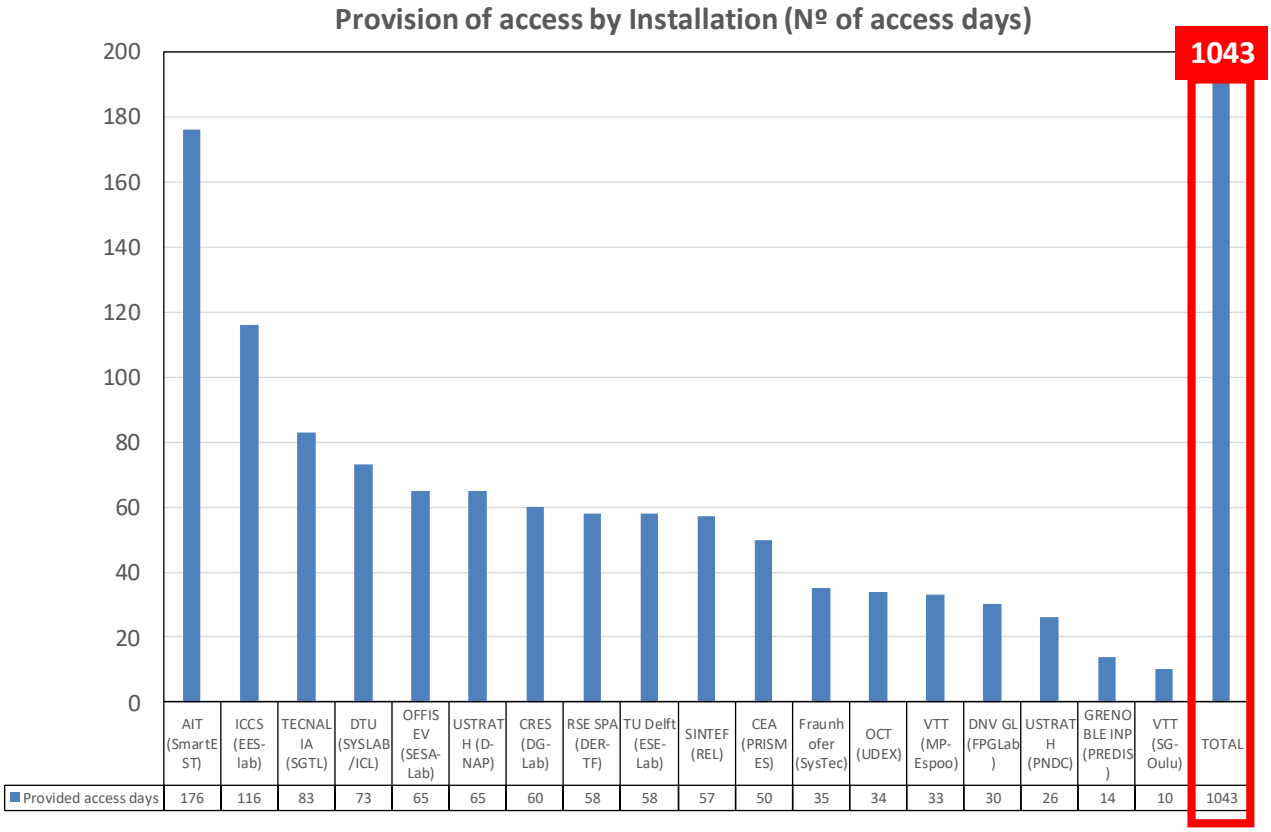

Figure 8: Number of access days provided by the individual ERIGrid installations

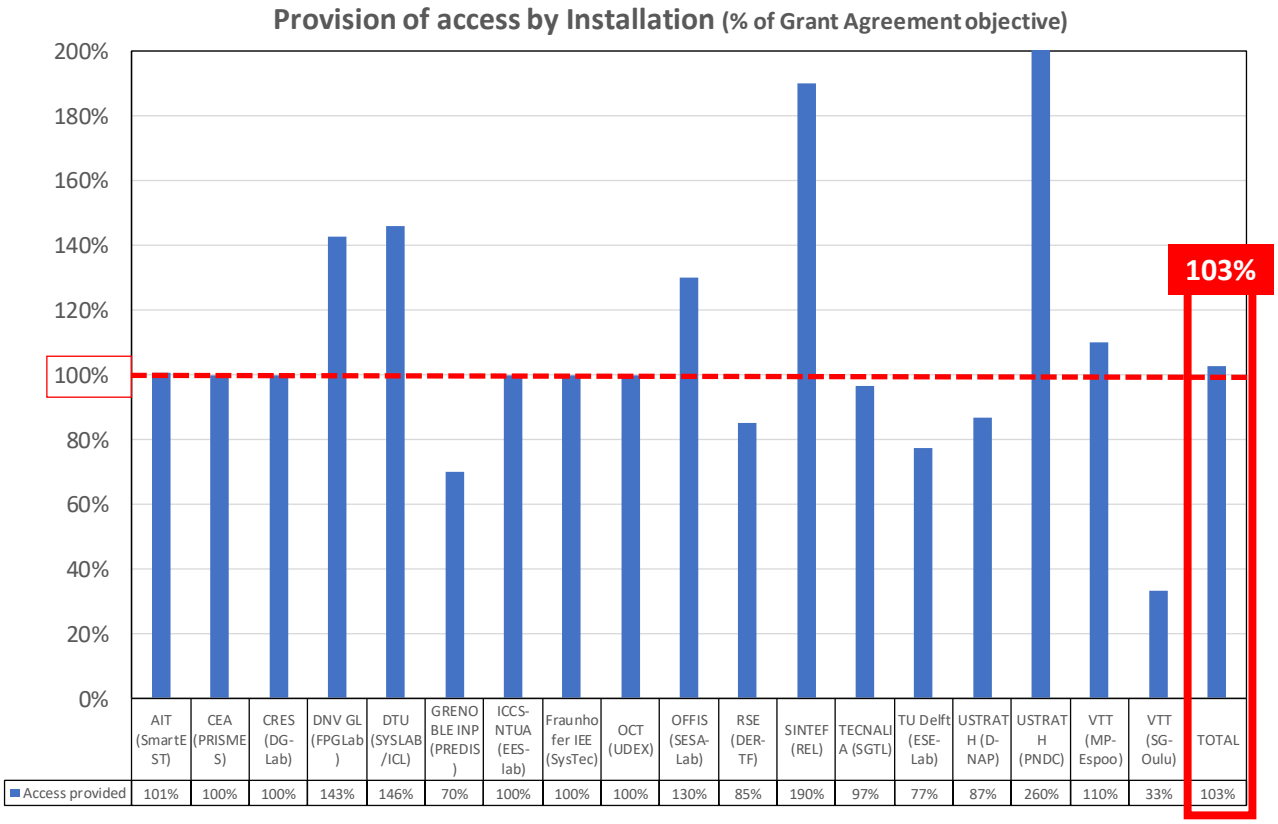

Figure 9: Access provision of individual ERIGrid installations with respect to TA objectives

7 Conclusions

As described in this report the TA activity in ERIGrid has been successfully implemented: 6 calls for proposals have been launched, with 97 proposals received and evaluated by a consolidated USP formed by 55 experts.

At the end of the project, 73 TA user projects have been implemented in the different ERIGrid installations, which means 1043 access days for a target of 1015, reaching and even exceeding the challenging initial objectives (103% of the compromised TA provision). 175 users have benefited from the ERIGrid TA opportunity. With respect to the initial difficult requirement of attracting industry, 20 out of the 73 projects implemented (27.4%) have been industrial projects, for which an industry was the leader or member of the user group. Besides, a limited access (19.8% of the provided access days) has been provided to non-EU TA projects, extending this opportunity outside Europe.

During the course of the project, 2 TA user workshops have been organised with the presentation of a selection of user projects in a great networking atmosphere where feedback has been exchanged between users and stakeholders, and the TA opportunity and benefits have been further disseminated with a view to the recently kicked-off ERIGrid 2.0. The second workshop has been held online due to COVID-19 situation.

The great success of the TA scheme in ERIGrid has led to budgetary problems for some research infrastructures, which have gone beyond their expectations and spent the initially allocated TA budget. TA budget shifts between partners have been necessary to maximize the provision of access at project level. No doubt that ERIGrid has produced a remarkable impact in the smart grids EU and international research community concerning the laboratory implementation of multitude of research projects as a crucial step before further developments.

8 References

[1] Deliverable D3.4, “D-NA3.4, First report on trans-national access results and lessons learned“, WP3, ERIGrid project, December 2018.

[2] Deliverable D3.1, “D-NA3.1, General rules for the ERIGrid trans-national access”, WP3, ERIGrid project, November 2016.

[3] Deliverable D3.2, “D-NA3.2, Regulation of the stay of the Users at the ERIGrid infrastructures”, WP3, ERIGrid project, March 2017.

[4] Deliverable D3.3, “D-NA3.3, Reporting the trans-national access activities by the user groups”, WP3, ERIGrid project, March 2017.

9 Annex

9.1 List of Figures

9.2 List of Tables

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 have been always anonymous to the user. In this PRR it is presented the final score of the approved 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.

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

ERIGrid TRANSNATIONAL ACCESS PROPOSAL REVIEW REPORT

TA Call No.	
ERIGrid Reference	
User Project Acronym	

TOTAL SCORE	15.8 / 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:
Although the proposal does not contain any extremely innovative approaches (MPC is quite well-known approach), the strong technical background of the proposing user group promises to conduct a valuable research.

Comments by Reviewer 2:
The R&D topic that the proposal aims to address interesting. It concerns the cost-efficient operation of microgrids in smart buildings that are characterized by considerable heating/cooling loads. The methodology discussed will span across the control of storage systems and demand-response capable climate control loads. Model-predictive control (MPC) will be carried out in a distributed manner and various approaches to the optimization problem will be assessed. The general framework has been developed; the consortium seems to be building on a very abstract level of the application with little detail. However, the aim is promising and very challenging.

Comments by Reviewer 3:
The proposal focuses on the application of a distributed MPC scheme to smart buildings and, in particular, to flexible loads. It is not sufficiently explored the range and types of realistic loads types the selected research infrastructure is able to accurately emulate in order to convincingly validate a generic enough load modelling. There are some unclear aspects in the description of the proposed project, which makes its originality questionable. What is defined as “main categories of MPC” are actually control architectures (see, for instance, "Architectures for distributed and hierarchical Model Predictive Control – A review", Journal of Process Control, 2009), and distributed MPC control architectures are not themselves novel. Further, although the feedback mechanism introduced by the receding horizon philosophy can provide some disturbance compensation, this is not enough to define the control strategy as “robust”. The uncertainty is not modeled and not incorporated into the control design. The authors should revise the concepts of open-loop predictions and closed-loop predictions (“feedback MPC”), as well as of robust and stochastic MPC schemes. The claimed adaptive aspects are unclear, so it is the cooperative/non-cooperative approach (at the end it seems that a non-cooperative approach is to be

considered, however it is not sensibly motivated). The literature review is weak and the state of the art should have been more carefully investigated, which could have shown that the open questions mentioned in the proposal have been addressed in the literature.
In the comment section just a few relevant works are listed.
The building modelling can be a quite challenging and time consuming tasks. It is not clear what modelling approaches will be adopted and if data will be used. Several models are already available in the literature, but this has to be clarified. It is stated that non-linear HP models will be employed (and the resulting challenges in terms of optimisation, computation time, real-time/adaptive aspects are not dealt) and the HVAC "agent" includes TES and HP, but the building, which can have local ventilation units, for instance, is a separated and then non-cooperative agent. It is not clear how coupling constraints will be handled and why the non-cooperative approach is potentially the best one. The authors do not seem to mention the properties of the distributed algorithm to be analysed (e.g., convergence rate, feasibility). The KPIs are not clearly defined. The technical and scientific value of the proposal then mainly lie in the real-case study, since there are a few studies in the literature targeting the implementation of more advanced control schemes for building load management.

Comments by Reviewer 4:
Interesting topic with a high technical relevance and an innovative approach. The proposal lacks a clear description of the methodology. The expected impact of the of the approach is also not properly described.

Comments by Reviewer 5:
The test plan is very optimistic, I would suggest to start preparations before the visit. Request specification of the requested equipment and time-series data of the DERs behaviors from the laboratory, request about all open source software/standards/API specification used in the lab to prepare for the software integration work in advance. These preparations should be done in close collaboration with the technical and scientific staff at the hosting institution.

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 authors of the project proposal promise to develop a set of models for various smart grid components that will used within the MPC algorithm. I expected these models will be shared with the owner of the provided research infrastructure.

Comments by Reviewer 2:
The proposed R&D project is well in line with the ERIGrid initiative in terms of promoting the penetration of renewable and suggesting novel tools of the smart grid paradigm. Furthermore, due to the fact that very little research has been done in the field of MPC for microgrids, it is expected that the RI of the hosting laboratories will be benefiting from the proposed work. The RI should be expected to be used, in order to improve some prototype of the control approach. That way, a basic realization will be adding value to the RI and any developments will be beneficiary for all parties.

Comments by Reviewer 3:
The project outcomes could certainly be of interest and enhance the know-how of the RI technologies, but the technical description and the experimental investigation are generic and vague. Potential benefits go beyond the specific case study and cooperation with other infrastructure could be investigated.

Comments by Reviewer 4:
The proposed project is very much in line with the ERIGrid approach since it focuses on a system perspective.

Comments by Reviewer 5:
The project will contribute some of the models of existing equipment in the facility. The experiment
is very suited for the DTU SYSLAB laboratory. The experiments will use the distributed capabilities
of the lab, energy system topology reconfigurability (for different planned scenarios), dedicated ICT
infrastructure and use historical data available from all DERs for modeling purposes.

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 project would be conducted by young and perspective researchers and aims at a topic of the highest importance for the sustainable development of energy networks in Europe.

Comments by Reviewer 2:
The research team consists of young researchers with diverse backgrounds that will be definitely engaging in interesting research, in order to answer current problems. The application of the methodology is insufficiently described however. More details would be definitely assisting the researchers' argument for this proposal.

Comments by Reviewer 3:
The proposal is in line with EU priorities and could have interest for the sustainable growth and the EU Industry competitiveness. European projects and initiatives confirm the importance of flexible loads and demand side management in distribution networks.

Comments by Reviewer 4:
The project team is a mixture of experienced and young researchers. No other issues with the project.

Comments by Reviewer 5:
The project objectives and approach are aligned with the EU policies (empowering users, demand response, integration of renewable production). Young and new researchers are included, females are not participating. The technology is in a low TRL, therefore not yet contributing to the competitiveness, however the distributed cooperation schemes are an important topic for energy collectives in Denmark.

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 proposal is well written and organized. The objectives are clearly defined, the promised dissemination actions are relevant. The asked amount of access seems to be justified to the envisioned experiments.

Comments by Reviewer 2:
Excluding the limited analysis of the proposed methodology of control the researchers touch a very interesting subject that is particularly current and should be considered as a valid project for the ERIGrid framework.

Comments by Reviewer 3:
The proposal is generally well written. The mentioned dissemination actions are sometimes generic, especially with regard to conference papers. There are unclear aspects in the proposed approach. The timeline and the proposed project activities, especially the experimental study, should be better detailed and might be ambitious; the project might promise too much for the proposed time schedule. The review of the state of the art is weak.

Comments by Reviewer 4:
In general, the introduction and state-of-the-art are very well described in the proposal. What is missing, is a clear definition of the main research objective and what impact it will have for industry/future research. The provided time plan does not match the proposed access duration.

Comments by Reviewer 5:
The project, research questions, objectives, impact, requirements and expectations are described clearly.

GENERAL COMMENTS AND SUGGESTIONS – RECOMMENDATIONS FOR IMPROVEMENT

Comments by Reviewer 1:
The proposal is technically sound and might provide experimental evaluation of model predictive control approaches for distributed control of energy networks.

Comments by Reviewer 2:

Comments by Reviewer 3:
There are unclear aspects, as described above, especially concerning the modeling and the adaptive, non-cooperative approach. The authors should better consider the robustness of the proposed approach. The literature review is weak and the state of the art should have been more carefully investigated.
In the following just a few relevant works are listed:

- Implementation of predictive control in a commercial building energy management system using neural networks, Energy and Buildings, 2017.
- Predictive control strategies based on weather forecast in buildings with energy storage system: A review of the state-of-the art, Energy and Buildings, 2017.
- Experimental Implementation of Frequency Regulation Services Using Commercial Buildings, IEEE Transactions on Smart Grid, 2016.
- Flexibility in multi-energy communities with electrical and thermal storage: A stochastic, robust approach for multi-service demand response, IEEE Transactions on Smart Grid 2017.
- Techno-economic and business case assessment of multi-energy microgrids with cooptimization of energy, reserve and reliability services, Applied Energy, 2018.
- Rolling Unit Commitment and Dispatch with Multi-Stage Recourse Policies for Heterogeneous Devices, IEEE Transactions on Power Systems, 2016.
- A primal-dual active-set method for distributed Model Predictive Control, OPTIM CONTR APPL MET, 2016.
- Stochastic model predictive control for economic/environmental operation management of microgrids: An experimental case study. Journal of Process Control, 2016.

- Cooperative MPC-based Energy Management for Networked Microgrids, IEEE Transactions on Smart Grid, 2017.
- Economic MPC of aggregating commercial buildings for providing flexible power reserve," IEEE Trans. Power Syst., Sep. 2015.
- Coordinated energy management of networked microgrids in distribution systems, IEEE Trans. Smart Grid, vol. 6, no. 1, pp. 45–53, Jan. 2015.
- Decentralized control of the power flows in a network of smart microgrids modeled as a team of cooperative agents," IEEE Trans. Control Syst. Technol., 2014.
- Decentralized coordination of microgrids with flexible demand and energy storage," IEEE Trans. Sustain. Energy, 2014.
- Distributed control systems for small-scale power networks: Using multiagent cooperative control theory," IEEE Control Syst., 2014.

Comments by Reviewer 4:

Comments by Reviewer 5:
As mentioned in section 1, more detailed experiment plan should be made, focusing on preparations before the visit.