Virtual ERIGrid Final Conference

1 April 2020

Welcome!

In order to run the event smoothly, please consider the following:

- Please mute your microphone when you are not speaking
- Please do not share your webcam
- Please say your name when you speak
- Please ask questions via Slack (https://bit.ly/33IAIwK) on #questions

Thank you very much and enjoy the event!
The ERIGrid Consortium

Note: *The meeting will be recorded and the corresponding material (presentations, recording) will be shared after the event with you. Please get in touch with Thomas I. Strasser (AIT), if you have personal reservations about the recording of the meeting. If you do not get back on this issue we suppose that you fully agree to the recording.*

Introduction

- Presentation of ERIGrid achievements and results related to

  – System-level testing

  – Co-simulation

  – Real-time simulation and HIL

  – Integration of distributed laboratories

- Presentation of ERIGrid Trans-national Access (TA) user project results

- Knowledge exchange of running projects and initiatives

- Discussion of future aims in smart grid research infrastructure developments

Session "ERIGrid Achievements"

Moderation: Thomas Strasser (AIT)

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Outline

- ERIGrid Overview

- System-level Testing Approach

- Laboratory Coupling Approach

- Laboratory and Hardware-in-the-Loop based Assessment Methods

- Simulation-based Assessment Methods

- Education and Training Methods and Tools

- Demo Cyber Resilience Tool

- Outlook ERIGrid 2.0

Session "Facilitating Effective Laboratory Testing by Lab Users"

Moderation: J. Emilio Rodriguez (TECNALIA)

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Outline

- Overview of Achievements of the ERIGrid Trans-national Access Programme

- Application of OLTC Transformer and Distributed Generation for Voltage Control on Low Voltage Distribution Networks

- Datalogging, Power Converters and Machine Learning: How ERIGRID has kick started my research on planned perennity in microgrids

- HIL Modelling, Simulation and Closed-Loop Testing of a distribution integrated PV Plant

- VILLAS4ERIGrid: Geographically Distributed Real-time Simulation and PHIL between TU Delft, DTU Risø, Lyngby and RWTH Aachen

- Extensive Impacts of SunHILL

- Impact of Time variant Grid Impedance on Power Line Communication System

TA User Project Results and Success Stories

- Provided at erigrid.eu/transnational-access/selected-projects/ and erigrid.eu/ta-success-stories/

DAMS4IRMA TA Success Story

TA success story: DAMS4IRMAOptimal Control Algorithms for Smart Buildings Topic: Distributed adaptive MPC agents for integrated energy resources management in smart buildings Hosting facility: SYSLAB of the Technical University of Denmark (DTU) Duration: 04.11.2018 - 23.02.2019; 29.10.2018 - 09.03.2019 Heat
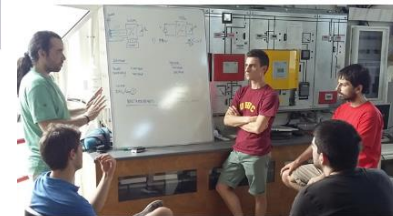
TA Success Story: Eval Loggers

TA success story: Eval Loggers Transnational Access (TA) User Project: Eval Loggers(User institutes: University Paul Sabatier and Laboratory of Architecture and Analysis of Systems of the French National Council of Scientific Research (CNRS) | Tripalium Network | Technical University of

TA Success Story: DiNODR

Transnational Access (TA) User Project: DiNODR(User institutes: Mustafa Alparslan Zehir / ITU, Vaia Zacharaki / TEIWM, Alp Batman / ITU, Dimitrios Tsiamitros / TEIWM, Dimitrios Stimoniaris /TEIWM, Aydogan Ozdemir / ITU, Mustafa Bagriyanik / ITU) Topic: Distribution-level demand response using

SPEARHEAD TA Success Story

SPEARHEAD TA Success Story:Electrification for Rural Areas and Developing Countries Topic: Study of modular power electronics architectures as an enabler for multi-tier oriented rural electrification Hosting facility: Electric Energy Systems Laboratory (ICCS-NTUA) Duration: 30.04.2018 - 12.05.2018 Outcomes: factsheet, technical
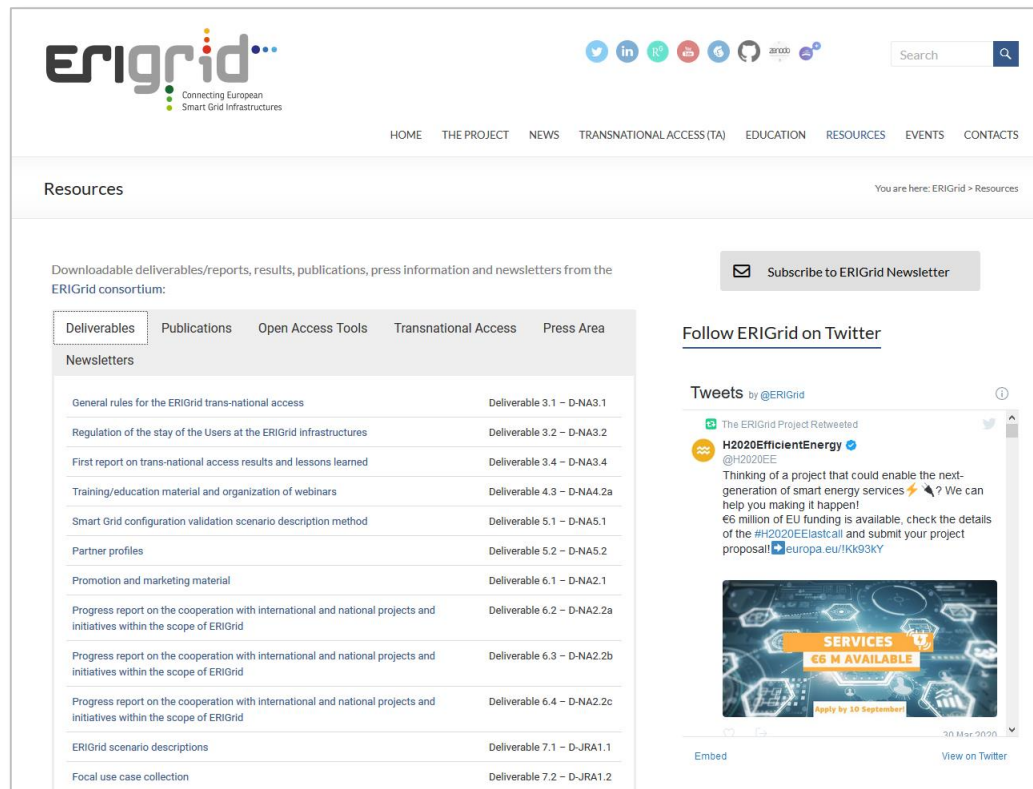
ECOSMIC TA Success Story

ECOSMIC TA success story:Economic Assessment Framework for Microgrids Topic: Techno-economic assessment of microgrids under 24h operation scenarios in islanded and grid-connected modes Hosting facilities: Centre for Renewable Energy Sources and Saving (CRES); Distributed Energy Resources Test Facility (RSE DER-TF);
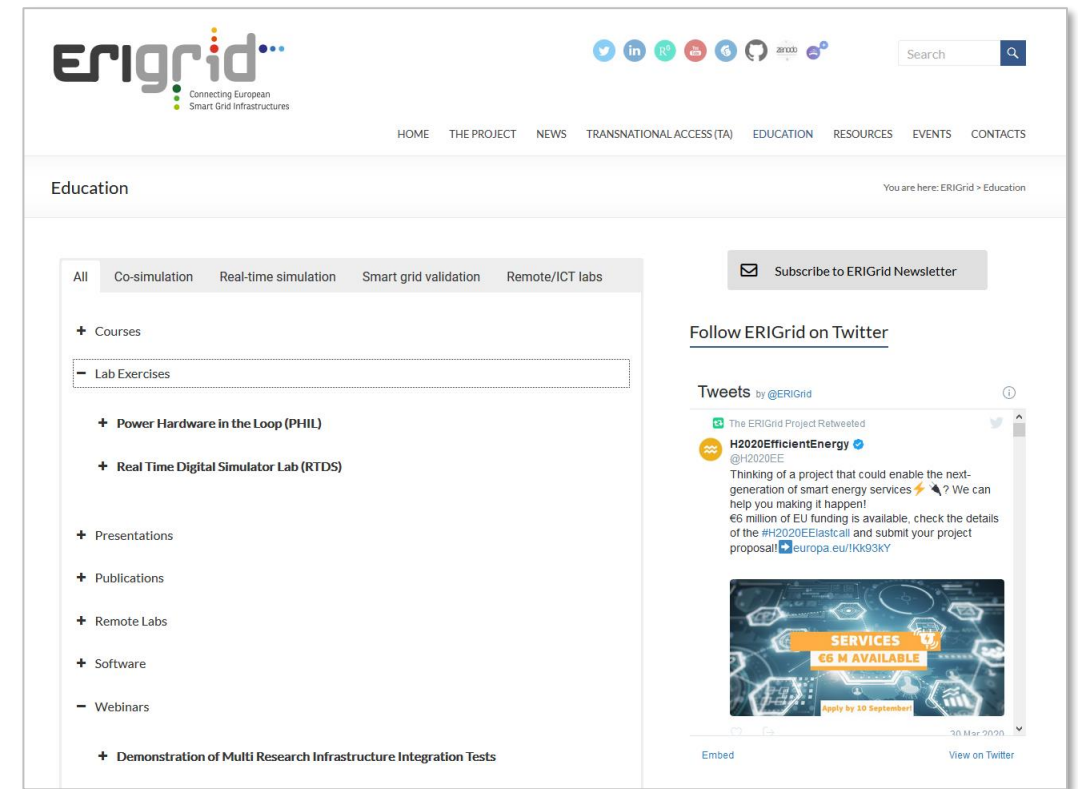
Resources and References

- Available at erigrid.eu/dissemination and erigrid.eu/education-training

European Guide to Power System Testing

The ERIGrid Holistic Approach for Evaluating Complex Smart Grid Configurations

- Presents an innovative, holistic approach to validating smart grid configurations

- Utilises test cases, case studies, and selected examples to illustrate the proposed methodologies

- Approaches power system testing from a multi-domain, cyber-physical systems perspective

Summary and Outlook

- Lessons learned

    – Power system laboratories are still necessary

    – Integrated analysis of power and ICT topics needed

    – Methods for system-level testing required

    – Tools for rapid configuration of lab-setups essential

    – Harmonization and standardization necessary

    – Multi-domain education and training essential

    – Lab-collaboration on international basis beneficial

- Open issues

    – Extension to smart energy systems necessary

    – Further improvements of procedures and tools

Starts April 2020