

## PANTERA Workshop – UCD, Dublin, 2nd December 2019<sup>1</sup>

The PANTERA workshop, jointly organised by UCD Energy Institute and the International Energy Research Centre, aimed to facilitate the exchange of best practices and information among R&I experts, policy makers, and foster links with EU level initiatives. The workshop aimed to highlight how the [PANTERA](#) project could address the energy transition challenges at regional and EU level through the prism of smart grid R&I. Sessions explored the opportunities and challenges for research and innovation in Smart Grids, Energy Storage and Local Energy Systems in Ireland, the final agenda is included in Appendix 1. Speakers from the DSO, TSO, New Entrant and academia presented their perspectives. Topics for discussion included:

- The European and Irish Smart Grid Landscapes;
- Supporting Research & Innovation through Knowledge Dissemination;
- EU and national R&I funding opportunities;
- PANTERA Working Groups - Local and Pan-European R&I challenges and gaps;
- PANTERA Desks – Local and Pan-European Networking for promoting regional needs and capitalising in local strengths and opportunities.

The UCD and IERC teams worked to identify and secure the time of relevant keynote speakers. Tailored speaker briefing notes were prepared to align the speakers' talks with the overall PANTERA project objectives, but also ensuring the content and format would be of benefit and interest to a broad range of Irish stakeholders. Each talk was scheduled for 20 minute plus 15/20 minutes for Q&A. Targeted keynote speakers were invited to participate in one-to-one interviews in parallel with the workshop. Some 40 participants and 20 consortium members signed up to attend the workshop. Participants came from Irish academia and the national and international energy sector. Not all attended physically on the day with some taking the opportunity to attend online.



Figure 1: Some of the Dublin Workshop Participants

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<sup>1</sup> PANTERA Dublin workshop – meeting notes draft 1 prepared by Paula Carroll



Figure 2: Dublin Workshop Presenters left to right Prof Andrew Keane (UCD), Dr Paula Carroll (UCD), Dr Terence O'Donnell (UCD), project officer Mario Dionisio, consortium leader Dr Venizelos Efthymiou, and Dr Eamonn Lannoye (EPRI)

Prof Andrew Keane of the UCD Energy Institute welcomed participants and opened the workshop. Below we include brief summaries of the talks and the roundtable discussions that followed.

### **Dr Eamonn Lannoye – Senior Project Manager, EPRI.**

#### **Focus: EPRI's Smart Grid International Research & Innovation. Session Facilitator: Dr Paula Carroll, UCD**

Dr Lannoye highlighted progress in Ireland since the 2009 3<sup>rd</sup> energy package legislation for an internal gas and electricity market in the EU, and interconnect goals. He noted Ireland has reached the limits of social acceptance of onshore wind energy, and the social challenges of decarbonisation. He emphasised the need for speedier integration of technology in the market and noted challenges in regulations and data infrastructure, commenting that lags in data sharing will impact the timeliness of decarbonisation.



Figure 3, Dr Eamonn Lannoye (EPRI) at the Dublin Workshop

### **Dr Venizelos Efthymiou (FOSS & PANTERA)**

Dr Efthymiou discussed the globalisation of the energy transition and shareable targets that can be made usable for achieving results within research, innovation and competitiveness. He highlighted the role PANTERA can play to achieve this.



Figure 4, Dr Venizelos Efthymiou (FOSS) at the Dublin Workshop

### **Mario Dionisio (Directorate General for Energy Unit C2 - New energy technologies, innovation and clean coal Focus: European Union)**

Mr Dionisio discussed HVDC projects, DC communications, and the need for the energy sector to be like a 5G network with smart interconnections offshore.

### **Dr Paddy Finn Managing Director, Electricity Exchange**

**Focus: Smart Grid Research & Innovations in Ireland: New Entrant Perspective Session Facilitator: Dr Matt Kennedy, IERC.**

Dr Finn discussed the technology his company have developed to make autonomous consumers into controllable, predictable resources. He noted this can increase grid capacity without additional infrastructure and allows load shedding/fast demand response. He compared 27MW of fast frequency response to that of a 9 MW battery, with advantages over battery price. He noted the need for new regulation to allow new *non wire* business models, and highlighted opportunities for new services in the electrification of transport and heating. He emphasised the importance of extracting value from existing assets in the system through smart efficient usage. He noted that historically focus was on the TSO, but with the emergence of the smart grid, more emphasis will be placed on th DSO to facilitate innovation.

### **Dr Pádraig Lyons Development Manager ESB Networks Future Networks**

**Focus: Smart Grid Research & Innovations in Ireland DSO Perspective. Session Facilitator: Dr Christina Papadimitriou (FOSS)**

Dr Lyons discussed the challenges for the network to achieve the Climate Action Plan 840,000 electric vehicles and 600,000 Heat Pumps. It will require greater capacity on the low voltage network by 2030. Currently eight roadmaps detail ESBNetworks energy transition plans,

details to be published shortly. Current innovation projects are exploring how to enhance the LV network. He noted the issue of sharing data and the potential for learning from the PANTERA platform to help fast track research through to implementation and business as usual.

### **Dr Terence O'Donnell (UCD)**

**Focus: Smart Grid Research & Innovations: Research Organisations Perspective. Session Facilitator Dr Beth Massey**

Dr O'Donnell summarised some of the current smart grid research in Ireland including projects on the stability of the grid under faults, enabling autonomous operation at the edge of the grid and solving the observation issue.

### **Dr Jon O'Sullivan Innovation Manager Eirgrid**

**Focus: Smart Grid Research in Ireland: TSO perspective. Session Facilitator: Dr Luciano Martini (RSE)**

Dr O'Sullivan discussed some of the energy security issues facing Ireland, with 85-95% dependency on imports. He highlighted the issue of fuel poverty and the challenges to achieve fairness to the individual during the energy transition. On the technical side he noted the Irish renewable electricity 70% target in the Climate Action Plan: enabling 75% System non-synchronous penetration (SNSP) limit will be a world first. SNSP is a measure of the non-synchronous generation on the system at an instant in time. It is the ratio of the real-time MW contribution from non-synchronous generation and net HVDC imports to demand plus net HVDC exports. He noted the financial challenges and the balance between operating and capital costs. He noted that changing mind-sets may be the biggest challenge to achieve the energy transition climate action goals without building new network/infrastructure to enable future smart solutions.



Figure 5, Dr Jon O'Sullivan (EirGrid) at the Dublin Workshop

### **Roundtable Discussion**

**Session Facilitators: Dr Fabiano Pallonetto (UCD) and Mr Mohamed Shalaby (DERLab)**

Participants engaged in round table discussions to identify the biggest challenges raised during the talks and how the PANTERA platform could bridge gaps. The most significant issues raised were:

- The availability of data in standard formats to test and build research models/prototypes, and business cases;
- The need for integration with established platforms for the deployment of data analytics tools and systems;
- The development of a integrated knowledge area to capture latest regulations and standards into living documents;
- The enrichment of available datasets with structured metadata and hyperlinks to associated R&I activities;
- The necessity to easily retrieve national, regional and local R&I activities and cross functional archives;

Further discussions on the requirements, features and collaborations with different platforms has been stressed during the round table and the necessity to strengthen the involvement of European industry and raise awareness among different stakeholders has been highlighted.



Figure 6, Dr Fabiano Pallonetto leading the roundtable discussion



Figure 6, participants during the round-table discussion

Where speakers gave permission, copies of their presentations are on PANTERA's website: <https://bit.ly/37DPZQC>

The workshop's outcomes include:

1. There is significant activity and interest in Smart Grid R&I across industry and academia in Ireland;
2. There is a demand for access to relevant smart grid data to allow building of prototype models;
3. The deregulation of the market, and GDPR rules make cooperation and data sharing among actors in the electricity space difficult;
4. The proposed PANTERA platform offers an opportunity for data sharing;
5. The PANTERA regional desks offer an opportunity for networking for the Irish Smart Grid R&I community, participants expressed interest in follow up activities.

## Appendix 1: The workshop agenda:

9:00	<b>Registration and Coffee, Quinn School of Business, Belfield, Dublin 4</b>
9:30	<b>Welcome Address</b> <i>Paula Carroll (UCD)</i>
9:35	<b>EPRI's Smart Grid International Research &amp; Innovation [Slides]</b> <i>Eamonn Lannoye, Senior Project Manager Electric Power Research Institute (EPRI)</i>
10:00	<b>PANTERA [Slides]</b> <i>Venizelos Efthymiou (FOSS)</i>
10:15	<b>European Union</b> <i>Mario Dionisio, Directorate General for Energy Unit C2 - New energy technologies, innovation and clean coal (EC)</i>
10:30	<b>Smart Grid Research &amp; Innovations in Ireland: New Entrant Perspective</b> <i>Paddy Finn, Managing Director of Electricity Exchange</i>
11:15	<b>Coffee break</b>
11:45	<b>Smart Grid Research &amp; Innovations in Ireland: DSO Perspective [Slides]</b> <i>Pádraig Lyons, Development Manager ESB Networks Future Networks (ESB)</i>
12:30	<b>Smart Grid Research &amp; Innovations in Ireland: TSO Perspective [Slides]</b> <i>Jon O'Sullivan, Innovation Manager (EirGrid)</i>
13:15	<b>Lunch &amp; Networking</b>
14:00	<b>Smart Grid Research &amp; Innovations: Research Organisation Perspective [Slides]</b> <i>Assos Prof Terence O'Donnell (UCD)</i>
14:30	<b>Discussions on how PANTERA Platform &amp; WGs address gaps identified in morning sessions [Slides]</b> <i>Venizelos Efthymiou (FOSS)</i> <i>Anna Mutule (IPE)</i> <i>Andrei Morch (SINTEF)</i>
15:30	<b>Vote/summarise next steps [Slides]</b> <i>Mohamed Shalaby (DERlab)</i>