ELECTRA REX

A Researcher Exchange Programme for Smart Grids

European Liaison on Electricity Committed Towards long-term Research Activity Integrated Research Programme

DEMAND SIDE PARTICIPATION FOR FREQUENCY CONTAINMENT IN THE WEB OF CELLS ARCHITECTURE

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The ELECTRA IRP Researcher Exchange Programme has given the opportunity to bring together the expertise of TNO in multi-agent systems, PowerMatcher [1] and secure communications, and that of Strathclyde University researchers in Real-Time Power Hardware-In-the-Loop (RT-PHIL) based testing, power system operation and control, wide area monitoring and adaptive protection techniques [2].

The exchange builds upon the ongoing project, "Testing and Validation of Time Critical Ancillary Service Provision by Demand Side Management" between University of Strathclyde and TNO. In this work, demand side management (DSM) is implemented within the ELECTRA web of cells architecture (EWOC). A large number of demand side management schemes have been proposed in literature for provision of frequency control ancillary services to the network. However, it is assumed that all the flexible devices within the network are managed and controlled under one DSM scheme. In this work, two independent demand side management schemes control the portfolio of flexible devices within EWOC. A methodology and scenarios for analysis of the performance of more than one DSM scheme within the same network have been realized using a real-time power hardware-in-the-loop co-simulation platform, and the paper presents this as a basis for investigations into the validation of such DSM schemes.

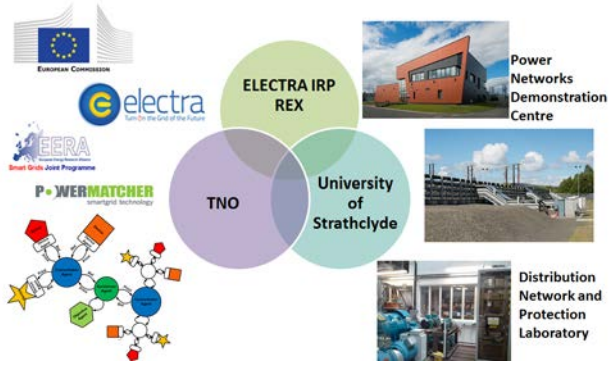

Fig. 1. The collaboration.

ACKNOWLEDGMENT

The research leading to these results has received funding from the European Union Seventh Framework Programme ([FP7/2007-2013] under grant agreement n°609687, as part of the ELECTRA REX researcher exchange programme. The work has also been supported TNO under ERP Program "Energy Storage and Conversion"

REFERENCES

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