ELECTRA REX

A Researcher Exchange Programme for Smart Grids

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

GRID IMPACT AND SIZING OF PV STORAGE SYSTEMS - A COMPARATIVE ANALYSIS FOR AUSTRALIA AND GERMANY

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The traditional business case for rooftop PV systems has evolved over the last years in Australia and in Germany. Since the feed-in tariff has dropped below the electricity price for households, PV self-consumption drives the installation of rooftop PV systems and a business opportunity for small scaled storage systems emerges. Such systems are also discussed as a solution for facilitating PV grid integration by increasing active and reactive power control flexibilities. However, the impact of different pricing schemes and grid integration approaches on the sizing and operation of such systems and on distribution grids has not been evaluated

Within this Electra REX project these challenges are addressed and several aspects of the grid integration of PV storage systems are analyzed:

- Development and adaption of an integrated sizing and control for PV storage systems under different economic and regulatory circumstances to assess their impact on distribution systems
- Voltage control possibilities using PV storage systems exploiting voltage dependent active and reactive power control possibilities (including stability aspects)
- Control of thermal storage systems to increase demand flexibilities for distribution systems with high amounts of PV generation

Results of a comparative case study to assess the interactions between sizing and control of PV storage systems and grid integration are published in [1].

ACKNOWLEDGMENT

This research has been supported by the European Commission, under the FP7 project ELECTRA (grant no: 609687). The work has also been supported by the German for Economic Affairs and Energy through the projects “INE-VES” and “HiPePV2” (FKZ: 0325561A, 0325785) and by ARENA, the Australian Renewable Energy Agency, through the VPS2 Project. Any opinions, findings and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect those of the funding parties.

Fig. 1: Jan von Appen at the CSIRO site in Newcastle, Australia.

REFERENCES

[1] J. von Appen, J. H. Braslavsky, J. K. Ward, and M. Braun, “Sizing and grid impact of PV battery systems - a comparative case study for Australia and Germany,” in 2015 International Symposium on Smart Electric Distribution Systems and Technologies (EDST), Sep. 2015