

Distributed Renewable resources Exploitation in electric grids through Advanced heterarchical Management

	LV4MV: a concept for Optimal Power Flow management in distribution grids, using DER flexibility		
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ABSTRACT:

This paper introduces a concept for optimal power flow management in distribution grids, using DER flexibility. The LV4MV concept leads on a release of the admissible MV voltage range, in order to increase the number of suitable DER available dispatches at the LV level, willing at the end to reduce the constraint management costs of both MV and LV levels and to encourage the penetration of DER down to the lowest level of the grid. It aims to help the DSO to benefit of the available LV flexibility to solve voltage constraints on the both MV and LV levels. The method to identify the MV admissible voltage range for nodes where only LV network is connected is presented, taking into account the downstream LV flexibilities, if available. Test results concerning a LV unbalanced distribution system are then displayed, for different scenarii of LV flexibility. Finally, developed at the European scale within DREAM FP7 project, LV4MV implementation requirements and architecture are discussed.