

Improvements in current European network regulation to facilitate the integration of distributed generation

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Abstract— This paper analyzes how traditional regulation of distribution system operators (DSO) has to be improved to accommodate higher levels of distributed generation (DG). In addition, new economic signals to be given to DG operators for system efficient integration are proposed. Regulatory improvements at the European level are recommended. Recommendations are centered on schemes for DSO revenue compensation to consider incremental network costs due to DG, distribution network planning integrating DG, and DSO incentives for improving network performance with active integration of DG. Regarding DG economic signals, recommendations are focused on the design of DG connection and use-of-system charges, the revision of current DG support mechanisms based on flat feed-in tariffs, and the provision of ancillary services by DG for network voltage management, power flow controls and islanding.

Index Terms— Distributed generation; Distribution networks; Distribution system operators; Economic regulation; Network planning; Distribution charges

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