Identification of Conflicts between Transmission and Distribution System Operators when Acquiring Ancillary Services from Electric Vehicles

Distributed energy resources are able to provide services to grid operators, possibly with competing objectives. With the development of active distribution grid management, various market designs arise. Here, a reference market framework is considered, which allocates the available flexibility products according to requests coming from both distribution and transmission system operators. The goal of this paper is to provide an identification procedure that is able to detect, identify and catalogue possible conflicts among the involved stakeholders that take place when requesting and/or acquiring ancillary services from flexible units. The investigation is carried out considering a 3-area power system which allows to take into account local constraints as well as system-wide needs. As outcome, this paper identifies the conflicts from both a theoretical and a practical point of view, by means of descriptions/identification procedure and by visual examples, respectively.

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