

A Collaborative Model for Participatory Load Management in the Smart Grid

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Abstract. The major task of a grid operator is perfectly balancing the demand of all customers at any instant with supply. One of the facets of the Smart Grid vision is tackling the problem of balancing demand with supply using strategies that act on the demand side. With the deployment of intelligent ICT devices in domestic environments, homes are becoming smarter and able to optimise the electricity consumption to minimise costs and/or meet supply constraints. In this work, we envision a scenario where smart homes actively participate in the balancing of demand with supply by forming groups of electricity consumers that agree on a joint demand profile to be contracted with a retail electricity provider. We put forward a novel business model as well as an optimisation model for collaborative load management, showing the economic benefits for the participants.

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