

Multi-goal optimization in PowerMatching city: A smart living lab

Jan Pieter Wijbenga
TNO, Netherlands

Pamela MacDougall
TNO, Netherlands

Rene Kamphuis
TNO, Netherlands

ABSTRACT:

Whereas other smart grid field trials optimize for a single objective, PowerMatching City phase 2 demonstrates that multiple objectives can be achieved in a coordinated virtual power plant. A system that incorporates both consumer community proposition incentives and trade dispatch incentives (as well as end-user comfort) was designed, implemented and tested. This paper describes the design approach and the main findings in this real life field trial. The multi-goal approach showed to be successful, as the individual goals were achievable by the cluster. To prevent a single goal from overpowering the other objective limitations and a flexibility-balancing component were implemented. Finding the optimal mix of balancing the components and utilizing the most of the flexibility requires additional research.

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