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Cooperative energy storage, towards a feasible business case?

Energy cooperatives are beginning to expand their role from stimulating small-scale electricity production to developing local energy systems, including cooperatively owned energy storage solutions. However, many technical, social and financial obstacles are encountered in this process. It is as yet unclear how new roles of citizens, building owners, grid operators and energy cooperatives will develop. Furthermore, it is difficult to assess if a feasible business case is at all possible given present context conditions in the Netherlands.

Currently, there are pilots underway to combine energy storage with solar parks and charging infrastructure for electric mobility. In Weert, a solar park of 5.200 panels is combined with a neighbourhood battery. In Groningen, a neighbourhood storage facility of 600 kWh will be installed in an apartment block, as part of a larger refurbishment scheme. This will be connected to the installation of four charging poles for electric vehicles. Procedures for 'smart charging' are currently being developed to manage intermittent demand and production of solar energy, where storage provides a buffer between EV-charging and PV-panels.

We study a pilot project in Zuidhorn which aims at a combination of smart charging with a solar car park. For this study, we will engage four focus sessions with stakeholders. We aim to develop three variants of a business case; peakshaving, energy trading, and storage as buffer facility for the grid operator.

Theoretically, we rely on the multilevel perspective, to assess what niche and regime dynamics are at play in the case of energy storage. We will explore emerging bundles of technology, social functions, ownership, management and energy trading, to come to grips with new sociotechnical arrangements for community energy.

Our study will shed light on the perspectives of stakeholders in the local energy transition and deliver insights in the feasibility of cooperative energy storage in the near future.