

Session New Pathways:

Smart use of the energy infrastructure: from neighborhood to industrial park

Conveners: Rosa Kappert and Esther van der Waal

Smart use of existing and new energy infrastructure is of great importance in the energy transition. We generate our energy increasingly locally and from intermittent sources. This causes moments with high peak loads and deficits. Additionally, the use of electricity increases, amongst others because of electrification of the heat sector. In large parts of the Netherlands and other countries, the grid is congested. Hence, the potential for timely grid connection is increasingly dictating where energy production technologies are placed and, also, where users, like businesses, locate. Grid reinforcement is often not an affordable or long-term solution. How do we make sure that we make the most out of the existing grid capacity? How do we ensure that supply and demand of sustainably generated energy are better balanced? These questions are important from a techno-economic as well as societal point of view. Making smart use of electricity production and transport infrastructure helps to create access to the grid and can make energy more affordable.

We encourage contributions on smart use of energy infrastructure on multiple scales and for various user types. Examples include, but are not limited to, demand side response, aggregation, p2p and p2g trading, blockchain solutions, storage, heat solutions, and conversion of energy. During our session, we will start with the speaker presentations, and consecutively have a longer discussion session where we discuss the main themes of interest. Discussion topics can be proposed by speakers and audience.

The session is jointly organized by dr. Esther van der Waal (Grunneger Power) and dr. Rosa Kappert (Hanze University of Applied Sciences).

Cooperative Grunneger Power is working on the projects RVO LOCAL4LOCAL and Horizon EU Communitas. In LOCAL4LOCAL, we partner with umbrella organization Energie Samen and frontrunning energy cooperatives from all over the Netherlands. We map out how we can produce and supply more renewable heat and electricity, and supply it close to the cost price, while keeping the costs for the energy infrastructure as low as possible. In Communitas, the goal is facilitating consumers united in energy communities to become fully-fledged market players. Grunneger Power is one of the three lead pilots. We explore aggregation as well as provision of ancillary services, using different energy assets and load profiles of the community. We trial the energy community concept in district heating areas.

The Hanze University of Applied Sciences is working on the projects Groningen Stroomt Door (GSD) and FLEXible energy POSitivity districTS (FLEXPOSTS). GSD is a project that aims to prevent overloading of the electricity grid in industrial areas. In this project, business associations, Enexis Netbeheer, Entrance – Center of Expertise Energy and the municipality of Groningen are working together on smart(er) use of the electricity grid. The FLEXPOSTS project includes a similar approach in an industrial area with an already congested grid: De Zwette (Leeuwarden, the Netherlands). The second demo site of FLEXPOSTS is the mixed industrial/residential area Aalborg East (Denmark) with emphasis on renewable district heating.