

The high ambitions for renewable carbon technologies, increasing electricity demand and technological developments are opening more opportunities in small-scale generation. This may push zero-carbon electricity production closer to the final users/prosumers, of which the majority lives in cities and urbanised areas.

Over the years, we have used design thinking methods for urban design research projects to explore the potentials to innovate planning methods for the ensuing urban energy transition (Rizzo, 2017; Katsou et al., 2020; Morata et al., 2020; Lidelow et al., 2019; Rizzo et al., 2020; 2021). The central point of our work is increasing democracy and participation in the restructuring of cities and society under climate change and energy transformation.

In this article we examine what factors may affect prosumer's (producer and consumer of energy) acceptance of small-scale Photovoltaic (PV) integrated in a residential area in Sweden. We use a mixed method approach, combining a pilot survey and design thinking workshops for residents.

Our design workshops were carried out through participatory mapping and creative model making of possible PV applications in different locations. The results of our workshops were later discussed with experts and planners from the local municipality and energy company. Results show that there is a potential for small-scale PV integration in urban areas and that co-design plays an important factor for both acceptance and bottom up empowerment of potential prosumers.

Co-designing the urban energy transition in Sweden

*Agatino Rizzo
Kristina Ek
Lars Vikström*
Lulea University of Technology