

Co-producing Spatial Data and Representing Social Practices for Energy Planning

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Abstract In the ongoing transition process, energy planning seems to be in turmoil, as it is no longer possible to set standard and fixed goals due to the uncertainty and variability of energy developments. At the same time, the wider use of local tools, such as SECAPs (Sustainable Energy Climate Action Plans), reproduces the same goals to be achieved through standard solutions, but without any contextual interpretation. This defines an approach to energy planning that is blind to space. The overall result is a set of objectives that are often vague and technical, overlooking the socio-spatial dimension of energy and entailing low adaptation capacity, as well as creating obstacles and inertia to the transition.

In the face of these issues, what reinterpretation should energy planning take? Through two parallel research projects – Making PEDs and PEDFORALL – the authors are exploring a range of both conventional and digital methodologies and tools for planning with the Positive Energy Districts (PEDs) model in existing urban environments.

The European research project Making PEDs in particular, proposes the development of a digital platform for energy planning simulation and decision support. At the heart of this platform is a digital twin of the San Liborio neighbourhood in Civitavecchia, developed by combining open-source data and manually collected information. This model generates key energy performance indicators and predictive scenarios, enabling more informed, adaptive, and context-sensitive urban governance. A key part of this process is the collaborative elaboration of spatialized energy data, which serves as the foundation for a dynamic and shared decision-making framework.

At the same time, the European project PEDFORALL is developing a complementary qualitative approach, which has been tested in the Ostiense district of Rome, to create a strategic integration plan. Through interviews, mapping activities, and domestic-scale models, residents co-create narratives that reveal the relationships between energy practices, building characteristics, and environmental factors, as well as potential tailored energy transition strategies.

This contribution reflects on the tensions and potential interferences between these two complementary approaches. Although they are still in progress, they present specific opportunities and risks for energy planning, as well as potential synergies to investigate. As both approaches are context-specific, they encourage the exploration of their potential to inform practice-based, place-specific energy planning that integrates technical and socio-spatial dimensions in the transition towards Positive Energy Districts (PEDs).