

Track 2 - The smart energy system transition in cities and regions

**Title of the proposed paper**

Relationship Between Local Energy Initiative Development and Land Use

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**3 keywords**

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**Text abstract (max. 300 words)**

Large scale implementation of renewable energy technologies affects land use dynamics in a complex, unpredictable way and may have unintended consequences (e.g. replacement of food crops for biofuel) even when included as part of strategic spatial planning or development. An interesting development in the path towards a low-carbon economy is the increasing implementation of numerous local and small-scale renewable energy initiatives. As such this paper studies the relationship between land use and the implementation of local renewable energy projects that are not part of the planned energy capacity of a given area. We explore this relationship, hypothesizing that the current land use has a particular impact and somewhat predictable relationship to future land use patterns including those related to renewable energy production. Understanding this relationship can support policymaking related to supporting, steering or restricting the development of these local renewable energy sources. On a larger scale this research will contribute to European Policy directed at supporting the transition to a low-carbon economy\*

To test this hypothesis we first take the given land uses (represented in the first step by Corine Land Cover data from 1990, 2000, 2006) and use Metronamica software to determine what land use relationships exist that have led to land use change in two European areas: Navarre Spain and Overijssel, the Netherlands. Following this we add contextual data related to renewable energy developments (limited to wind and solar at this stage of the research) in each of the two case study areas. Based on a comparative analysis of these two data sets a set of preliminary results will be provided related to the relationship between development of local renewable energy projects and land use. We also provide theory-based arguments for why these relationships are either good or poor representations of what can be expected in the future.

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