



Urban wind energy imaginaries: Achieving low-carbon futures through urban wind energy projects

zEPHYR Marie Skłodowska-Curie project: towards a more efficient exploitation of on-shore and urban wind energy resources

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CONTEXT

Sustainability has become one of the central elements of urban planning and governance. City authorities use it as a prism to rethink different spheres of urban functioning.

Urban energy systems are central to the reduction of CO₂ emissions, reconfiguration of energy systems has become one of the major challenges for cities.

An increasing number of city governments have recently demonstrated interest in **producing wind energy in urban environments**.

It has been argued that wind energy has the greatest potential among other alternative energy sources deployed as it is clean, affordable, safe.



PROBLEM DEFINITION

Low-carbon energy transitions cannot be understood simply as the replacement of one energy source with another. The emergence of alternative energy systems will unavoidably lead to **fundamental transformations of contemporary cities** at different levels (Kim and Jasanoff, 2013).

Deployment of urban wind energy projects will not simply change the way the energy is produced and consumed in cities, but it will also result in reshaping of urban physical and social structures and reconfiguration of the relationship between nature, humans and technologies in cities.

In this context, urban wind energy projects act as **repositories of collective visions or imaginaries** about the social and natural well-being in cities that ought to be achieved.

Not only do these imaginaries represent relationships between cities and their energy systems, but they also actively shape the ways in which they should be transformed in order to achieve low-carbon futures.



RESEARCH QUESTION

How do urban wind energy imaginaries reshape the relationships between the city and energy systems?

In order to answer the main research question, the research is divided into sub-questions:

- ❖ How do urban wind energy imaginaries become part of rethinking of cities as a new scale for energy production?
- ❖ How do urban wind imaginaries shape the ways in which wind is implicated in the functioning of cities?
- ❖ What role do urban wind imaginaries have in coordination of various professional groups in pursuit of low-carbon energy futures?



METHODOLOGY

The study employs a **case study approach** to explore different dimensions of urban wind energy imaginaries. It specifically focuses on two experimental urban wind energy projects.

Dutch WindWheel is an innovative concept of a large-scale wind turbine surrounded by a residential complex, hotel, tourist and dining facilities proposed for Rotterdam, the Netherlands.

Wind Tree is a micro generation wind turbine that revolutionises design of wind turbines by hiding the technology within the leaves and tree structure



CASE STUDIES



Fig. 1. The Dutch WindWheel, Rotterdam, the Netherlands
Source: <http://www.doepelstrijkers.com/>



Fig. 2. The Wind Tree, Geneva, Switzerland
Source: <https://newworldwind.com/>