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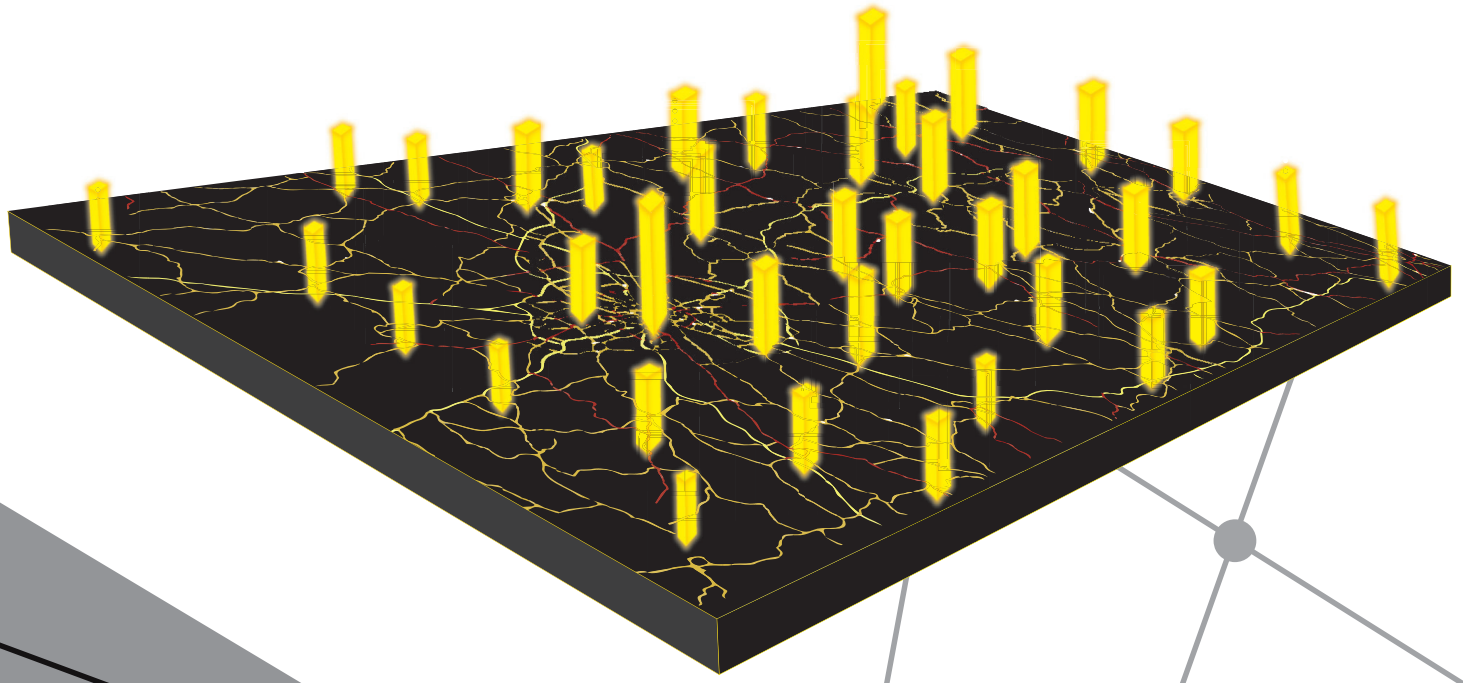

CO-OPERATIVE ENERGY MODELLING

AS THE USE OF VOLUNTARY GEOGRAPHIC INFORMATION IS AUGMENTING IN THE FIELD OF ENERGY MODELLING, THIS RESEARCH WILL TRY TO FILL THE GAP IN THE ASSESSMENT OF AVAILABLE GEOGRAPHICAL DATA USED FOR MODELLING THE URBAN ENERGY SYSTEM.

Weitere Infos

Assessment and enhancement of Open-Source data for Urban Energy Systems modelling

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Introduction:

The energy integration in urban space has been discussed as the primary solution to halt the environmental crisis and reach the energy transition goals by 2030, since 70% of carbon emissions is produced by urban areas. In the promotion of urban energy transition, more public concepts have been introduced, such as energy communities and co-operative energy planning. Researchers have argued that the assessment of collaborative approaches in energy planning in the urban space is based on 4 key factors: effectiveness, efficiency, citizen involvement, and citizen satisfaction. As such concepts are established, the current research and development scene is more concerned with the accuracy enhancement of relevant digital tools that facilitate democratic processes.

Aim:

The current research will follow the above-mentioned hypothesis by aiming to create a tool for the assessment and enhancement of contextual open-source geographical and regulatory data necessary for urban energy systems modelling. On a second level, the research will attempt to answer the questions on the creation of energy communities in non-European contexts and the ownership of energy-related data.

Method:

The research will first identify quantitative guidelines for the data needed for Urban energy systems modelling (geographical and regulatory data). By reviewing the current co-operative tools for energy planning, the model for data assessment and enhancement will be created and tested on fitting the needs of the existing tools while focusing on Enerplanet as a test tool and the following two factors:

1. Testing the model in the context of African countries, where research highlights the lack of open-source geographical data

2. The inclusion of energy communities in the process of creating the model for the assessment and enhancement of available regulatory data. This should be ensured through the creation of platform (WiKi) to facilitate the creation of and communication between energy communities on a local level.

Result:

The literature review of current research on this topic shows a gap and a need for more structured models of the use of OSM as an open-source geographical map. There are already some identified guidelines to identify which geographical data is needed for UES modelling. This gap will be the focus of this thesis.

Project participants:

Hana Elattar, M.Sc. BSc. Of landscape architecture from the university of Ain Shams in Egypt and a M.Sc. in international cooperation in urban planning from the Institute of Urbanism and Alpine Geography. She has focused during her studies and work on the participatory methods in planning and the application of open-source tools and resources, especially OSM. She is working since March 2021 in TC Freyung - department of Geo-informatics.