Area 21: Collaborative Approach For Low Emission Urban Districts

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1 Introduction

Cities with their vast building stock and infrastructure play a key role in reaching European energy efficiency targets. With approximately 75% of the EU population living in urban areas, they account for large amounts of the current energy consumption and represent crucial spaces where the energy transition must take place (Eurostat 2020). Yet, the transition towards low-emission cities is often hampered by sectoral fragmentation and lack of cooperation between public authorities, energy utilities and property owners. AREA 21 addresses these challenges and supports cities in the Baltic Sea Region to harness the full energy savings potential of existing structures, to elaborate holistic strategies that integrate sector-based approaches, and to engage energy consumers in strategic energy planning (AREA21, Overview, 2019).

AREA 21 provides local authorities, energy agencies and other institutions responsible for energy planning the know-how and strategic tools on how to plan and implement new solutions for energy efficiency in urban districts. To achieve this, the project develops and tests new formats of cooperation between public authorities, energy providers, public property owners and citizens. (AREA21, Overview, 2019).

The area selected as a case here is Tampere. Tampere city has a population of 230,000 inhabitants. The pilot area Härmälä is situated three kilometres south of the city centre. Härmälä can be considered a “miniature version” of the whole city of Tampere with regard to ownership structures and the share of different functions. (AREA21, Tampere 2019) Tools developed by Tampere University of Applied Sciences (TAMK) are presented here.

2 Research Methodology

The Energy Improvement District (EID) concept is an innovative system approach for low emission urban districts. It promotes a paradigm change from a strong public sector to a more cooperative model of development that involves citizens and businesses. (AREA21, summary 2020) The concept facilitates the pooling of competences, ideas and joint activities between public and private stakeholders for energy efficiency planning and implementation, such as guiding enterprises in better design, supporting business transfer, boosting ecodesigned business, saving energy thanks to cooperative actions and improving mobility in cities (AREA21, project stories). By promoting network and consensus-building activities it fosters

identification of tailor-made solutions, piloting of new projects and establishment of both informal cooperation and formalized partnerships.

The newly developed concept addresses the specific challenges and needs of European cities. It will be implemented as a framework within selected areas of partner cities and will offer the opportunity to involve public property owners and citizens as building owners and users in the initiation of energy efficiency measures. (AREA21, Overview 2019).

3 Results and Implications

One of the three ICT-tools developed in the AREA 21-project is The Holistic System Tool, which is studied and tested in our case pilot area Härmälä. The tool is also referred to as "Energy application from TAMK" (ENAP), that is an application for monitoring and analyzing real time electricity and domestic water consumption and indoor conditions, in apartments and single-family houses. ENAP is adopted in the AREA21 project to pioneer district-level cooperative energy planning processes and to involve, and activate, energy endusers in urban district regeneration. (AREA21, ENAP 2019).

The main goal is to raise individual knowledge about energy consumption and foster behavioural change of users. ENAP will be used by Energy Improvement Districts (EID) to raise residents' awareness of their energy and domestic water consumption, habits, and to trigger changes to reduce use, as described below (AREA21, ENAP 2019):

- Users (i.e. apartment or single-family house owners or tenants) can easily monitor their real-time energy and domestic water consumption and indoor conditions via ENAP.
- As an instructional feature, the trend lines change colour depending on measurement results.
- In addition to electricity and domestic water consumption, the application presents indoor temperature, humidity and CO2 levels with the similar graphs and coloured trend lines.
- A feedback channel is available on the tool for questions related to energy consumption, indoor conditions and application specific questions.

4 Conclusions

AREA 21 builds on the following activities (AREA21, Overview, 2019):

- Holistic: Develop strategies on a district level to promote the integration of sectoral practices and the use of synergies between existing processes, measures and resources.
- Cooperative: Test new cooperation formats to strengthen the capacity of public actors towards using new communication and planning tools.
- Engaging: Invite energy consumers to be part of strategic energy planning to better understand end-users' motives and to facilitate implementation of new energy efficiency solutions.

- Technological: Promote the use of smart technologies to facilitate the energy planning process, to test new forms of public participation, to raise awareness about the individual energy consumption and to promote behavior change.
- Educational: Develop concepts, test solutions and transfer knowledge to other cities and regions to support the transition towards low-emission urban structures in Europe.
- Participatory: Involve the different parties in all steps of the energy planning, implementation and decision-making process to facilitate the generation and testing of new ideas.Stakeholders are, among others, HafenCity Univercity Hamburg and City of Tampere (AREA21, partners, 2020).

5 References

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