

Barriers and needs for energy-efficient refurbishment at district level

Tarja Häkkinen VTT

Samo Gostič ZRMK

Nusrat Jung VTT

MODER project



Organisers:



International Co-owners:



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MODER - Mobilization of innovative design tools for refurbishing of buildings at district level

- Horizon 2020 EeB-2015 Project number 680447
- Coordinator: SWECO Jyri Nieminen
- Duration: 1.9.2015 – 31.8.2018
- www.moderproject.eu



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MODER – focuses and objectives

- Focus on Northern and Central European countries
- District-level refurbishment :
Concurrent renovation of several buildings in a same district/neighbourhood with the view to achieve cost savings, financial benefits and more efficient use of renewable energy
- Objectives:
The project develops, demonstrates and mobilizes design tools, processes and business models for efficient refurbishment on building and district level.



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Design methods and tools

- Comparison of retrofiting alternatives at district level
- Different stages of projects
- Support on decision making (visualisation)
- Building level impacts (LCC, GHG, energy) on district level or
- District level impacts considering the grid interaction and load matching issues



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Processes - Procurement and project delivery models - Collaboration

- PPP (Public-Private-Partnership or Private-Private Partnership)
 - Creation of a project-specific company
- Alliance model
 - Early initiation of the project; designers and contractors involved in early decision making process
- Invite to process model
 - Initiated by one stakeholder; invites others to the project
- Networked Design & Build model



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Business models

- For different actors in district level retrofitting project
- Focus on the project developer



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Barriers and needs Methods



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Study of literature and Interviews

- Qualitative research
- Semi-structured interview
- Interviews conducted in 8 European countries:
- Finland, Germany, The Netherlands, Slovenia, Lithuania, Latvia, Poland, Austria.
- In total, 67 stakeholders were interviewed.
- Owners with large portfolios, energy companies, designers, consultants, town planning and building permission authorities, renewable energy providers, contractors, developers and maintenance managers.

Barriers and needs Premise



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Potential benefits

- Cost saving can be achieved in the procurement of services such as energy analyses, design, and construction.
- The total investment cost of some RES can be significantly lower on neighbourhood level than in the context of individual buildings.
- More cost-effective financial solutions.
For example financing with the help of infill construction.
- Easier load matching and grid integration.
The projects can benefit from energy resource sharing on building group level. Better possibilities for synchronization of consumption and supply of electricity with the help of demand side management, electrical storage and minimization of the energy consumption.



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Possible barriers

1. Legal issues regarding town planning and building permission practices
2. Legal aspects regarding practices, taxes and fees of energy generation
3. Presence of several owners
4. Simultaneous presence of several actors
5. Lack of players able to initiate and integrate
6. Lack of business models for profitable work in district-level projects
7. Lack of experience in using collaborative delivery models
8. Lack of tools for energy assessment at district level
9. Lack of process descriptions for district-level refurbishment
10. Lack of design methods for optimization of grid interaction and load matching.



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Barriers and needs Results



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Study of literature

- Results emphasize / give evidence about:
- Benefits of energy-efficient refurbishment at district level
- Importance of collaborative project models in energy-efficient refurbishment at district level
- Need for new business models in energy-efficient refurbishment at district level
- Need for new financing possibilities for energy-efficient refurbishment at district level



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Summary of interview results

- The three most important barriers:
 - presence and collective agreement of several owners to start district refurbishment projects
 - lack of project developers or integrators
 - institutional & legal obstacles related to town planning and building permission practices.
- The opinions of the interviewees were somewhat dissimilar because it was dependent on their experience on participation in district refurbishment projects and the role of their organization in those project.



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Barriers and needs Recommendations



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Recommendations

- New type of proactive way of working should be adopted by municipalities
- The possibility of new type of group applications for building permissions should be supported.
- Better financial and taxation practices that enable and support the use of local RES should be developed.
- Convincing information about the profitability of simultaneous refurbishment projects should be developed and made available.



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Recommendations

- Better organization of work and better collaboration is needed.
- A (new) role of project developer / project initiator is needed. Different kind of actors – especially consultants – but also house managers, owners of big building portfolio, ESCO companies or even municipalities could take the role of a project developer.
- New business models are needed for project developers and also for other actors in district level energy refurbishment projects.
- Collaborative delivery models should further developed and applied for district level refurbishment projects.



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