



Recommendations for Policy Improvements for Cooperative Energy Planning in BSR Cities and Regions

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Foreword

The main objective of the AREA 21 project is energy efficiency in the Baltic Sea Region. The project is a transnational cooperation co-funded through the Interreg Baltic Sea Region Programme 2014–2020. The project strives to bring together public authorities, energy providers, property owners and citizens in seven different cities in the Baltic Sea Region to foster energy efficiency initiatives at the district level. In this way, the AREA 21 project aims to decrease CO₂ emissions in urban areas and help cities and regions meet their own and international goals to fight climate change.

We are delighted to share with you the results of the AREA 21 project. This publication introduces the central policy recommendations that are informed by transnational learning and the partners' and local policy makers' experiences. It represents the position of AREA 21 in terms of principles, goals and policy recommendations for existing issues.

The stimulating Interreg framework has enabled the AREA 21 consortium to set up this engaged and successful collaboration. All AREA 21 partners aspire to these results and recommendations finding their way into local practice in the Baltic Sea Region as well as throughout Europe. The Energy Improvement District is a suitable toolkit to foster local energy efficiency and thus contribute to the European Union's climate mitigation goals. It offers a framework that helps identify investment opportunities in future technologies which contribute to the ambitious European Green Deal. We invite you to join us on this path of green innovation towards a carbon neutral European future!

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Introduction

The existing energy planning instruments and cooperation models applied by local and regional public authorities in strategic energy planning are limited. In addition, they are also not adequate for realizing integrated approaches that reduce sectoral fragmentation and exploit the full energy savings potential of built-up urban districts. Currently, the design of strategies that integrate energy consumers' behaviour are mostly non-existent. This is a result of a lack of cooperation between local and regional public authorities, energy utilities and property owners. Further, instruments and tools are missing to help understand the end-users' motives and the related barriers that would enable a direct exchange with citizens as energy consumers and a proactive engagement with them in strategic energy planning.

The AREA 21 project aims to overcome this knowledge gap by addressing and involving all stakeholders, including citizens, in the planning and implementing of measures. This position paper reflects on the key elements that hinder not only the cooperation process, but also the implementation of actions or strategies to fulfil the energy efficiency potential of urban districts, especially in the Baltic Sea Region (BSR). As a result, we have developed 8 key policy recommendations for application at the EU level that are informed by our project experience.





AREA 21 Position: Shared Goals and Principles

The AREA 21 project includes six important principles:

- **Holistic:** Strategies at the district level should promote the integration of sectoral practices and the use of synergies between existing processes, measures and resources.
- **Cooperative:** New cooperation formats should be tested to strengthen the capacity of public actors towards using new communication and planning tools.
- **Participatory:** Different parties should be involved in all steps of the energy planning, implementation and decision-making process to facilitate the generation and testing of new ideas
- **Engaging:** Energy consumers should be invited to be part of strategic energy planning to better understand the end-users' motives and to facilitate the implementation of new energy efficiency solutions.
- **Technological:** The use of smart technologies should be promoted to facilitate the energy planning process, to test new forms of public participation, to raise awareness of individual energy consumption and to support behaviour change.
- **Educational:** Concepts should be developed, solutions tested and knowledge exchanged with other cities and regions to support the transition towards low-emission urban structures in Europe.

The overall goal of AREA 21 is to increase energy efficiency in energy planning at the district level by transforming the existing building stock and energy infrastructure, especially in BSR cities. As mentioned in the introduction, energy planning at the district level faces several obstacles (e.g. lack of cooperation between stakeholders, lack of concepts, strategies and approaches, fragmentation of measures rather than holistic plans, etc.). AREA 21 aims to provide the stakeholders of urban energy planning (e.g. energy agencies and other similar institutions, public authorities, building developers, property owners and energy utilities) with a concept and tools to overcome these challenges and to plan and implement new solutions for energy efficiency in urban districts. In addition, it seeks to support cities in the BSR 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.

Policy Recommendations

The policy recommendations are informed by (1) workshops with AREA21 project partners regarding observed and expected policy challenges and barriers, (2) expertise of local and regional energy experts from the partner countries of the AREA 21 project implementation, (3) a literature review of related topics and (4) a review of similar practice cases.

The policy recommendations can be linked to four challenge areas (identified in the partner workshops):

- **Financial** issues (real or perceived availability of funding and financial risks associated with cooperative energy projects).
- **Technical or technological** challenges (functionality of the system design, including its integration with existing systems as well as the approaches used to monitor its use).
- **Administrative or legislative** challenges (processes and regulations that govern the implementation of district-level energy planning).
- **Societal issues** (stakeholder perceptions of district-level energy planning, which is interdependent with their knowledge of the system and its benefits, and influences their engagement with new technology and their tolerance for disruption during the implementation phases).

▼ *Study visit to Wieniawa
EID, Poland.*



Financial aspect recommendations

» Establish a smart long-term funding environment

- Better and more flexible long-term funding programmes, both for “soft” aspects and for “hardware”, are needed.
- Allow and facilitate the smart combination of funding programmes with different targets (e.g. types of energy) to enable cities and regions implementing holistic approaches to energy (efficiency) planning at the district level. This “funding buffet” could facilitate context-specific approaches that combine the “best measures” from different areas.
- Increasing funding time frames allows for a better planning and implementation horizon for all actors.
- In addition, a platform could be set up with the goal to match stakeholders with common projects.

» Establish a bonus-malus system for energy production and efficiency

- Dirty energy production is cheaper than green energy since environmental costs are still not effectively priced. Fees and taxes could relate to efficiency and sustainability factors and thus increase the price of dirty energy. This bonus-malus system would increase the competitiveness of renewable energies and energy efficiency measures.
- Generated revenues could be 100% redistributed (e.g. by subsidies for green energy production or other energy efficiency measures) to reduce green energy prices for end-consumers and increase the attractiveness for investors as return on investment is reduced to acceptable levels.

Technical and technological aspect recommendations

» Require the collection and transfer of energy data for the purpose of energy efficiency planning

- Access to data on energy use is key to understanding energy needs and saving potential at all levels, as well as developing strategies to address energy efficiency challenges. Key energy use metrics are necessary to inform better energy planning. Therefore, data needs to be collected.
- To reduce resistance, it is important to raise awareness among citizens, politicians and stakeholders related to data (collection) on energy planning.
- In addition, data collection for performance monitoring should conform to high standards to increase the end-users’ trust (i.e. data security) and the reliability of data.

» Design and integrate standardization measures for energy grid, metering and management infrastructure

- In some cases, standards and management certificates are outdated and need to be updated, addressing the current challenges and requirements for a renewable and efficient energy transition (also at the district level).
- The standardization of energy infrastructure and processes would be a significant contribution to (EU-wide) energy planning. Specifically, the standardization of interfaces between different equipment, management protocols, regulations on electrical/heating deployment, recharging infrastructure and electrical reselling at the district level should be fostered.
- Energy reporting and billing should be improved where it relates to the comparability and visibility of, e.g., certificates/energy classes of buildings and appliances, as well as environmental impacts of energy consumption.

Administrative and legislative aspect recommendations

» Design an effective legal framework targeting district-level energy planning

- There is a lack of policies targeting energy planning at the district level. A favourable system that reduces complexity and bureaucracy needs to be created (i.e. processes and regulations should be made simpler).
- There is an absence of funding schemes at the district level (i.e. for the development of concepts and strategies for energy efficiency and energy planning). A legal framework could be used to make funding, tools and staff available for district energy planning measures (i.e. shift from single building to district approach). This would increase the openness for, e.g., energy grids for local energy producers.
- Long-term programmatic support for district-level planning allows for extended planning horizons and investments in more extensive energy efficiency solutions. The sustainability offered by long-term support could encourage holistic approaches at the district level, thereby increasing the attractiveness of the measures.

» Require green public procurement (energy saving/efficiency) in tenders

- Green and sustainable public procurement measures in current tenders are not efficient as they receive little significance in the bidding compared to other tender criteria.
- Tender criteria should include stronger green procurement and sustainability requirements from the very beginning. With higher “green requirements” for public procurement, sustainable solutions have a better chance of successfully competing with “business as usual” solutions focusing mainly on economic aspects (as observed by partners in, e.g., Russia and Sweden).

Societal aspect recommendations

» Design a programme to raise awareness among citizens on the environment and energy saving

- An awareness programme could provide information on good practices for cooperative processes that show how to motivate tenants, building owners and other stakeholders to actively participate in these processes. Tools could include social campaigning, energy diaries, know-how on energy saving, platforms to share energy data, etc. This would increase citizens' interest in and knowledge on energy topics.

» Encourage and support active cooperation, coordinated networking and the involvement of all relevant parties

- Current projects often lack the participation of several relevant parties. This is especially true for stakeholders with no lobby, organizational degree or high financial resources. In addition, requirements for participation which also include financial support to implement these aspects are often missing.
- Projects relating to energy planning at the district level should be encouraged to use different (target group-oriented) approaches for active cooperation and supported to allow coordinated networking and involvement (active participation) with all relevant actors, including citizens.
- Clear concepts and guidelines on how to attract different target groups and stakeholders should be developed or, where they exist, these should be supported. These concepts should always be context-specific.
- Ownership and trust among the different stakeholders will increase the sustainability of the project.

Policy Issues: Identification and Clarification

Observations of AREA 21 Partners

The initial step for the identification of potential and observed challenges came from a brainstorming session by the AREA 21 project partners. Here, they listed all the foreseen barriers for the implementation of strategies for cooperative energy planning and, through mediated discussion, clustered them to generate a thematic list of challenges. In a second step, at the end of the project, the partners reviewed, discussed and further developed these challenges in specific World Café sessions. The partners clustered the collected challenges into the following categories:

1. **Financial challenges** relate to the real or perceived availability (short and long-term funding) and financial risks associated with cooperative energy projects.
2. **Technical or technological challenges** relate to the functionality of the system design, such as its integration with existing systems, as well as the approaches used to monitor its use.
3. **Administrative or legislative challenges** relate to processes and regulations that govern the implementation of district-level energy planning.
4. **Societal challenges** relate to the stakeholder (including the end-user) perception of district-level energy planning, which is interdependent with their knowledge of the energy system and the benefits that influence their engagement with new technology and tolerance for disruption (e.g. problems with apps, complex collaboration, communication challenges) during the implementation phases.



Input of Energy Experts

We addressed experts and stakeholders in energy planning related to the AREA 21 partners, asking them to review a list of 18 policy recommendations on the above-mentioned four challenge areas regarding their importance and relevance to their actor group: “Does it [the recommendation] support the implementation of cooperative district-level energy planning?” and “Is it [the recommendation] transferable/appropriate for European cities and regions and their specific contexts?”. A total of 16 experts participated in the survey, representing the following actor groups: energy efficiency consultants, administrative public authorities, citizens, private property owners, private organizations, energy advisors, energy producers, researchers and academia. The results are reflected in the policy recommendations presented above.

▼ *Study visit to
Polytechnic EID, Russia.*



Review of Cooperative Energy Planning Literature

Within the Energy Improvement Districts (EID) concept, the AREA 21 project identified potential district-level actions and objectives. The authors reviewed the literature relating to selected areas:

Cooperative Retrofitting of Buildings

Retrofitting of buildings is a sensitive and important topic for tenants and house owners. Cooperative retrofitting of buildings can be achieved by a special emphasis on the participation of tenants. Regarding this, community self-organization (CSO) is a form of cooperation that is very interesting for the AREA 21 approach. Geróházi, Hegedüs and Szemző define the term community self-organization (CSO) as “the activity of groups of individuals that have a decisive role in planning and implementing their new homes” (n.d.). This results in new structures and opportunities for energy efficient CSO residential buildings (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 276). These structures, provided by PROFICIENT, are what AREA 21 intends to adopt: empowering housing associations to occupy a central role in the retrofitting of their buildings while collaborating with key stakeholders.

The multiplicity character of the housing associations is the initial challenge to be faced in the process of cooperative retrofitting, since this collective group participates actively in all stages of the design and implementation (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 277). Piaia et al. add that traditional planners are likely to have difficulties working for multiple clients, and that the complexity of the cooperative retrofitting process requires more explanation than what would be necessary when dealing with a single client (Piaia, Di Giulio, Sebastian, & Damen, 2017, p. 277).

Cooperative Improvements to Public Infrastructure

The term “cooperative” is very general and requires definition. In the literature, projects associated with cooperative improvements to public infrastructure target mainly public-private partnerships. Schaeffer and Loveridge (2001) find that there is a proliferation of the term public-private partnership due to a “careless” use of the definition (p. 170). They argue that differences in characteristics are important in understanding the respective project(s). A definition that narrows the purpose of the partnership is given by the Ministry of Municipal Affairs of British Columbia (1999): “Public private partnerships (PPPs) are arrangements between government and private sector entities for the purpose of providing public infrastructure, community facilities and related services. Such partnerships are characterized by the sharing of investment, risk, responsibility and reward between the partners” (p. 5).

For Latin America and the Caribbean, Serebrisky et al. (2017) find that smart investment in infrastructure could save up to 40% of the costs and increase efficiency (p. 12). They suggest optimizing maintenance planning and expanding

the use of demand management measures (p. 13), which is supported by the AREA 21 district-level planning approach.

A (cooperative) improvement to public infrastructure needs a long-term strategic vision that addresses service needs, provides guidance and still offers room for adjustment (OECD 2017). Integrating the stakeholders is important, since the topic is complex and affects different public, civil and private stakeholders and disciplines. The relevant actors involved in the process should inspire dialogue and allow public access to user needs. In addition, OECD (2017) concludes that “consultation processes can enhance the legitimacy of the project amongst the stakeholders, as well-executed consultation can bring a sense of shared ownership” (p. 8). Citizen engagement creates opportunities for communities and is necessary for good governance, but it is difficult to achieve. This approach highlights the importance of citizen involvement but still falls short of the AREA 21 project approach, where true ownership is the goal in order to activate as many synergies as possible.

Community Awareness Building for Changed Energy Usage Patterns

The United Kingdom’s Department of Energy & Climate Change identifies several actions to reduce electricity consumption as a possible way for communities to tackle energy issues and climate change. These include: (1) supporting community action on energy advice and behaviour change, (2) involving communities in energy-saving programmes and policies and (3) helping communities access new sources of funding for energy-saving activity (2014, p. 12).

The IPCC publication on buildings notes that there is high agreement that actors’ behaviour changes according to their awareness, leading to a reduced demand by up to 20% in the short term and 50% of present levels by 2050 (Lucon, et al., 2014, p. 675). According to this, the proposal of AREA 21 is to inform and raise awareness of the importance of reducing energy consumption, thus triggering behavioural changes towards reduced energy consumption patterns.

Behaviour patterns are not easily changed; they take time and effort to adjust (Csobod, Grätz, & Szuppinger, 2009, p. 9). Shifting intrinsic/central habits towards pro-environmental behaviour is even more complex, since “such [pro-environmental] behavior often brings no tangible benefit to those who engage in it” (Stern, 1999, p. 463). Moreover, even the inclusion of benefits or incentives to help with behaviour change could backfire, i.e. if a behaviour is adopted due to a powerful intrinsic motivation (pleasure or satisfaction from performing one’s duty), the overlapping of extrinsic incentives (e.g. financial incentives) to drive the same behaviour could crowd-out the pre-existing satisfaction and lead to the abandonment of the desired behaviour (Frey & Oberholzer-Gee, 1997, pp. 746–747). Furthermore, Maréchal (2009) points out that ingrained habits may play an important role in the non-adoption of energy saving behaviour, even when citizens are aware of energy-related environmental issues (as also cited in (Maréchal, 2010, p. 1104)).

Similar Practice Cases

This section provides an overview of international projects and programmes that have experienced similar challenges and barriers to those of the AREA 21 project. The similarities may refer to the use of cooperation structures to achieve their goals, and/or to one or more common fields of application (cooperative retrofitting of buildings, improvements to public infrastructure, and/or awareness building). These include:

- RepliCable and InnovaTive Future Efficient Districts and cities. (2014 to 2019, CITYFiED, n.d.)
- Market uptake of small modular renewable district heating and cooling grids for communities. (2016 to 2018, CoolHeating.eu, n.d.)
- SME network business model for collective self-organized processes in the construction and retrofit of energy-efficient residential districts. (2012 to 2016, PROFICIENT, n.d.)
- Co-producing and co-financing renewable community energy projects. (2017 to 2020, Co2mmunity, n.d.)
- REgeneration MOdel for accelerating the smart URBAN transformation. (2015 to 2019, REMOURBAN, n.d.)
- Towards Smart Zero CO2 Cities across Europe. (2016 to 2021, SmartEnCity, n.d.)
- Come Together – The Development of Swedish Energy Communities. (Magnusson & Palm, 2019)
- Transition to distributed energy generation in Finland: Prospects and barriers. (Ruggiero, Varjo, & Rikkonen, 2015)

▼ *Solar panels on a rooftop
– Hamburg, Germany.*



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Project Summary

AREA 21 addresses the need for energy efficiency by fostering cooperation practices for strategic planning at the district level. The project proposes the development of innovative tailor-made solutions, appropriating the perspectives of a diverse group of stakeholders to address local issues in synergy with energy efficiency matters. The collaborative character of this approach contributes to the legitimacy of the process and when associated with the search for synergies, it results in context-appropriate and multi-faceted initiatives. As a result, AREA 21 expands and strengthens cooperation networks, supporting the implementation of innovation for sustainable development with a focus on energy efficiency.



AREA²¹



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