ComActivate

Enabling community action for energy sufficiency

D3.2 REPORT ON GOOD PRACTICES OF REFURBISHMENT ROADMAPS

Collection of Good Practices of District Renovation Concepts and Individual Refurbishment Roadmaps

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Content

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List of Abbreviations

BBSR Bundesinstitut für Bau-, Stadt- und Raumforschung (German Federal Institute for Research on Building, Urban Affairs and Spatial Development)

e.g. for example

EPBD Energy Performance of Buildings Directive

EU European Union

HR human resources

ifeu Institut für Energie- und Umweltforschung (German Institute for Research on Energy and Environment)

IFUB Institut für u. Baukunst (German Institute for u. Architecture)

iSFP individueller Sanierungsfahrplan (DE: individual refurbishment roadmap)

IRR Individual Refurbishment Roadmap

KfW Kreditanstalt für Wiederaufbau (German Development Bank)

kWh kilowatt-hour

NESR Neighbourhood Energy Sufficiency Roadmap

PV photovoltaic

RES renewable energy sources

List of Figures

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Executive Summary

The ComActivate project focuses on reducing energy poverty for people living in multi-family apartment buildings (MFABs) in four pilot municipalities in Bulgaria, Hungary and Lithuania, among other, through the development of Neighbourhood Energy Sufficiency Roadmaps (NESR).

This report provides examples of Good Practices regarding renovation roadmaps that ComActivate can use for the development of the NESRs. To begin with, different approaches to renovation of neighbourhoods are discussed, including their advantages and challenges. Then, their relevance to the ComActivate demonstration sites is discussed. Lastly, a list of Good Practices is listed that can be used by the demonstration sites in ComActivate.

Together with other project tasks and reports, this report will help demonstration sites develop approaches to reduce energy poverty in MFABs. The focus of this report is mainly on the neighbourhood aspects of energy renovation – future tasks within ComActivate will further develop the concept of NESRs to include aspects of energy sufficiency, as well as provide examples from a variety of countries within the EU, including an assessment of approaches within Bulgaria, Lithuania, and Hungary.

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Introduction

The European Green Deal aims at reducing carbon emissions by at least 55% by 2030 compared to 1990. The building sector plays a crucial role in achieving this goal because it is responsible for 35% of energy-related greenhouse gas emissions[1] and 43% of energy consumption[2] in Europe. This calls for interventions at building and neighbourhood level which will minimise the absolute energy consumption and green the leftover energy used, to reduce related greenhouse gas emissions. In addition, more than 10% of citizens in the EU are categorised as energy poor.[3] Tackling energy poverty can include change of (collective) behaviour patterns of occupants, improvement of energy performance of the building, or increasing local green energy production to reduce energy bill costs.

Interventions can target single buildings and its occupants. This might be a renovation, ideally using low carbon materials (e.g. secondary materials, easily recyclable elements), changes of occupants' energy consumption user patterns, and of course the installation of renewable energy technologies at single building level. Another approach targets many buildings on a *neighbourhood* level (also referred to as district approach). The neighbourhood approach for tackling energy poverty and climate targets for a city goes beyond the named interventions, such as renovations, of just an *array of single buildings*. It considers indicators that concern the whole geographical urban area with its building stock, green infrastructure and people. Benefits of considering the entire neighbourhood include achieving economies of scale and thus cost-efficiency (e.g. prefabricated renovation elements, sourcing building materials from a close geographical area), tackling social cohesion, sharing energy among buildings with diverging user patterns (e.g. schools and residential houses) and thus profiting from cheap electricity rates, and the possibility to profit from systemic solutions such as district heating. Therefore, interventions for absolute energy reduction in buildings at neighbourhood level are more holistic and integrated and allow to harvest synergies of various social and environmental policy goals.

The European Commission identified the benefits of the neighbourhood approach and its potential, specifically to accelerate renovation rates to increase the energy performance of the building stock and at the same time to reduce carbon emissions in the building sector already in the early 2000s. On the EU level it was considered and mentioned in the Leipzig Charta[4] and the Renovation Wave[5] strategy and was also recognised in the 2024 recast of the EPBD[6] under mandatory indicators of the National Building Renovation Plan requirements for member states.

Member States interpret the concept of the neighbourhood renovation approach differently. Whereas in the Western EU countries multiple instruments to roll out the neighbourhood

[1] European Energy Agency (2023)
[2] Rousselot and Pinto Da Rocha (2021)
[3] Widuto (2023). The ComAct project used the REACH project definition of energy poverty in D1.1. online available here.
[4] Bundesministerium des Innern und für Heimat (2020)
[5] European Commission (2020)
[6] European Union (2024, pp. 37–38)

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approach were implemented, in EU countries that joined after 2004 the building sector in general was not targeted in the first place.

ComActivate project (2023-2026) is interested in neighbourhood concepts to address the energy poverty in three pilot countries Bulgaria, Hungary and Lithuania with differing climate, legal, administrative and overall cultural circumstances. In four pilot districts in Burgas (BG), Budapest-Jozsefvaros (HU), Kaisiadorys (LT) and Elektrenai (LT) neighbourhood energy sufficiency roadmaps (NESR) will be developed. Within those, the neighbourhood approach is specifically explored to achieve energy poverty alleviation through renovations.

In this report we collect Good Practices for neighbourhood concepts which address the absolute energy consumption via energy efficiency or energy use avoidance measures, as well greening local energy use. Examples include different strategies and measures from Germany, which can serve as a toolbox for the development of these NESRs. Most of them focus on renovation. Whilst these Good Practices show successful approaches to renovating neighbourhoods, it should be noted that for the development of NESRs also other measures will need to be considered which are more targeted at changing (collective) energy consumption behaviour patterns and installation of renewable energy technologies. This will be the goal of future deliverables of this project.

The methodology for the collection of Good Practice examples will be described below.

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Approach of Collecting Good Practices

This report focuses on exemplary Good Practices (preferred term over Best Practices) from the German context, because those show the possible variety of elements that were implemented in one country. These elements guarantee a successful and stable framework which enables municipalities to “think” and act on the district level.

The examples shown below were chosen because they allow a view on district renovation from different angles. The legal, financial and technical perspectives can be found in the factsheets. Additionally to those, participation, communication and implementation measures were shown in three concrete examples of district renovations.

The Good Practices will be presented as factsheets, see Figure 1 as an example.

Figure 1: Example of a Good Practice Factsheet

The factsheets will contain different categories, such as Construction (e.g. concrete refurbishment of a/multiple buildings), Technology (e.g. smart metering), Process Support (e.g. entities that conduct the implementation process of district concepts), Communication (e.g. campaigns that influence people´s behaviour), Financing and Funding (e.g. financing schemes and mechanisms) and Law and Legislation (e.g. laws that guarantee support or grants).

The Good Practice examples show different successful approaches and measures. The pilot projects can pick suitable measures and solutions out of these Good Practice examples appropriate to their specific needs and adapt and amend them. In the end the identified measures can lead the own way to develop the NESR for the pilot districts.

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Topics for the Good Practice collection

Neighbourhood Renovation Approach

> *"A district/neighbourhood consists of several contiguous private and/or public buildings including public infrastructure (such as an existing or planned shared heating supply). The district usually corresponds to an area below the size of a city district area […]. Districts can consist of existing buildings or a mixture of new and existing buildings.*[7]

District renovation aims to change and improve the social, environmental, and economic situation for residents in a district in terms of urban planning, development, and/or different regulatory frameworks and conditions. It describes the process of improving a defined territory by implementing different measures relating to: architecture, building structure, energy efficiency, energy sufficiency, climate adaptation and resilience, regulatory framework (e.g. building code or construction law), as well as demographics, socio-economics, and residents´ behaviour.[8] The biggest potential for an improvement of the energy situation lies in energy efficient renovation of the buildings, including its heating and electricity systems and infrastructure and mobility.[9]

> *"[T]he district or neighbourhood is identified as a most effective intervention level to step up the reduction of energy consumption in the building sector, as it allows economies of scale and potential synergies amongst the different buildings to be taken advantage of, as well as accelerating the process and easing the integration of renewable energy technologies.*[10]

The Integrated Approach for District Renovation[11]

District renovation in Germany focuses mainly on Integrated District Concepts (de: Integrierte Quartierskonzepte). Those concepts are practically implemented as Integrated District Renovation Roadmaps. Their main target is to improve the living quality for people in a district by increasing the energy efficiency on the district level. This can be achieved not only through renovation in different fields but also through other spatial planning measures.

[7] KfW (2023)
[8] BMUB (2017)
[9] BMUB (2022)
[10] Husiev et al. (2023, p. 2)
[11] Housing Initiative for Eastern Europe (2020, pp. 22–28)

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Linking sectors is key to successful district renovation. In the integrated district renovation approach six main sectors are considered:

- **Land use**
  Multifunctionality of urban areas can shorten travel and delivery distances.
- **Density**
  Density in an urban area creates a more impactful use of structures and thus a bigger potential of energy efficiency.
- **Buildings**
  The most tangible physical elements in districts with a high potential of energy efficiency improvement.
- **Infrastructure**
  An optimised infrastructure needs smaller technical networks. Space for other utilities or living space is left.
- **Mobility**
  The way people move reduces residents´ energy consumption and carbon emissions a lot. Good travel networks, foot and bike paths make people use the car less.
- **Open spaces**
  Open spaces improve the quality of living and create areas for recreation. Additionally, green open spaces improve the air quality and prevent climate events as extreme rain.

Figure 2: Six sectors considered in integrated district concepts, © Marcus Jeutner, insar, 2016

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The development of an integrated district concept[12]

As it can be seen in Figure 3 it is important to view integrated concepts as processes as opposed to stand-alone solutions. The six mentioned sectors are one part of this process. It is necessary to identify and involve all important stakeholders - ministries, administrations, network operators, building owners, civil society, etc. - right from the beginning, as they represent different aspects for comprehensive strategies. Plans that already exist must be integrated, and their objectives and structures must be in line with the developed strategy. As a result, integrated planning is an iterative process that involves continuous improvement and adjustment of both broad concepts and specific measures.

To begin with, all terms, such as energy efficiency, need to be initially defined in order to ensure that all essential stakeholders are on the same page and to avoid misunderstandings. Next, stakeholders need to agree on the overarching strategy, which serves as a topical filter to assess the current situation. Furthermore, taking into account trends in various indicators in the future is crucial because integrated plans serve as both a guide for current initiatives and as a steering tool for future developments.
It is necessary to compare the anticipated result to the current state of urban planning. These assessments will be used to determine the primary goals and areas of action as well as to find an overall strategy.

The results of the analyses and the designated areas of action determine the proper scale and level. Neighbourhoods are spatial levels in which local contexts bring together several dimensions. While it could be worthwhile to carry on working on this scale, other subjects (networks and infrastructure) need to be given more attention. Within the selected focus, a thorough analysis must be conducted, during which the subjects of the overall analysis must be specified in relation to the appropriate scale.

A SWOT analysis (Strengths, Weaknesses, Opportunities and Threats) should be used to determine the entire approach, which feeds into a local development strategy centered on the subjects identified by the analysis. The plan identifies the necessary stakeholders as well as the particular fields of activity.

The next stage involves developing a detailed implementation plan (cost-benefit analysis) that includes clear sub-goals, metrics, indicators, and the necessary human and financial resources. Carefully estimating and accounting for potential savings is necessary when performing a cost-benefit analysis. This will also assist in locating possible financing sources on a national and international scale. Subsequently, each sub-goal requires the development of a thorough implementation strategy that links each step to the required resources and stakeholders.

This last phase is also the first to be followed by others: keeping an eye on the implementation process and its results will help to continuously analyse and modify both the overall planning strategy and its single components. This guarantees that the plan can be modified in response to evolving conditions.

[12] Housing Initiative for Eastern Europe (2020, pp. 24–25)

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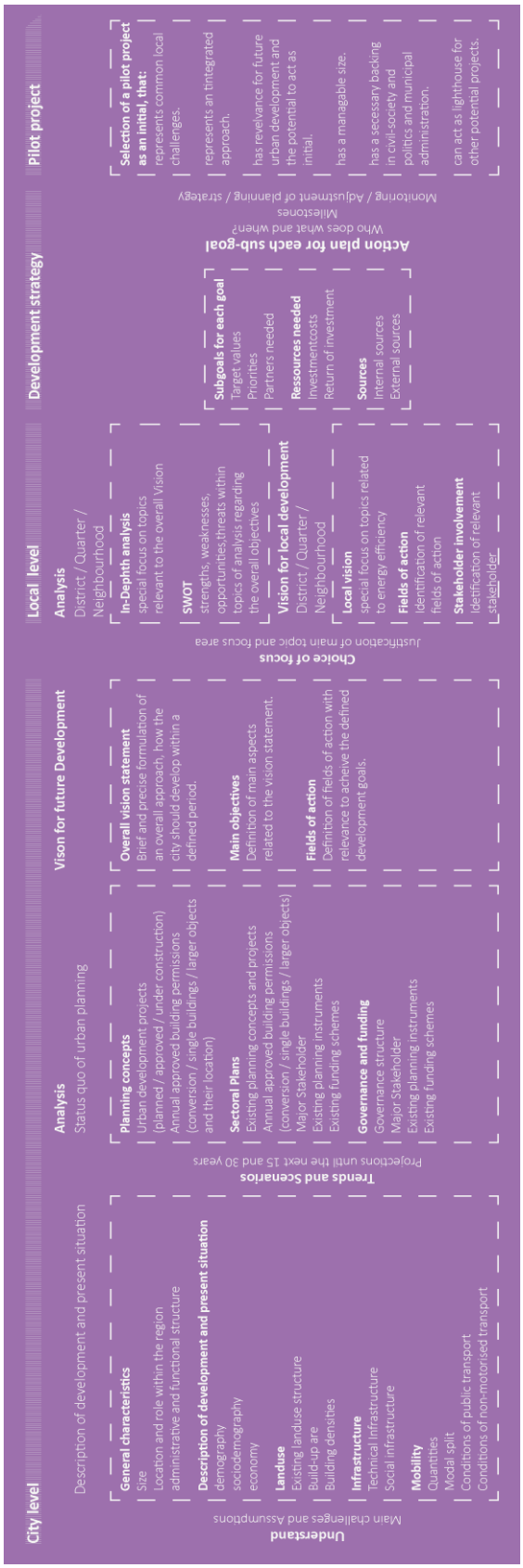

Figure 3: Development of an integrated district concept, © Marcus Jeutner, insar, 2016

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Criticism of the district approach

Renovation at district level with neighbourhood renovation concepts is evaluated as the most effective approach because synergies and the implementation of measures in a larger scale may have a larger effect or bring larger benefits[13]. However, it is considered as one of the most difficult ways to increase a certain building stock or reduce carbon emissions in the building sector on a larger scale.

> *“ [A]cting at the building level increases the renovation options compared to the dwelling level, but they are likewise increased when the renovation is applied to an entire district, […].*[14]

The district approach faces more challenges and has to overcome more barriers than measures on lower levels as in a single building or a flat.

Challenges[15] can be

- the determination of the project management with enough knowledge how to set up a successful district renovation project,
- the engagement of multiple stakeholders (municipality, energy suppliers, residents, entrepreneurs, …) and the process of finding a common solutions and acceptance among all concerned stakeholders,
- successful communication with all stakeholders,
- supportive regulatory frameworks and funding schemes that are needed,
- to set up effective monitoring strategies and
- for replication to develop typologies.

Barriers can be

- the lack of technical and HR capacities in municipalities,
- insufficient knowledge and expertise among acting stakeholders,
- awareness, willingness and acceptance of residents and citizens,
- lack of trust in authorities,
- complex ownership structure in the district,
- the lack of synchronisation between authorities at different levels (national, regional, local).

Energy in buildings

Via the district approach the energy consumption related to buildings can be reduced and decarbonised in various ways. Neighbourhood renovation is about improving energy efficiency and thereby lowering carbon emissions. By insulating walls, roofs and pipes, renovating or changing windows and doors, energy losses can be reduced leading to a lower energy

[13] BUILD UP (2023, pts 27:00-30:20), Oleksandr Husiev et al. (2023, p. 2)
[14] Husiev et al. (2023, p. 2)
[15] Compare BUILD UP (2023, pts 27:00-30:20), Oleksandr Husiev et al. (2023, p. 2)

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consumption. Renewable energy sources such as PVs on the roof can be installed to buildings to decarbonise the electricity used and reduce the energy bill through less grid traffic dependency.

Furthermore, energy consumption can be decreased through avoiding energy use all together through mostly social innovation. During the energy crises that started all over Europe in February 2022 after the Russian invasion in Ukraine energy prices rose dramatically and people struggled to afford heating and electricity. Energy poverty became a more prevalent and well-known term, also in Western European countries. That was not the case before. Due to higher prices people were forced to reduce their energy bills come whatever may. So, people started to save as much energy as possible and countries advised their population to do so.[16]

Energy saving were suddenly not only achieved by increasing the energy efficiency of buildings but by not using as much energy as before. This can be achieved by a change of behaviour (e.g. by closing windows when the heating is on, by switching off devices or lights, when they are not used or necessary) and can be supported by smart technology (e.g. extension cables with switchers or automatic window closers that are linked to the heating device and close the window when the heating is switched on).

> *“ The best kilowatt-hour is the kilowatt-hour that is not spent.*[17]

The past years people understood that they are able to consume less energy, some got used to it and there was a general switch in thinking for energy consumption.

Towards sufficiency in the building sector

ComActivate is one project which strives towards energy sufficiency, hence increasing citizen’s access to energy to an at least decent level while staying within planetary boundaries. This is an effort that fits into the broader movement towards sufficiency.

> *“ Sufficiency policies are a set of measures and daily practices that avoid demand for energy, materials, land and water while delivering human well-being for all within planetary boundaries.*[18]

In 2021 the German government commissioned a research study on Sufficiency in the Building Sector[19]. The outcomes are policy recommendations and concrete suggestions for changes

[16] Compare: Die Bundesregierung (2022)
[17] German phrase.
[18] Shukla et al. (2022, p. 31)
[19] See: Zimmermann et al. (2023)

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of existing policy instruments. These are additional ideas of how to reduce not only the energy but also the material resource footprint around buildings.

Given the neighbourhood approach takes a holistic stance it is key that ComActivate considers its Good Practices and actions as part of a wider effort beyond energy consumption, prices and decarbonisation.

Five key aspects[20] of sufficiency in the building sector were determined which can be considered guiding principles for neighbourhood interventions that aim to address planetary boundaries while increasing well-being:

- **Development of existing buildings before new construction**
  Following the main sufficiency thought that world´s resources are limited and humankind needs to use them as efficiently and not overloading world´s capacities retrofitting of existing building stock stands before new construction because of the big difference in resource needs.
- **Reduction of per capita space requirements**
  The past decades the trend emerged to use more and more living space in m2 per capita. Especially in wealthier nations this trend became obvious and it became a status symbol. So, the more living space one person uses the more prestigious it is. Actually, for ComActivate and the countries the project works in the challenge will be to find solutions to avoid or remove overcrowding and to act after sufficiency principles at the same time to avoid to use too much space for one person.
- **Adaptability**
  The use of buildings and the needs of people change constantly. So, it is beneficial to form buildings as much adaptable to the requirements. So, to convert an office building into living space, an architecture that reallocate rooms or allows to remove walls would be in line with the sufficiency approach.
- **Lowtech**
  The easier a building is constructed the less resources it takes to build it and the higher adaptability is to reach.
- **Energy-saving usage behaviour**
  This is a key leverage especially in ComActivate project. The goal is to raise awareness on the side of residents for acting as much reasonable as possible to lower energy consumption and to maintain a good quality of living in the building. Possibilities to influence people´s behaviour can be campaigns or trainings.

[20] Zimmermann et al. (2023, pp. 15–17)

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Figure 4: Five key aspects of sufficiency in the building sector, ©BBSR publication[21], ifeu and IFUB, 2023

These five main sufficiency aspects outlined for the building sector will be guiding the perspective of the neighbourhood energy sufficiency roadmaps to be developed and thus will be shown in the Good Practice collection.

Summarised Topics for the Good Practices

The Good Practice collection covers the main aspects from

- **established district renovation concepts,**
  such as
  land use, density, buildings, infrastructure, mobility, open spaces,
- **indicators for sufficiency in the building sector**
  such as
  development of existing buildings before new construction, reduction of per capita space requirements, adaptability, low-tech, energy-saving usage behaviour.

Additionally, they can cover the topics

- **climate adaptation and resilience**,
- **energy communities,**
- **financing and funding schemes,**
- **legislation,**
- **process schemes and support,**
  e.g. for individual measures such as individual refurbishment roadmaps (IRR) for single buildings,
- **process support,**
  e.g. one-stop shops and refurbishment managements that can support the development process of district roadmaps as a key actor within a district,
- **communication,**
  e.g. trainings for residents that can teach a better energy saving behaviour,

since these also have an influence on or can determine the development of district concepts.

[21] Zimmermann et al. (2023)

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Good Practices

The Heat Planning Act

Germany

☐ Financing & Funding
☐ Construction
☐ Technology
☒ Law & Legislation
☐ Communication
☐ Process support

Short description object

The Heat Planning Act is a German law that initiates heat planning and decarbonisation of heating networks all over Germany.

Period // Duration

The Heat Planning Act entered into force on 1st January 2024.

Objective

The Heat Planning Act ensures the carbon-neutral heating supply in Germany. The federal states have to guarantee that by 30th June 2026 municipalities with more than 100k inhabitants and by 30th June 2028 municipalities with less than 100k inhabitants within their territory prepare heating plans for the whole municipality.

Initial situation

In order to achieve the German Government's climate protection target for 2045, legal framework has to be adapted to ensure deep systematic measures. The baseline of carbon neutrality starts at energy grids, so heating and electricity production. Adapting heating networks and electricity grids is essential. Currently, 80% of the heat in Germany is generated from fossil fuels.

Implementation and measures

The Heat Planning Act obliges federal states to take care that all municipalities on their territory prepare heating plans by latest end of June 2028. The heating plans include an analysis of the current state and potentials, target scenarios, identification of prospective heat supply areas and an implementation strategy. Federal states can delegate this task to either municipalities or another planning institution.

Financing // Funding

Municipalities often contract a service provider for preparing the heating plan. Estimated costs for municipalities vary a lot from 0,84 Euros to 6,32 Euros per capita. Usually, smaller municipalities have to pay more. Therefore, it is recommended to ally with other neighbour municipalities to find more synergies (e.g. common heat stations) and to split costs.

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Results

As a result, heat needs to be gained from renewable energy sources by 30% by 2030 and by 80% by 2040. Even a larger effect is expected due to the coordination of the Heat Planning Act and the Buildings Energy Act that came into force on 1st January 2024 as well.

Parties involved

Federal Ministry for Housing, Urban Development and Building, federal states, municipalities, service providers

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Sources:
[1] Gesetz für die Wärmeplanung und zur Dekarbonisierung der Wärmenetze, BMWSB, 12/2023, online available here.
[2] The Heat Planning Act: momentum for the local heat transition, BMWK, Energiewende direct, 01/2024, online available here.
[3] Kommunale Wärmeplanung in Bayern, Bayerisches Staatsministerium für Wirtschaft, Landesentwicklung und Energie, 2024, online available here.
[4] KWW-Kommunenbefragung: Kosten, Beteiligung und Austausch sind Schlüsselthemen der kommunalen Wärmeplanung, Kommunale Wärmewende, 2023, online available here.

KfW Nr. 432 Grant Energy-efficient District Renovation

Germany

☒ Financing & Funding
☐ Construction
☐ Technology
☒ Law & Legislation
☐ Communication
☒ Process support

Short description object

Grant scheme Nr. 432 from German Investment and Development Bank KfW for Integrated Neighbourhood concepts or refurbishment management.

Brief description of the measures

Grant KfW Nr. 432 subsidises the preparation of integrated neighbourhood concepts for energy-related refurbishment measures or a refurbishment management that supports and coordinates the planning and realisation of the measures planned in such concepts.

Period // Duration

This grant was applicable from 2011 until 2024. In 2024 the German government decided to stop the grant programme “Energy-efficient Urban Renovation”, so the KfW grant Nr. 432, 201 and 202 contracted until then are not affected.

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Objective

Contribution to increasing the energy efficiency of buildings and infrastructure, in particular heating and cooling supply, which is also partly reflected in the utilisation of other funding programmes (preparatory effect for investment).

Initial situation

In order to achieve the German Government's climate protection targets for 2030 and 2045, additional measures are required to improve climate protection in the municipalities and their neighbourhoods by increasing energy efficiency and switching to renewable energy supplies. Therefore, the “Energy-efficient Urban Renovation" product family was developed on behalf of the Federal Ministry for Housing, Urban Development and Building (BMWSB). In addition to investment programmes (product numbers 201 and 202), the programme 432 subsidises the development of integrated neighbourhood concepts and the support provided by a refurbishment management.

Implementation and measures

A district renovation concept needs to contain a baseline analysis; identification of potential alternative options for energy supply and of options for energy savings and climate protection; target setting with regard to municipal climate and energy efficiency goals and to mobility concepts; action catalogue; analysis of barriers; monitoring process.

A refurbishment management is based on the district renovation concept obliged to fulfil the tasks of a project manager such as planning and implementation of the district concept; consultancy to and coordination of all involved stakeholders; initiating all related processes and monitoring of all actions and processes.

Financing // Funding

- Preparation of integrated neighbourhood concepts for energy-related refurbishment measures: The concept should be finalised after one year, starting from the date of contract. The funding can only be applied for once for the relevant neighbourhood. The costs for the creation of an integrated neighbourhood concept, the material and personnel costs incurred within the framework of the project for expert third parties are subsidised.
- Refurbishment management: eligible are personnel and material costs for 3-5 years. The grant amounts to 75% of the eligible costs. The maximum grant amount for the refurbishment management is up to a total of period of up to 3 years in total up to 210,000 euros per neighbourhood for a 3-year period and can be increased by up to 140,000 euros to a total of up to 350,000 euros for a maximum of 5 years.

Results

From 2011-2021 approx. 1550 district renovation concepts and 450 refurbishment managements were subsidised.

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Parties involved

Municipalities, KfW, Federal Ministry of Housing, Urban Development and Building (BMWSB)

Beneficiary groups

Municipalities or their entities as financial beneficiaries. Citizens/residents/companies living/acting in the concerned district.

Lessons learned

The KfW 432 grant is a success story for district renovation. Therefore, the stop of the programme in 2024 created a huge lack of understanding on the side of beneficiaries as well as of thematically related associations and stakeholders.

Sources:
[1] Merkblatt Energetische Stadtsanierung – Zuschuss Klimaschutz und Klimaanpassung im Quartier, 03/2023, online available here.
[2] Energetische Stadtsanierung, online available here.
[3] Stellungnahme des vedec KfW Förderprogramm 432 verlängern, 01/2024, online available here.

District renovation concept Gartenstadt Drewitz

Potsdam | Germany

☒ Financing & Funding
☐ Construction
☒ Technology
☐ Law & Legislation
☐ Communication
☒ Process support

Brief description of the measures

In Drewitz, the climate-friendly and socially acceptable transformation of the neighbourhood is taking place with energy-efficiently renovation of buildings, creation of an attractive green residential environment modelled on the garden city, climate-friendly mobility and a high level of resident satisfaction and identification.

Period // Duration

2009 - approx. 2025/2050 (measures with different time horizons)

Objective

The aim is the energy and climate-friendly urban regeneration of the garden city of Drewitz with a particular focus on social compatibility. Drewitz is to be developed into a zero-emission neighbourhood by 2050 through a mix of measures. A reduction of 87% is to be achieved by the building energy requirements and a reduction of 42% in the field of mobility.

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Initial situation

Drewitz is a large settlement of prefabricated buildings from the 1980s with around 6,000 residents (on 37 hectares). It was considered socially deprived and is characterised by a sprawling residential environment and oversized traffic areas. The municipal building company ProPotsdam GmbH is the largest owner of the housing stock in the neighbourhood with around 1,600 residential units.

Implementation and measures

As a contribution to a nationwide competition for the energy-efficient renovation of large housing estates based on integrated urban district development concepts, ProPotsdam GmbH further developed the newly vision of Drewitz as a garden city in 2009 and won second place. As part of workshops with numerous stakeholders, the concept was then enhanced and culminated in the 'Drewitz Garden City Masterplan' in 2011. The goal of energy and climate-friendly urban regeneration was a central component of this plan. The development of an 'Integrated Energy and Climate Protection Concept Potsdam-Drewitz' (IECC) was necessary to take these aspects into account.

The IECC, finalised in 2014, specifies numerous measures and requirements for dealing with existing and new buildings. These measures include the energy-efficient renovation of the entire building stock to KfW 55 standard house 70 (insulation and renewable energy supply), the expansion of the district heating network and its supply with green district heating (solar and geothermal energy) as well as the activation of the potential of photovoltaics and solar thermal energy for electricity and hot water generation. In addition, it intends the adaptation of open spaces to climate change, in particular the redesign of streetscapes and residential courtyards. Regarding mobility, the focus is on reducing motorised private transport and strengthening the soft mobility modes like cycling and redevelopment management ('Sanierungsmanagement') is to be implanted to provide advice about energy-saving, renovation and funding for residents on-site.

The implementation of the concept is, depending on the measure, in the hands of the city, the energy industry, the housing industry and/or the residents.

Results

Some measures have already been realised or are currently being implemented. For example, the dismantling of Konrad-Wolf-Allee, a multi-lane road, and its transformation into a neighbourhood park have been completed. Some of the buildings have undergone energy-efficient renovation, which has halved their energy consumption. The extent to which the CO_2 targets will be achieved remains to be seen in 2050.

Parties involved

The main players are the City of Potsdam, the municipal building company ProPotsdam and the municipal utilities Stadtwerke Potsdam. Other housing companies, private owners and local stakeholders are also involved. The participation of residents is ensured by a participation concept and the elected citizens' representation ("Bürgervertretung").

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Beneficiary groups

The residents of the large housing estate benefit from the modernisation of the flats and the qualitative evaluation of the neighbourhood, while at the same time paying affordable rents (basic rent of 5.50 euros/m²).

Financing // Funding

The total costs of the transformation amount to around 300 million euros (as of 2017). Funding is being provided by the stakeholders' own resources as well as federal and state subsidies. These include, among others:

- KfW-funding (program 432) for the development of the IECC and the redevelopment management, (program 261) for the energy-efficient renovation of buildings and (program n.a.) for the expansion of district heating and electricity supply
- Urban development funding ('Städtebauförderung Soziale Stadt') from the state of Brandenburg for public sector investment in public spaces as well as participation and public relations work
- ERDF funding from the EU for the remodelling of Konrad-Wolf-Allee
- Social housing funding from the state of Brandenburg for the generation-appropriate modernisation of buildings
- EEG ('Erneuerbare-Energien-Gesetz') - funding for the expansion of district heating and electricity supply (in addition to KfW-funding)

Lessons learned

The pilot project 'Gartenstadt Drewitz' shows that high standards for climate-friendly and energy-efficient transformation and the social compatibility of the measures are not contradictory. The integrated, participatory and cooperative approach forms the basis for this, as it enables access to various funding pots.

Sources:
[1] Eine filmreife Verwandlung, ProPotsdam, n.a., online available here.
[2] Energetische Stadtsanierung in der Praxis II - Erste Ergebnisse der Begleitforschung und gute Beispiele, BMUB, 2017, online available here.
[3] Energetische Stadtsanierung in der Praxis III - Umsetzungserfolge und Herausforderungen für die Zukunft, BMUB, 2017, online available here. p. 9, 22
[4] Energy efficiency – An international role model, KfW, 2017, online available here.
[5] Gartenstadt Drewitz, Landeshauptstadt Potsdam, n.a., online available here.
[6] Integriertes Energie- und Klimaschutzkonzept Potsdam-Drewitz (long), Stadt Potsdam, 2014, online available here.
[7] Integriertes Energie- und Klimaschutzkonzept Potsdam-Drewitz (short), Stadt Potsdam, 2014, online available here.
[8] Potsdam-Drewitz - Becoming a Climate-Neutral Neighbourhood, BBSR, 2020, online available here.

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Wir machen Schlaatz! (We make Schlaatz!)

Potsdam | *Germany*

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☒ Construction
☐ Technology
☐ Law & Legislation
☒ Communication
☒ Process support

Brief description of the measures

Development of organisational and participation structures.

Period // Duration

2021 – ongoing until 2030

Objective

The aim is to enable comprehensive further development of the neighbourhood, following the example of Drewitz.

Initial situation

Youngest neighbourhood with the highest concentration of low-income households and groups at risk of poverty. Due to the particularly high need for development (social and energy-related), it has been the focus of various funding programmes since 1996. The ownership structure is very diverse with many different housing companies and co-operatives as owners.

Implementation and measures

In 2019, the Alliance for Schlaatz was formed between Potsdam and the housing companies and societies with the aim of steering the regeneration process.

The ‘Schlaatz_2030’ mission statement was agreed with all stakeholders in the district. The objectives are improved living and working conditions and the avoidance of displacement, the creation/maintenance of a socially stable resident structure/new forms of housing for social mixing, urban and infrastructural development and functional strengthening plus the restructuring of open spaces. This was incorporated into the Integrated Development Concept for the 'Socially Integrative City' of Schlaatz from 2019, which serves as the basis for the integrated development process until 2030 and is the prerequisite for the implementation of the federal-state programme ‘Socially Integrative City’ (or Social Cohesion). The Concept formulates the common goals and structures for the coordination of the process as well as for the participation of the population living in Am Schlaatz.

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The ‘Schlaatz_2023’ masterplan was developed as part of an urban planning competition, in order to bring together the objectives from the concept into a concrete spatial plan. Based on this, a mobility concept and the binding land-use plan are currently being developed.

In addition, the ‘Schlaatz_2030’ participation concept was adopted by the city council in May 2021 to ensure the participation of everyone. The Planlabor is located in the heart of the district as an information point for citizens, where the neighbourhood manager or the Planlabor team are present. The official website is also used as a comprehensive means of communication.

Results

Schlaatz is currently the largest remodelling project in the city of Potsdam. As it is still in its infancy, the results are yet to be seen.

Parties involved

In addition to the Schlaatz alliance, there are other structures:

- Stakeholder conference since 2018 as a cooperative format in which over 60 stakeholders from associations, organisations and institutions in the district, politics, housing companies, administration and residents work together
- Schlaatzrat = active representation of residents' interests (consisting of 16 members), which was constituted in March 2024 and is part of all decision-making bodies of the urban development project

Beneficiary groups

Tenants are expected to benefit from an upgrade of their flats, the redesign of the open spaces and new neighbourhood amenities.

Financing // Funding

Figures for the total investment are not yet available. ProPotsdam (Municipal company association) alone is planning to invest €195 million in the refurbishment of its residential buildings between 2020 and 2033.

Financing will come from the owners' own funds and urban development support from the “Social Cohesion” programme.

Lessons learned

The example shows how sustainable management structures can be established and cooperation between different players in the housing industry can be organised. It also shows how a broad-based communication process and the planning lab prioritised citizen participation from the outset.

Sources:
[1] Der Schlaatz macht sich frühlingsfit…, Landeshauptstadt Potsdam, 2023, online available here.
[2] Drei Millionen für Potsdams Stadtentwicklung, Potsdamer Magazin der Havelregion, 2024, online available here.
[3] Alles über den Schlaatz, StadtSpuren, n.d., online available here.

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District renovation in Erlangen (Energiesprong approach)

Germany

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☐ Communication
☐ Process support

Brief description of the measures

Energy-efficient serial refurbishment of 607 housing units in two districts of Erlangen (Energiesprong approach). Additionally, 162 housing units are added on the top of the buildings.

Period // Duration

2022 – 2026 (estimated)

Objective

Reduction of energy consumption from >200kWh/m2/a to <50kWh/m2/a (net-zero standard).

Initial situation

The municipal housing company GEWOBAU from Erlangen follows the ambitious goal to achieve climate-neutrality already by 2026. Therefore, they go new ways in refurbishing their housing stock. In the upcoming years 6000 of 8800 flats will be refurbished serially with prefabricated elements.

The first projects will be implemented in Erlangen-Süd and Erlangen-Bruck. There 607 housing units in 4-storey-buildings from the 1950-ies and 1960-ies need to be energy-efficiently renovated.

Implementation and measures

The Energiesprong/serial refurbishment/prefabricated refurbishment approach is one of the least time-consuming building refurbishment approaches. It deals with prefabricated wall elements that are produced in a factory and mounted to the façade of the building. Prefabricated modules include all functional components (e.g. windows, ventilation, energy generation and distribution systems).

In Erlangen-Süd 23 buildings complexes were mapped via laser scanning and drone recordings within 3 days. These digital data constituted the base for the BIM planning and the prefabrication of façade and roof elements.

Concrete measures for the building envelope are prefabricated elements with new windows and insulation.

Concrete measures for systems engineering are central heating with geothermal heat pump, air conditioning with heat recovery, PVs on the roof, ground cubes with completely preinstalled

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building technology, backpacker-cable in the façade, complete renovation of the bathrooms. On some of the buildings more storeys were added to the top of buildings for additional new living space.

Financing // Funding

Estimated construction costs are 400 Mio Euros. Subsidies come from national as well as from federal funds (Bavaria). 75 Mio Euros come from EIB as equity substitute funds for the implementation of climate protection measures.

Results

The construction works on the building take only little time, so, people can stay in their flats during the installation process which is a big benefit. Due to prefabricated elements such as façade elements and ground cubes with preinstalled building technology on the outside of the building the maintenance of the building technology doesn´t take place in the flats themselves anymore but from the outside, so, residents do not get affected by maintenance services anymore.

Parties involved

Municipal Housing Company GEWOBAU, SISTEMS GmbH, Niersberger Wohn- und Anlagenbau, ecoworks GmbH

Beneficiary groups

Residents in the districts Erlangen-Süd and Erlangen-Bruck benefit from higher living comfort, smaller energy bills and the disappearance of maintenance works in their flats.

Lessons learned

After the renovation process the buildings will be net-zero energy level, so they will produce as much energy as they consume. So, the costs for energy savings will compensate the costs for a higher rent.

Sources:
[1] Quartierssanierung Erlangen, Energiesprong, 2022, online available here.
[2] Energetische Sanierung von 6000 Wohnungen nach dem "Energiesprong"-Prinzip, Martin Hundhausen, 2022, online avaible here.
[3] Erste und größte klimaneutrale Gebäudesanierung in Deutschland gestartet, pv magazine, 2022, online available here.
[4] Serielles Sanieren: Klima-Mammutprojekt in Bayern gestartet, Report, 2022, online available here.
[5] Guide on promoting prefabricated refurbishment, IWO, 2024, not published yet.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

District renovation in Tuttlingen (Chiron area)

Germany

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☒ Communication
☐ Process support

Brief description of the measures

Energy-efficient serial refurbishment of 55 housing units in ten 2-3-storey buildings in Tuttlingen (Energiesprong approach).

Period // Duration

Summer 2023 – spring 2024

Objective

KfW 55 standard house and reduction of energy consumption and carbon emissions.

Initial situation

The housing company WOHNBAU from Tuttlingen manages 270 buildings. 8% of these are in the worst energy efficiency classes, among them the 10 buildings from the Chiron area. WOHNBAU decided not to tear them down but to refurbish them.

Implementation and measures

The Energiesprong/serial refurbishment/prefabricated refurbishment approach is one of the least time-consuming building refurbishment approaches. Usually, residents can stay in their homes during the renovation and there is no need to relocate them. The approach deals with prefabricated wall and roof elements that are produced in a manufactory and mounted to the façade of the building. Prefabricated modules include all functional components (e.g. windows, ventilation, energy generation and distribution systems).

First, participatory processes were of immense importance because the residents should stay in their homes during the renovation process. WOHNBAU invited all tenants to an open dialogue and explained the refurbishment plans in detail. The feedback was positive and there were no complaints from tenants´ sides during the refurbishment processes.

Concrete measures for the building envelope were prefabricated façade and roof elements with new windows, insulation and PVs. The celar ceiling was insulated, air-water heat pumps were installed.

Landlord-to-tenant electricity supply is available. Storage rooms for bikes and garbage were set-up.

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WOHNBAU raised the rent only by 1,50€/m2 although 5,63€/m2 would have been a possible raise (by German law). WOHNBAU decided not to burden the tenants to keep social compatibility and peace.

Financing // Funding

Investment: 6 Mio Euros,

Subsidies: 2,4 Euros from National Fund for Efficient Buildings (BEG-Förderung)

Results

The buildings energy efficiency class changed from F to A. Carbon emissions were reduced by 70% and energy consumption was reduced by 60%. The construction works on the building take only little time due to prefabricated façade and roof elements, so, people could stay in their flats during the installation process which is a big benefit.

Parties involved

Housing Company Tuttlinger Wohnbau GmbH, Niersberger Wohn- und Anlagenbau, KMT Prefab

Beneficiary groups

Residents in the district benefit from higher living comfort and lower energy bills.

Lessons learned

Participatory processes helped and generated more understanding of both sides (landlord – tenants) and strengthened the community. Residents are more satisfied due to the improvements in their flats (e.g. better air quality). Due to the successful participation in the starting phase, WOHNBAU plans to conduct more dialogue events with the tenants there on how to use the energy from the roof and how to use the heating properly and most efficiently.

Sources:
[1] Chiron-Siedlung Tuttlingen, Energiesprong, 2023, online available here.
[2] Wohnbau saniert Häuser in der Chironsiedlung, schwäbische, Matthias Jansen, 2023, online avaible here.
[3] Guide on promoting prefabricated refurbishment, IWO, 2024, not published yet.

Klimaquartier (Climate District) Lutherviertel

Halle | Germany

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Brief description of the measures

Focus on modernising the district heating supply, establishing e-mobility and redesigning the courtyards.

Period // Duration

2017 - 2022

Objective

Achieve climate protection targets while keeping costs stable, saving energy for residents and improving the quality of life in the neighbourhood.

Initial situation

Listed block structure from the 1930s, owned by a housing cooperative, Lutherplatz and a historic water tower as the centrepiece. Some refurbishment measures such as building insulation, new windows and balconies have already been carried out where compatible with the preservation order. But an oversized gas boiler system from the 1990s with high CO2 emissions and a street space characterised by stationary traffic posed problems.

Implementation and measures

At the initiative of the cooperative, a Neighbourhood Energy Concept was developed for the Luther district (Lutherquartier) in 2015/2016 as part of KfW funding. Its implementation was supported by a Redevelopment management between 2017 and 2020.

Specific measures included the installation of a new gas-powered combined heat and power plant and local heating network as well as the construction of charging points for an e-car sharing fleet and free availability of e-bikes for tenants. In addition, the courtyards were redesigned with regard to accessibility, climate adaptation and biodiversity with new play and exercise facilities, planting structures, wildflower meadows and rainwater management.

Results

Measures have been completed. The installation of the new combined heat and power plant has significantly reduced CO2 emissions by 69% (approx. 900 tons). In the future, a power-to-heat module will process the surplus energy for the hot water supply using a water storage tank.

Parties involved

Housing cooperative Bauverein Halle & Leuna eG as owner and developer, Bauverein Energie und Service (subsidiary of the cooperative), the City of Halle and the municipal energy suppliers.

Residents were involved by a survey on mobility, a permanent contact point at the neighbourhood square and project work with pupils.

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Beneficiary groups

Tenants benefit from low energy costs, a more attractive living environment and the availability of e-mobility.

Financing // Funding

The construction costs amounted to 5 million Euros. Funding support included the Urban Development Support and KfW-funding for the Neighbourhood Energy Concept and Redevelopment management.

Lessons learned

The example shows that the climate-friendly transformation of the neighbourhood was also possible within the framework of preservation order by choosing appropriate measures.

Sources:
[1] KlimaQuartier Lutherviertel, DSK Deutsche Stadt- und Grundstücksentwicklungsgesellschaft mbH, n.d., online available here.
[2] Klimaquartier Lutherviertel, Architektenkammer Sachsen-Anhalt, 2024, online available here.
[3] Info-Paket – das Lutherviertel, Multiply 2019, online available here.
[4] Energetisches Sanierungsmanagement Lutherviertel Halle, Kremling, Mario, 2018, online available here.
[5] Energie- und KlimaQuartier Lutherviertel. Gebäudeforum Klimaneutral, n.d., online availabe here.
[6] Halle – Energie-Quariter Lutherviertel, Energetische Stadtsanierung, 2014, online availabe here.
[7] Klimaschutz im Stadtquartier, DASL, 2023, online available here.

District Renovation Märkische Scholle

Berlin | Germany

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☒ Communication
☐ Process support

Brief description of the measures

The measures focus on the renewal of energy generation and the energy-efficient refurbishment and modernisation of existing buildings. In addition, new buildings are being constructed and additional storeys added to create additional living space.

Period // Duration

2014 – 2021

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Objective

The aims of the refurbishment project were to preserve the building fabric, to refurbish and upgrade the energy efficiency of the existing stock and create age-appropriate and family-friendly flats to enable lifelong living in the cooperative.

Initial situation

Unrenovated building fabric from the 1930s and 1960s resulted in high energy and maintenance costs.

Implementation and measures

Development of a holistic energy and implementation concept for the refurbishment of the residential complex and subsequent implementation of the refurbishment as well as demolition of 122 flats and development of the new ‘Wohnen am Turm’ project (‘Living nearby the Tower’) by 2021.

Modernisation (radiators, bathrooms, etc.) and energy-efficient refurbishment to KfW85 standard with façade insulation, insulation of basement ceilings and installation of triple-glazed windows.

New energy supply via solar thermal systems, heat recovery from exhaust air (showers, appliances, lighting and solar radiation) and ‘eTank’ geothermal heat storage system as a geothermal source.

Creation of 146 new flats by adding storeys to the 1930s buildings with attics as well as demolition and new construction of flats with residential layouts for target group families with children. Establishment of a neighbourhood meeting point, guest flats and day care for senior citizens, as well as redesign of the open spaces.

Results

Thanks to the refurbishment, the primary energy requirement was reduced from 210 kWh/m² to 30 kWh/m² per year. A large part of the energy costs have thus been eliminated and, thanks to the almost complete independence from electricity and energy supplies, the tenants are not affected by rising energy prices.

Parties involved

In particular, the cooperative as owner and developer.

Participation: Establishment of a redevelopment advisory board with member participation, communication strategy with redevelopment letters informing about the redevelopment status, as well as comprehensive relocation management with relocation flats offered and the organisation of relocations during the redevelopment phase. Residents were asked about their wishes for the new development and involved in the planning as part of a working group.

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Beneficiary groups

Residents benefit from modernised flats, additional housing options and the new social infrastructure in the neighbourhood.

Financing // Funding

80 million € for the refurbishment and 35 million € for the new construction project.

Financing of the refurbishment via the cooperative's own funds (apportionment to tenants and cross-financing through new construction), KfW loans and capital market loans as well as subsidies:

- 740,000€ subsidy from the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety for Märkische Scholle as a flagship project,
- BAFA subsidy (grant)
- Bonus funding for the efficient heat pump
- Innovation funding for solar thermal systems
- KEBAB funding for thermal insulation

Lessons learned

The example shows that high investments are worthwhile in view of the resulting reduction in energy costs: Despite a slight increase in the basic rent (example: 8,25€ instead of 7,94€/sqm), the cooperative decided to pass on only three to four per cent of the refurbishment costs to the tenants instead of the eleven per cent permitted at the time in the interests of social compatibility. In addition, the refurbishment was used to make the neighbourhood more intergenerational and neighbourly by developing new buildings.

Sources:
[1] Quartier der Generationen im Südwesten Berlins, Märkische Scholle, n.d., online available here.
[2] Generationsübergreifendes „Wohnen am Turm“, Gazette Verbauchermagazin, 2019, online available here.
[3] Runde Sache – Wohnen am Turm, Scholle Service, 2021. Not available.

District renovation in Neuaubing – Westkreuz

Munich | Germany

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Brief description of the measures

The measures focus on the socially responsible energy-efficient refurbishment of existing buildings, the expansion of a renewable district heating network, the development of smart technologies and the establishment of sustainable mobility stations.

Period // Duration

2009 - ongoing

Objective

Munich's goal is to be climate-neutral by 2035. In the district, the aim is to implement the energy transition in the neighbourhood together with the residents by saving energy, switching to renewable energy sources and renovating buildings in a socially responsible manner. A particular focus is on activating individual owners and homeowners' associations.

Initial situation

Districts with a heterogeneous mix of historic residential areas, apartment blocks from the 1960s and 70s and neighbouring new development Freiham. High need of refurbishment, especially in multi-storey housing and low expansion rate of the district heating network.

Implementation and measures

As part of the pilot project ‘Energy-friendly urban development’ between 2009 and 2012, the Neuaubing-Westkreuz area was analysed for the first time in terms of the energy transition and solutions were developed. Since then, the energy-related development has been accompanied by a redevelopment area that was formally established in 2014 and expanded to include the centre of Aubing in 2018.

A redevelopment management team was set up from 2014 to 2017 to implement the concept. As part of the EU ‘Smarter Together’ programme, a redevelopment guide for homeowners' associations (HOAs/german “WEG”s) was developed and published in 2018.

Measures implemented include the expansion of the district heating network and the supply of CO2-neutral heat from the new geothermal heating plant in Freiham. Installation of photovoltaic systems on residential and public buildings. Battery storage system networks various generation plants and can charge surplus electricity at short notice or discharge it as required.

Installation of eight multimodal mobility stations with e-cars, bicycles, e-bikes and e-cargo bikes. They also include a digital information centre on mobility and so-called neighbourhood boxes, which enable a 24-hour delivery, shopping and exchange service.

Intensive owner counselling in the Neuaubing and Westkreuz district shops by the MGS refurbishment management team. With the free building modernisation and energy check (developed by MGS), they provide technical advice and information on subsidies. Environmental education and advice are also offered via the ‘E-manager’ consulting and evaluation tool.

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Results

By 2021, MGS had analysed and advised on the energy efficiency of more than 2.000 residential units (1/3 of the total living space). At the same time, more than 42.000 square metres of living space were renovated to a high energy standard.

Parties involved

The Münchner Gesellschaft für Stadterneuerung mbH (MGS) as redevelopment agency and trustee, redevelopment management. Other municipal organisations such as: Department of Labour and Economic Affairs for the project coordination of 'Smarter Together', Stadtwerke München (public utility company Munich), Neuaubing and Westkreuz district shops, etc. and of course, the owners of the residential properties involved in the energy-efficient refurbishment of the buildings

Participation: The project group in Neuaubing-Westkreuz has been in existence since 2015 and is made up of citizens, representatives of local politics, associations and social organisations as well as the participating municipal departments and MGS.

Beneficiary groups

HOAs in particular benefit from the low-threshold and free counselling service**.**

Financing // Funding

Total costs unknown. A variety of subsidies are available:

- Urban Development Support 'Social cohesion'.
- KfW funding programme 'Energy-efficient urban refurbishment - climate protection and climate adaptation in the neighbourhood' (KfW 432).
- EU 'Smarter Together' programme for individual measures in the area of mobility, energy-efficient refurbishment (approx. €7 million)
- Funding for owners and homeowners' associations for building refurbishment by KfW, BAFA (Federal Office of Economics and Export Control) and the Munich municipal funding programme FES "Energy Saving Funding Programme" (plus tax write-off options in the redevelopment area)

Lessons learned

In areas with a diverse ownership structure, it is worth focussing on all owners in order to achieve the energy transition. The example shows that the activation of HOAs and individual owners can be successful if advice is provided at a low threshold and free of charge. In addition, it is obviously worthwhile to focus on synergy effects with the new Freiham district when it comes to urban energy development, as the geothermal plants illustrates.

Sources:
[1] Sanierungsgebiet Aubing-Neuaubing-Westkreuz, Landeshauptstadt München, 2024, online available here.
[2] Projektgruppe, Stadtteilladen Westkreuz, n.d., online available here.
[3] Sanierungsgebiet Aubing-Neuaubing-Westkreuz, Stadtteilladen Westkreuz, n.d, online available here.

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[4] Aktive Zentren – Projekte des Integrierten Stadtteilentwicklung Neuaubing und Westkreuz, Münchner Gesellschaft für Stadterneuerung mbH (MGS), 2016, online available here.
[5] Handbuch für energetische Sanierungsmaßnahmen einer Wohnungseigentümergemeinschaft, Majchrzak-Rummel, Angelika 2018, online available here.
[6] Fit für die Zukunft – Statteilmanager soll die Sanierungsprojekte im Westen weiter voranbringen, Draxel, Ellen, 2018, online available here.
[7] Smarter Together München – Aktivitäten und Ergebnisse 2016-2021, Landeshauptstadt München 2021, online available here.

Energy district (Energiequartier) Ettlingen / Musikerviertel (Musicians´ District)

Ettlingen | Germany

☐ Financing & Funding
☒ Construction
☒ Technology
☐ Law & Legislation
☒ Communication
☒ Process support

Brief description of the measures

Consulting activities on energy-efficient refurbishment, implementation of a local heating network with climate-neutral energy supply as well as refurbishment and new construction of public buildings and housing.

Period // Duration

2013 – 2019

Objective

The aim was to implement the energy transition in the neighbourhood. As part of the planned renovation of the vocational training center (BBZ), the opportunity was seen to make it the core of a regenerative electricity and heating network for the entire neighbourhood.

Initial situation

Heterogeneous settlement structure with detached houses, interspersed with large school buildings (federal and state). Building stock predominantly unrenovated with high energy consumption and majority fossil heat supply.

Implementation and measures

At the initiative of the city, a Neighbourhood Energy Concept for the Musikerviertel (Musicians´ District) was developed between 2013 and 2014. Implementation was supported by a Redevelopment management, twice in succession from 2014 to 2019.

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The measures include the construction of a local heating network, the core of which is a new heating center on the BBZ site. It is fed by two pellet boilers (85% of heat generation), a bio natural gas peak load boiler (10%) and a solar thermal system (5%). In order to connect as many households as possible to the network and encourage them to energy-efficiently renovate their buildings, public relations work took place and energy advice was offered in the RegioMobil (Advice station). In addition, public buildings are being renovated and densification with housing and a daycare center is realized.

Results

Several buildings have already been connected to the local heating network. It is powered by 97% renewable energy and thus saves 1,708 tons of CO2 per year.

Parties involved

The Karlsruhe District Environmental Agency (UEA), which was founded in 2008 at the level of the Karlsruhe region with the aim of driving forward the energy transition and climate protection in the district, plays a central role. The local authority, a cooperative and the state are also involved in the implementation. Residents were involved in the form of surveys on the state of renovation, information events and advisory services.

Beneficiary groups

Private households benefit from the public investment, receiving free energy consulting and the option to connect to the heating grid.

Financing // Funding

Own funds of the respective owners and funding for

- Neighbourhood Energy Concept and Redevelopment management through KfW-funding (€ 90,000 grant)
- Local heating network by the Federal Ministry for the Environment, Building and Nuclear Safety as part of the National Climate Protection Initiative (€4 million)
- Funding for private connections to the heating network

Lessons learned

In this example, the energy transition is initiated at regional level and successfully implemented at district level. Thereby, pooling of resources is possible. With the heating network and the energy-efficient refurbishment of public buildings public investments were made, that will at best be followed by private owners.

Sources:
[1] Musikerviertel Ettlingen: Das Quartier, das vom Projekt profitier, Stadtwerke Ettlingen, n.d., online available here.
[2] Warum die neue Kita „Weitblick“ in Ettlingen ein Platz zum Wohlfühlen ist, Badische Neuste Nachrichten, 2021, online available here.
[3] Energiesparprojekt: 139.000 Euro für Ettlinger Musikerviertel, KA -News, 2013, online available here.
[4] Stadt und Landkreis sind unterwegs: in Richtung „zeozweifrei“, Stadtwerke Ettlingen n.d., online available here.

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Outlook

The Good Practice examples listed in this report can help the four demonstration sites in the ComActivate project in their development of the NESRs.

Some of the Good Practice examples were and will be presented more in detail and explained by experts during the online and on-site workshops on individual refurbishment roadmaps and district rehabilitation concepts in WP3 in 2024 and 2025.

The collection will be extended during the whole project time. At least 20 Good Practice examples should deal here as a KPI. This will allow good coverage of all the goals of ComActivate, allow examples from other countries to be added, and they will be published as Good Practice factsheets on the project webpage. Some of them will be presented in the project newsletter regularly.

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Bibliography

BMUB (2017) *Energetische Stadtsanierung*. Berlin. Available at: https://www.bmwsb.bund.de/SharedDocs/downloads/Webs/BMWSB/DE/publikationen/bauen/energetische-stadtsanierung-1.pdf;jsessionid=2E9698DE7DB4FEBE43B27DB62A43A9BA.live891?__blob=publicationFile&v=2 (Accessed: 7 August 2024).

BMUB (2022) *Erklärfilm Energetische Stadtsanierung*. Germany: Deutsches Bundesbauministerium. Available at: https://youtu.be/ieqrcijU6yQ (Accessed: 7 August 2024).

BUILD UP (2023) *Annex 75 project: Building Renovation at District Level Combining Energy Efficiency & Renewable Energy Sources*. Available at: https://www.youtube.com/watch?v=wlV7BzrVKU8 (Accessed: 16 August 2024).

Bundesministerium des Innern und für Heimat (2020) *Die Neue Leipzig-Charta*. Available at: https://www.bmwsb.bund.de/Webs/BMWSB/DE/themen/stadt-wohnen/stadtentwicklung/neue-leipzig-charta/neue-leipzig-charta-node.html (Accessed: 23 August 2024).

Die Bundesregierung (2022) *Kampagne gestartet Energiesparen: Jeder Beitrag zählt!* Available at: Kampagne gestartet Energiesparen: Jeder Beitrag zählt! (Accessed: 7 August 2024).

European Commission (2020) *Renovation Wave*. Available at: https://energy.ec.europa.eu/topics/energy-efficiency/energy-efficient-buildings/renovation-wave_en (Accessed: 22 August 2024).

European Energy Agency (2023) *Greenhouse gas emissions from energy use in buildings in Europe*. Available at: https://www.eea.europa.eu/en/analysis/indicators/greenhouse-gas-emissions-from-energy (Accessed: 22 August 2024).

European Union (2024) 'DIRECTIVE (EU) 2024/1275 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 April 2024 on the energy performance of buildings'. Available

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor CINEA can be held responsible for them.

at: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202401275 (Accessed: 22 August 2024).

Housing Initiative for Eastern Europe (2020) *Integruotas požiūris Savivaldybių darbuotojų kvartalų energinio efektyvumo programų rengimo mokymai / Integrated Perspective Training of quarter managers for energy-efficient urban neighbourhoods*. Available at: https://www.euki.de/euki-publications/energieeffiziente-staedtebauliche-erneuerung/ (Accessed: 23 August 2024).

KfW (2023) *Merkblatt Energetische Stadtsanierung – Zuschuss Klimaschutz und Klimaanpassung im Quartier*. Available at: https://www.kfw.de/PDF/Download-Center/F%C3%B6rderprogramme-(Inlandsf%C3%B6rderung)/PDF-Dokumente/6000002110_M_432_Energetische_Stadtsanierung_Zuschuss.pdf (Accessed: 11 August 2024).

Husiev, O. *et al.* (2023) *Why district renovation is not leading the race? Critical assessment of building renovation potential under different intervention levels*. Available at: https://www.sciencedirect.com/science/article/pii/S0378778823005182 (Accessed: 16 August 2024).

Rousselot, M. and Pinto Da Rocha, F. (2021) *Energy efficiency trends in buildings in the EU*. Available at: https://www.odyssee-mure.eu/publications/policy-brief/buildings-energy-efficiency-trends.pdf (Accessed: 22 August 2024).

Shukla, P.R., Skea, J. and Reisinger, A. (2022) 'Climate Change 2022, Mitigation of Climate Change Summary for Policymakers'. Available at: https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_SummaryForPolicymakers.pdf (Accessed: 23 August 2024).

Widuto, A. (2023) *Energy poverty in the EU*. Available at: https://www.europarl.europa.eu/RegData/etudes/BRIE/2022/733583/EPRS_BRI(2022)733583_EN.pdf (Accessed: 22 August 2024).

Zimmermann, P. *et al.* (2023) *Unterstützung von Suffizienzansätzen im Gebäudebereich*. Available at: https://www.ifeu.de/publikation/unterstuetzung-von-suffizienzansaetzen-im-gebaeudebereich (Accessed: 23 August 2024).

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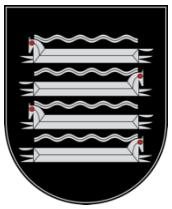

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