



ACTION FOR
ENERGY EFFICIENCY
IN BALTIC CITIES

ACT NOW!




GUIDELINE

Public Private Partnerships

Cooperation of public authorities with private investors
on energy efficiency in the local building stock

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About the Act Now! project

The Act Now! project approaches energy efficiency in the existing building stock of small and medium sized municipalities around the Baltic Sea. The project's scope is to help municipal staff involved in building energy efficiency measures by improving their knowledge about energy losses, competences for preparing investments, and skills to stimulate private investments in energy efficiency.

The Act Now! project wants to support Baltic municipalities to succeed from Strategic Energy Action Plans (SEAPs) to achieve an actual reduction of CO_2 emissions. Energy efficiency is the key and the building stock is the treasure to be unearthed for a contribution to reach this goal. The Act Now! project aims to foster a new approach across decision makers focused on housing and public buildings.

Act Now! was initiated and coordinated by "Klimastadtbüro"- the climate city office of Bremerhaven, Germany. It was launched in February 2018 and continued with 17 partners in the Baltic Sea area to improve the energy efficiency.

actnow-baltic.eu

The report can be downloaded at actnow-baltic.eu/learning.

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Act Now!	Act Now! is an EU Interreg Baltic Sea Region project focused on how municipalities can ramp up energy retrofit of public and private sector buildings.
CSR	Corporate Social Responsibility
EU	European Union
EU Covenant of Mayors	EU Covenant of Mayors is a platform for municipalities across Europe to learn how to build SEAP/SECAP-plans, file them for approval and receive recognition for progress made.
GDP	Gross Domestic Product
LEEG	Local Energy Efficiency Group, a core element of the Act Now! approach, a working group to make building energy retrofit happen.
nZEB	nearly Zero Energy Buildings – a high building standard defined and referenced by the European commission. The nZEB should be achieved by a combination of a very energy efficient building (envelope) and allowing the building to produce its own energy. However, the national implementation might vary from country to country.
PDCA method	Plan, Do, Check, Act method
PPP	Public Private Partnership means in the report any formal collaboration between public authorities and private companies.
SEAP	Sustainable Energy Action Plan
SECAP	Sustainable Energy and Climate Action Plan
SME	Small and Medium-sized Enterprises
SWOT analysis	Strengths, Weaknesses, Opportunities and Threats analysis

1 | About the Act Now! Project

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This PPP Public Private Partnership Guideline is compiled by ProjectZero, Sonderborg being the Act Now! partner with the most comprehensive experience from working with such PPP partnerships – and also being founded (in 2007) as a true Public Private Partnership itself.

This guideline is part of a larger set of material making the Act Now! approach available to those not directly involved in the Act Now! project:

- 'Act Now! Manual "From SEAP to Investment'
- 'Act Now! Guideline Identification of Most Effective Energy Efficiency Measures'
- 'Act Now! Guideline Energy Efficiency Strategy for Municipal Buildings'
- 'Act Now! Guideline Financing of Energy Efficiency Projects'

Visit the website for more information about the Act Now! project: https://actnow-baltic.eu/

1.1. | There is an urgent need for more climate actions

The challenge is clear. The climate change is visible and requests both mitigation and adaptation actions. The need for energy efficiency and mitigation is inevitable, and the building stock is by far the most important area to start. But the building stock and investments in retrofit projects is much more than just a climate issue. It is also a local and social welfare and comfort issue and should be treated so as well.

Municipalities across Europe play a key role in closing the gap between need for change related to more energy efficient buildings and the lack of action due to numerous barriers. Creating local private public partnerships (PPP) driven by municipalities has shown a promising way forward.

This guideline is made for public officials in small and medium-sized municipalities around Europe looking for inspiration for an actionable and effective approach to improve energy efficiency in the existing building stock. Climate solutions are complex and best solved by a holistic approach and in close collaboration across sectors. It might sound easy, but the human factor makes it challenging. A growing number of municipalities already embrace the responsibility to reduce their local energy consumption and contributing locally to combat climate change. We need to Act Now!

We believe that the municipalities could be much more effective on their way to turn plans and strategies into action. Based on hands-on experiences with the establishment of local public-private partnerships in the EU financed Act Now! project across the Baltic Region, this PPP-guideline provides guidance on an accessible approach towards closer collaboration between (private) building owners, public authorities and the construction industry etc.

The condition is that municipalities realize the importance of a LEEG (Local Energy Efficiency Group), which is a core element in the Act Now! project. A LEEG is a powerful local social network of people and competencies, necessary to establish the local platform, unlock and grow the public private partnership.

The Act Now! Manual and Guidelines are intended to be used by any European municipal authority, local NGO or private sector stakeholder with the ambition to scale up existing energy retrofit activities within the municipal own building stock, and reach out to the private sector energy efficiency improvement opportunities and challenges. Skills to define and implement energy efficiency solutions and secure necessary funding, have until now been limited. The Act Now! project aims at showing how local climate strategies can be turned into concrete measures reducing energy consumption in buildings.

The core idea of the Act Now! project is to create local partnerships aimed at boosting a local renovation wave by increasing interest and demand for energy efficient solutions, improve capacity building and at the same time unlock potentials for local owners of any type of building stock to invest in energy retrofit solution. Act Now! is intended to act as an incubator for other municipalities and regions as well.

The following chapters will discuss the challenges and opportunities of the building stock in a European climate strategy context, discuss how local authorities (municipalities) can initiate and expand local partnerships and present the applicable Act Now! Public Private Partnership (PPP) step-by-step model, always focused on small and medium sized municipalities.

This PPP guideline is not the result of an academic study, but rather a pragmatic reflection on feedback and recommendations received from the Act Now! project partners. This is compiled into a systemic guideline, where the focus has been to present a holistic framework based on the fact, that people with climate visions can make a big difference, when they turn their ideas and relations into collective energy and climate actions. Being most experienced with PPP the ProjectZero-partner in Act Now! will play a major role presenting best practice PPP-experience; however, all Act Now! partners have participated with experience and best practice cases to compile this PPP-guideline.

We therefore hope that this PPP-guideline will inspire you to initiate more PPP climate actions in your municipality or community.

A message from the Act Now! project across the Baltic states

- You can do it! Our experience from the project shows that concrete initiatives will drive attention and interest.
- Initiate energy efficiency initiatives by a municipality or local authority – no other local stakeholders have the resources, legitimacy, experience and network.
- Determine success by political ambitions, focus and direction.
- Start where the interest is and focus your effort. Take one bite at a time. Focus on one building owner segment at a time and expand your efforts building on experience and participation.
- Keep in mind that collaboration comes from true trust. Building trust takes time and focus.
- Be holistic. Incentives is not just about energy and climate, but much more about comfort, social welfare, jobs and growth.

Box 1: A message from the Act Now! project across the Baltic states.

2 | The European desire for energy efficient buildings

The European Union is committed to developing a sustainable, competitive, secure and decarbonised energy system. The European Green Deal (2020) aims to make Europe the world's first climate-neutral continent. EU has provided the vision and the political framework to speed up local action around Europe.

The building sector is crucial for achieving EU's energy and environmental goals. At the same time, better and more energy efficient buildings potentially improve the quality of life for citizens while bringing additional benefits to the economy and the local society.

2.1. | Europe has a building retrofit vision fuelled by the Green Deal

Green Deal sets the direction, and the existing building stock is an obvious place to start. Buildings are responsible for approximately 40 % of EU energy consumption and 36 % of the CO_2 emissions. Buildings are by far the single largest energy consumer in Europe due to heating, cooling, use of electricity etc.

The Energy Union and the energy and climate policy framework for 2030 establish ambitious EU commitments to further reduce greenhouse gas emissions by at least 40 % by 2030. Energy efficiency measures will play a core role in achieving a climate neutral economy by 2050 and reducing energy consumption by 50 % compared to 2005 (baseline).

EU does not have any specific responsibilities with respect to housing. Nevertheless, many EU Member States face similar challenges: how to renew the housing stock? How to promote sustainable development or how to promote energy efficiency among homeowners?

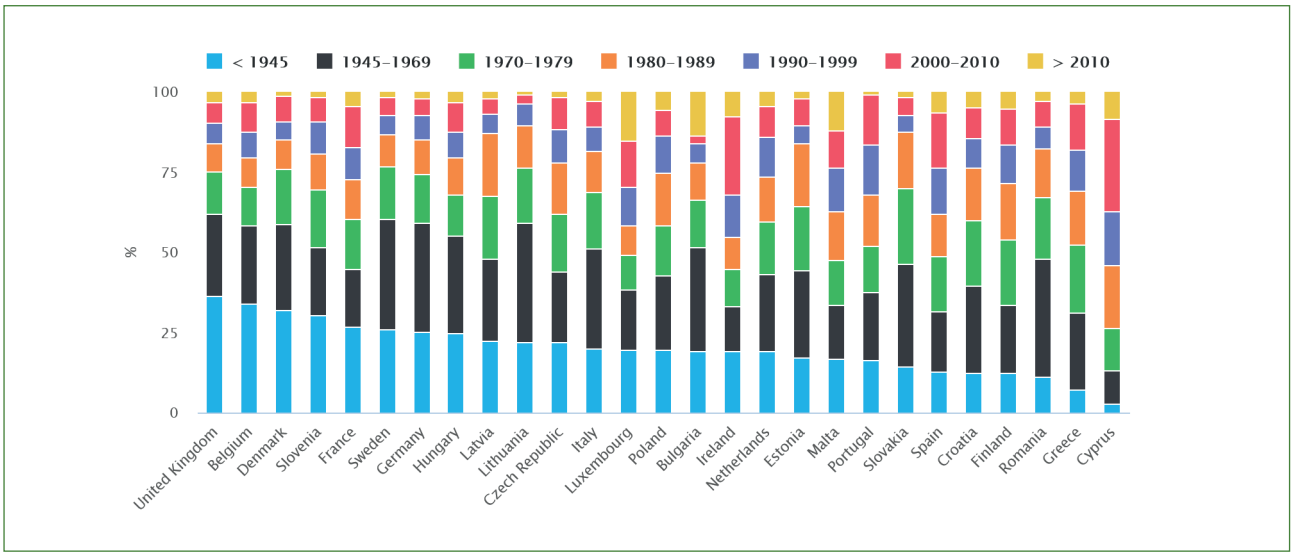

Figure 1: Breakdown of residential building by construction year (2014).

(Source: European Commission with data from CBS - CZSO - Cystat - DESTATIS - GUS - INE - INSEE - ISTAT - NIS - National Plan - Odyssee - REN - SCB - STATBELECON - STATEC - Statistical Yearbook - Statistics DK - Statistics EE - Statistics FI)

2.2. | The buildings are the source of 40 % of our emissions

The current energy efficiency state of the EU building stock varies from country to country and within each country based on local economy, distribution of ownership of the building stock and the capabilities in the construction industry. At present, about 35 % of the EU's buildings are more than 50 years old and almost 75 % of the building stock is energy inefficient. Renovation of existing buildings can lead to significant energy savings, as it potentially can reduce EU's total energy consumption by 5-6 % and lower CO_2 emissions by about 5 %.[1] The EU building stock is estimated to 163 million buildings, while the present yearly rate of construction of new buildings is only about 1 %. These figures show that energy efficiency measures in the existing building stock is the most important challenge to reduce energy consumption in the building sector.

The average age of existing buildings and the share of new buildings from the total stock are strong indicators, indicative of the overall lack of energy efficiency in the building stock. The higher the share of new dwellings (built with higher efficiency standards) the higher the overall energy performance of the building stock generally will be.[2]

Figure 1 shows when residential buildings across EU´s member states were constructed. Majority of residential buildings were constructed before 1980 and are therefore in general not built energy efficient.

The countries round the Baltic Sea are no exceptions from this generalization, as the majority of the Baltic Sea building stock is built before 1980.
The EU building stock is quite heterogeneous. Across all Member States, the majority of the floor area is composed by residential buildings. The share varies considerably, from around 60 % in Slovakia, Netherlands and Austria to more than 85 % in the southern countries of Cyprus, Malta and Italy. Within Act Now! member states the variation is smaller at 67 – 75 %.

The remaining building stock of non-residential buildings (Figure 2) is not homogeneous in function either and depends on the economic structure of each sector. On average, three quarters of the service floor area is covered by offices (including both private and public; 30 %), wholesale (27 %) and education (16 %).

But the building stock and investments in renovation is more than just a climate issue. It is also a local social and welfare issue and should be treated so as well. In 2017, over 15 % of the EU population lived in overcrowded dwellings; the highest rate among the Member States was in Romania (47 %).

Across the EU, 4 % of the population suffered from severe housing deprivation in 2017.[3] The state of the building can be so poor that energy efficiency seems less important. But better and more energy efficient building can solve health issues and reduce poverty.

Energy poverty is a widespread problem across Europe, as between 50 and 125 million people are unable to afford proper indoor thermal comfort. A common European definition does not exist, but many Member States acknowledge the scale of this socio-economic situation and its negative impact. As most European countries have no official definition for the term „energy poverty", this state is often described as the „inability to keep homes adequately warm".[4]

[1] COMMISSION RECOMMENDATION (EU) 2019/786 of 8 May 2019 on building renovation
[2] EU Buildings Factsheets
[3] https://ec.europa.eu/eurostat/statistics-explained/index.php/Housing_statistics#Tenure_status
[4] EU Buildings factsheets

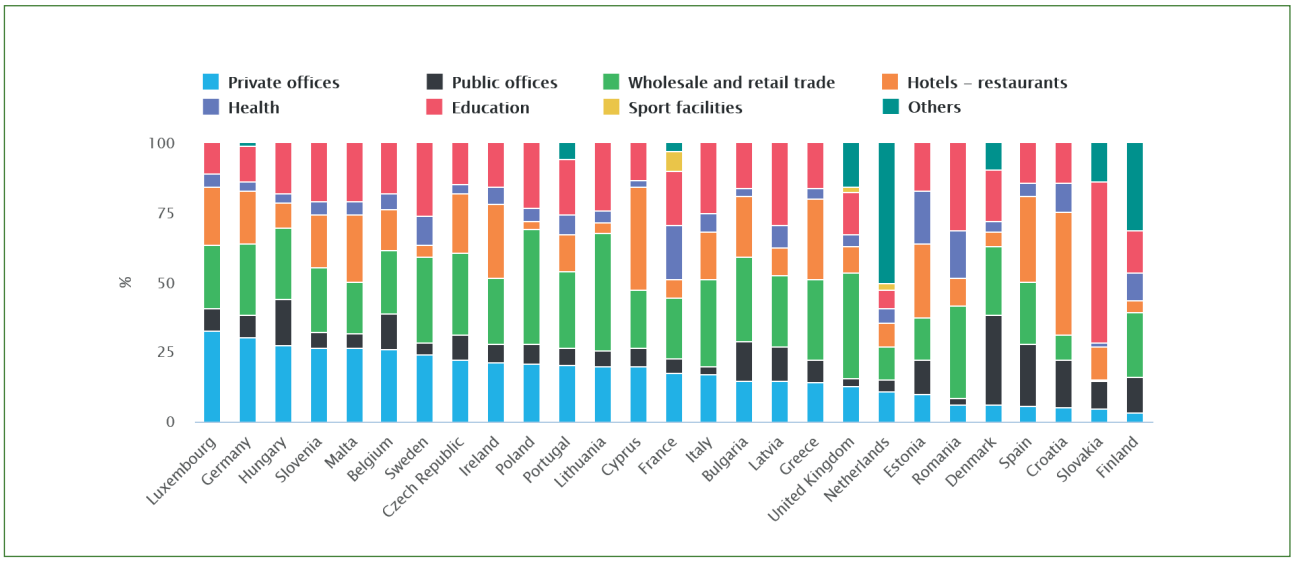

Figure 2: Distribution of non-residential floor area by area of use (2013).

(Source: European Commission with data from BMVBS - Estimation - National renovation strategy - Odyssee - Statistics DK - Statistics FI)

The European Housing Stock – worth the retrofit

- The EU building stock is quite heterogeneous and unique for each country and municipality.
- Across all Member States, the majority of the built environment is composed by residential buildings ranging from 60 to 90 % percent.
- About 35 % of the EU's buildings are more than 50 years old and almost 75 % of the building stock is energy inefficient.
- The share of the annual building stock that undergoes a major (energy) renovation is very low. Below 1 % across the EU.

Source: EU Buildings Factsheets + Living conditions in Europe - housing quality. Eurostat. 2019

Box 2: The European Housing Stock – worth the retrofit.

2.3 | The European Buildings Directive is setting the frame for actions

EU's legislative framework includes the Energy Performance of Buildings Directive, which sends a strong political signal regarding commitment to modernise the buildings sector in light of technological improvements and increase the building renovation following the EU Energy Efficiency Directive[5]. And yet, only about 1 % of the building stock is (energy) renovated each year. Doing right is still too difficult. Adequate financial instruments to overcome market failures, a sufficient workforce with the right skills, and affordability for all citizens are of central importance if Europe is to achieve higher renovation rates. An integrated approach is necessary for the modernisation of the building stock involving all relevant stakeholders, including safety, affordability, environmental and circular economy aspects.[6]

The Commission has introduced an energy renovation wave focused on public and private buildings, as part of the European Green Deal. It aims to take further action and create the necessary conditions to scale up renovations and reap the benefits of significant energy saving potentials of the building sector. The current rates of renovation of public and private buildings should at least double.[7]

The COVID-19 pandemic has caused a significant decline in national Gross Domestic Product (GDP) and unemployment in the construction industry is expected to rise across Europe. Energy efficient building initiatives are a very effective way to combine the climate challenge and increasing employment- and should therefore be considered not only by national governments but also by local authorities as a past COVID-19 strong measure.

Investments in energy efficiency stimulate the economy, especially the construction industry, which generates about 9 % of Europe's GDP and directly accounts for 18 million new jobs. Small and medium-sized enterprises (SMEs) in particular, benefit from a boosted renovation market, as they contribute more than 70 % of the value-added in EU's building sector.[8]

[5] https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en
[6] COMMISSION RECOMMENDATION (EU) 2019/786 of 8 May 2019 on building renovation
[7] Building and renovating. The European Green Deal. Start a 'renovation wave'. 2019.
[8] https://ec.europa.eu/energy/topics/energy-efficiency/energy-efficient-buildings/energy-performance-buildings-directive_en

3 | The executing power of municipalities and local communities

Lack of consistency across relevant national policies means that local authorities are the most effective avenue for initiating energy actions- due to their involvement on the ground through planning and building permits as well as training of experts, designers and builders. However, local communities depend on funding and know-how provided by higher authority levels in order to fulfil this function. Local initiatives have, therefore, been carried out insufficiently until now.[9]

3.1. | Unlocking the private sector potentials

Municipalities potentially play a key role in setting ambitious climate targets and implementing climate actions. A key measure for achieving these targets is energy efficiency improvements in the local context. This does not only comprise performing investments for energy efficiency in own municipal properties. As the public buildings cover only a smaller part of the local building stock, the bigger potential lies in private facilities. The change should therefore be driven by a local holistic focused partnership across sectors.

Municipalities and local authorities shall enhance their capacities, step by step, to address private facility owners and local citizens in terms of cost-efficient measures and investments reducing the energy consumption and stimulate private investment in energy efficiency especially in neighbourhoods. The SEAP/SECAP´s must be turned into an active local society value creation tool – enabling the public and the private sector to take joint responsibility for the climate challenge. Municipalities must set a positive and motivating example by sharing and communicating what they have learned by energy retrofitting their own (public) buildings and promote the effect of measures and investments beyond these actions.

The private sector can be approached from two perspectives – private ownership of the building stock segments, and private businesses offering products and services to the building owners. As shown in the Figure 3, a majority of the building stock across Europe is private and is thereby a potential key to increase any public private partnership.

But each municipality should consider its own level of maturity and resources to drive the collaboration and the establishment of PPPs. Especially smaller municipalities often suffer from insufficient capacities related to resources, structures and knowledge. Main gaps are:

- Insufficient information about the most effective measures and investments related to energy saving due to poor monitoring data and insufficient energy management systems,

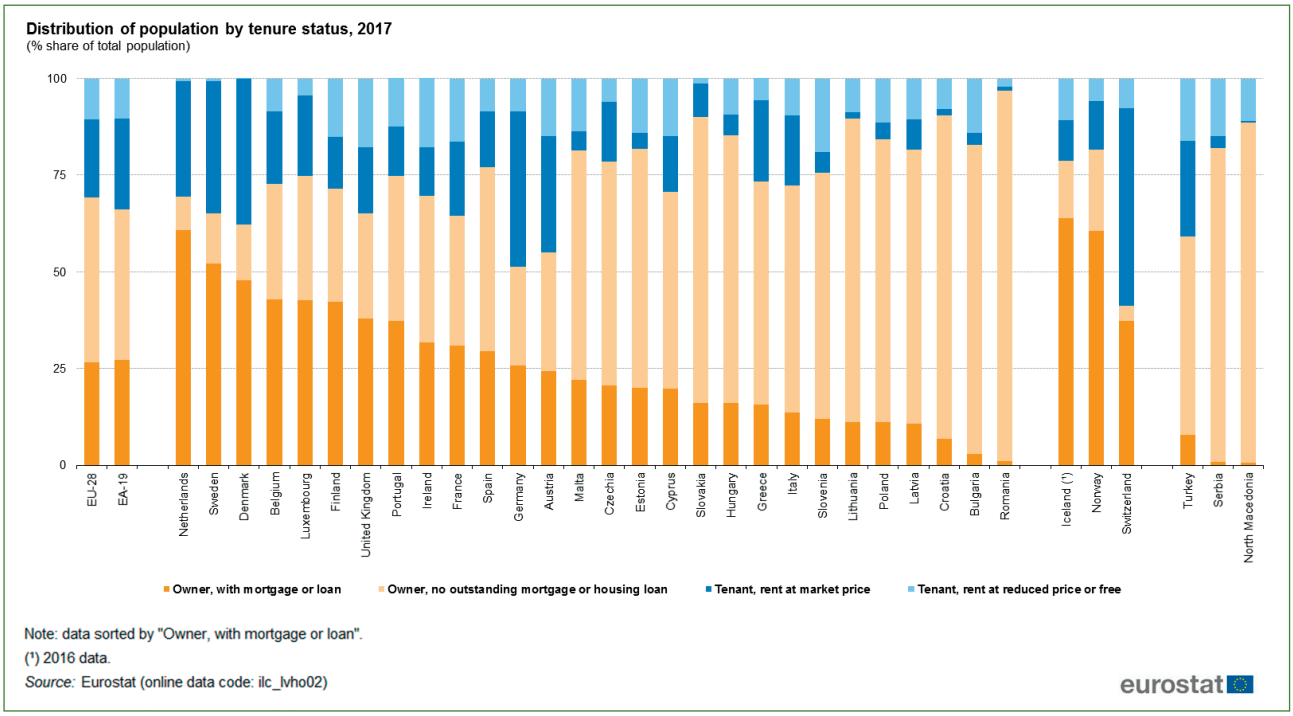

Figure 3: Distribution of population by tenure status (2017).

[9] Public Consultation on the Evaluation of Directive 2010/31/EU. Directorate-General for Energy. 2015.

- Shortage of knowledge and capacities in initiating and planning investments to increase energy efficiency among the involved staff of municipalities and cooperating institutions (i.e. housing companies, utilities),
- Poor financial resources and competences for raising the necessary funding for pilot-measures,
- Limited competences to communicate with private investors in order to involve them in the local energy efficiency policy and
- Lack of concepts for awareness rising to make investing in energy efficiency more attractive for private investors.

On the following pages we will describe different levels of maturity toward engaging in private public partnerships

3.2. | A maturity model for public private partnerships

Municipalities are social/geographical structures created and formed by people and traditions over time to serve specific purposes. Purpose and ambitions might differ from municipality to municipality; and the maturity and the political ambitions/outlook will determine how municipal staff will see opportunities, take initiatives by themselves and reach out to the private sector and catalyze new joint solutions.

We believe that such ambitions and political will to engage municipal staff in public private partnerships will long term determine the success of a small medium sized municipality as the climate challenge can only be solved successfully by such strong cooperation.

The Act Now! project has across the Baltic Sea Region discovered essential similarities and differences between the participating municipalities. The core of a successful PPP is a shared purpose, mutual trust and understanding between partners (Figure 4), but reaching that level requires time, accumulated positive track record and hard work. The human factor cannot be underestimated, well knowing the technical complexity of energy retrofit measures. We have learned that the level of positive experiences and the willingness to lean in from both public and private partners define the PPP maturity level and time required to move into substantial value creation in terms of emission reduction. But our belief is that the investment in partnerships and trust will pay off over time.

A PPP maturity level methodology is illustrated in Figure 4 with the ambition to illustrate that any initial phase of a building energy retrofit related PPP should explore local historical track record of PPPs and potential for positive storytelling as a support to grow capacity. Continuous improvement of relations and supporting tools is important no matter at which maturity level a municipality is placed on the scale. The recognizing point of departure is crucial to break down main barriers. The maturity scale is illustrated as a pyramid built from beneath

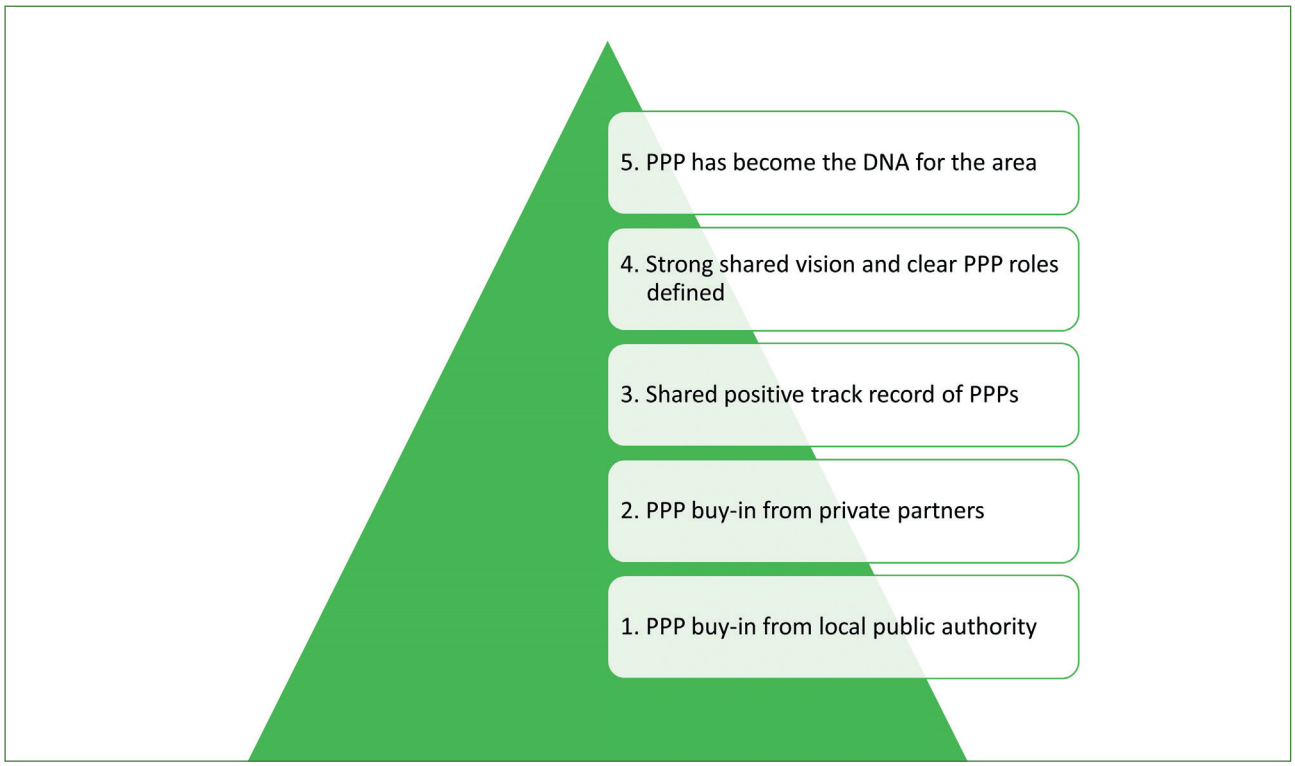

Figure 4: Maturity levels of local PPPs.

3.2.1. PPP buy-in from local public authority (Level 1)

It is our belief, that the initiative for PPP should come from the municipality and from employees fueled with political ambitions, energy and motivation for working with the private sector. But it can be tough to start from scratch, without experience to build upon. Personal stamina or a feeling of purpose related to climate change can help in the initial phase changing the mindset within the authority with a willingness to reach out.

We need to create thrust. The public and private company cultures are different. The municipal staff is not used to work together with the private sector – only as an authority. ***Sonderborg, Denmark***

We tend to lack of public consultations with private sector - often public sector institutions do not check in with the private sector before publishing public tenders for instance. ***Silute, Lithuania***

3.2.2. | PPP buy-in from private partners (Level 2)

Even with the enthusiasm on the public side, seeds need to be planted among private building owners and potential stakeholder-partners. Awareness of climate change and willingness to change behavior is still low among private house owners and skepticism among companies can be substantial with a need to be met with thrust and cooperation.

Good memory of historic bad experiences related to forced activities from public authorities during communism is still remembered and a barrier for establishing PPP. ***Statement from university-partner in the Act Now! project***

3.2.3. | Shared positive track record of PPPs (Level 3)

As soon as a good PPP case has been created, the result will be amplified with the opportunity to new PPP-projects and overcome initial barriers. Storytelling, strategic communication and staging of mutual benefit creation play an important role at this stage.

The municipal organization has already been undergoing a change with the help of the Act Now! project. The first organizational change is the formation of the LEEG where energy management became an important part of the organizational work. ***Mönsterås, Sweden***

3.2.4. | Strong shared vision and clear PPP-roles defined (Level 4)

Over time, a PPP-project will reach a stronger level of engagement and specific targets and vision within a specific area which will make it easier to scale energy efficiency initiatives. Learnings from one segment or specific focus on a topic will spread and engage other stakeholders.

It is a challenge to keep the communication focused on selected specified building energy retrofit activities, often the whole bundle of energy efficiency options comes back into the discussions repeatedly. Without financial incentives it is hard to motivate the private sector – they most often expect the municipality to offer them something. Even semi-municipal housing associations often must focus on cost efficiency.

Detailed support is requested, it is often not enough to provide information online or printed, but the citizens as well as organisations need to be addressed individually and their specific options need to be explained to them. They want information and options to be brought to them. Sometimes they find it hard to find what they are looking for, even if it is available. It is hard for some to understand the complexity of energy efficiency measures and know exactly what is meant in detail, what are the differences between certain terminologies.

It is not easy to keep the communication focused on selected specified building energy retrofit fields, often the whole bundle of energy efficiency options comes back into the discussions repeatedly. Once cooperation contracts or similar are agreed, then the cooperation works fine. ***Bremerhaven, Germany***

3.2.5. | PPP has become the DNA for the area (Level 5)

Becoming more mature, PPPs can prove its value and become an essential part of local development. In Sonderborg, Denmark, local companies and the municipality share a vision of creating a ZEROcarbon Sonderborg (focused on the energy system) by 2029 including new green business and job creations. Public Private Partnerships have become the new DNA of Sonderborg, and the PPP DNA helps Sonderborg achieve other ambitious transition projects.

In 2007 the Sonderborg city council decided, that the Sonderborg area should be ZEROcarbon by 2029. The ProjectZero vision is supported by local companies, who created the public private ProjectZero partnership and the ProjectZero company to support citizens and companies achieve the ambitious shared climate goal. ***Sonderborg, Denmark***

Chapter 6 of this PPP-guideline will describe how an entire municipality can expand the PPP approach beyond buildings and transition a whole area into sustainability across sectors. The example is based on the experience from Sonderborg/Denmark's (ProjectZero) climate-transition.

3.3. | The Municipality can exercise different powers

The municipality plays a key role in boosting the demand for energy efficient solution and thereby initiating an energy retrofit wave locally. The municipality has the knowledge and the resources, while any private entity will have its primary focus on short profit/loss and the daily business.

Strong political vision and commitment is the key. Private actors should know with confidence where the municipality is heading and hereby being assured that any participation in partnerships without short term reward is worth the time and investment.

The key questions to answer are:

- What can the municipality initiate/do by itself (as a company)?
- What kind of other actions can the municipality potentially catalyse?

The municipality can lead the change by exercising the following roles

- **As a company, investor and building owner,** the municipality can
  - ✓ lead by setting standards and develop local cases, by renovating own buildings focused on energy efficiency and by reducing energy consumption.
  - ✓ initiate retrofit-projects for schools, neighbourhoods, office buildings.
  - ✓ expand partnerships through locally owned utility and energy companies and increase investments in district heating etc.
- **As an authority,** the municipality can
  - ✓ create attractive legal frameworks and by deciding a local SEAP, the private sector related to buildings will know the potential for long term investments.
  - ✓ approve applications in favour of energy efficiency.
  - ✓ focus on social policy, welfare and reduction of energy poverty and hereby engage social housing.
  - ✓ support business development, construction industry.
  - ✓ support the creation of (green) district heating.
- **As a facilitator of collaboration,** the municipality can
  - ✓ plan and encourage local partners.
  - ✓ create clear added value for participating partners and ideally solving more problems at once by combining social perspectives and job creation with climate initiatives: house value + comfort or energy efficiency + better indoor climate or retrofit of buildings and safer outdoor environment e.g.
  - ✓ create trust as for any type of partnerships.
  - ✓ establish and maintain local networks and ideally focused Local Energy Efficiency Groups (LEEGs). Clear roles and demands – municipality as process driver.
  - ✓ allocate resources within municipality to drive collaboration and stakeholder management.
  - ✓ initiate proactive, positive storytelling as a part of the local communication and promote local retrofit projects.
  - ✓ provide funding.

Conclusion is that a municipality potentially can play several roles in not only planning, but also executing plans. But this requires political and administrative ambitions and coordination between the municipal departments.

During 2008-09, a now former Mayor of Sonderborg, Mr. Jan Prokopek, initiated training of all municipal people servicing almost 200 municipal buildings and at the same time communicated to all the areas private craftsmen companies, that only companies with updated energy skills would be preferred for energy retrofit of a new municipal initiative focused on investing more than €20 mio in energy retrofit of more than 100 of the municipal own buildings.

By doing so, Mayor Prokopek motivated local private construction sector craftsmen to improve their competencies and gain new competitive advantages.
Sonderborg, Denmark

3.4. | PPP can close the gap between knowledge and execution

By focusing on local actions complexity is reduced, relations are enhanced, barriers are known and can be easier addressed- and collaboration are smoothened compared to more complex national strategies. Act Now! is aiming at improving energy efficiency in public and private buildings by enhancing the capacity of decision makers across the public and private sector.

As a result of the initial monitoring of municipal buildings and the implementation of a number of successful pilot projects focused on energy efficiency (as part of the municipal energy saving program for 2014-2019),

the municipality managed to reduce carbon emissions by 17,000 tons. The gained experience and knowledge currently stimulate the development of new projects to improve energy efficiency in the municipality, which are now integrated in the new municipal program for the period 2020-2024.

An increasing number of Kaliningrad private sector participants are seeing advice and cooperation partnerships thanks to municipal information portals. The Kaliningrad LEEG-plan is focused on creating a stronger platform for engaging private homeowners and housing associations, including also financial instruments.
Kaliningrad, Russia

This Act Now! PPP-guideline addresses how municipal authorities can reach out further than only focusing on their own buildings and take the lead to demonstrate energy efficiency improvement, smart technologies and skills/education in the construction and housing sectors by crossing traditional sector barriers.

The ideal framing for creating a strong case for increased action on energy efficiency in buildings consist of the following key components:

- ✓ Local focus, knowledge and relations
- ✓ A shared vision for the area combining sustainability, economy and social welfare
- ✓ A common plan. Building on a SEAP or SECAP will gain progress faster
- ✓ A shared short-term focus for private and public stakeholders such as specific building segments or technologies or a project with time limit. Shared focus on external objectives break down barriers of mistrust if managed well.
- ✓ Dedicated public resources initiating collaboration and building a safe framework
- ✓ Private partners willing to invest time based on a potential long-term business value creation

The ideal case for a local successful and action-oriented Public Private Partnership is illustrated in the model below (Figure 5) including well-defined roles and common value proposition for the involved partners.

Involving relevant local stakeholders by an effective governance setup is crucial. The Act Now! project has documented how Local Energy Efficiency Groups (LEEGs), constituted for a specific building-segment and facilitated by relevant key stakeholders across local society sectors, can ramp up actions and create valuable society results and climate positive impact by establishing local collaborations.

In the next chapter we expand a step by step approach bringing municipalities closer toward the ideal case of PPPs related to energy retrofit of buildings.

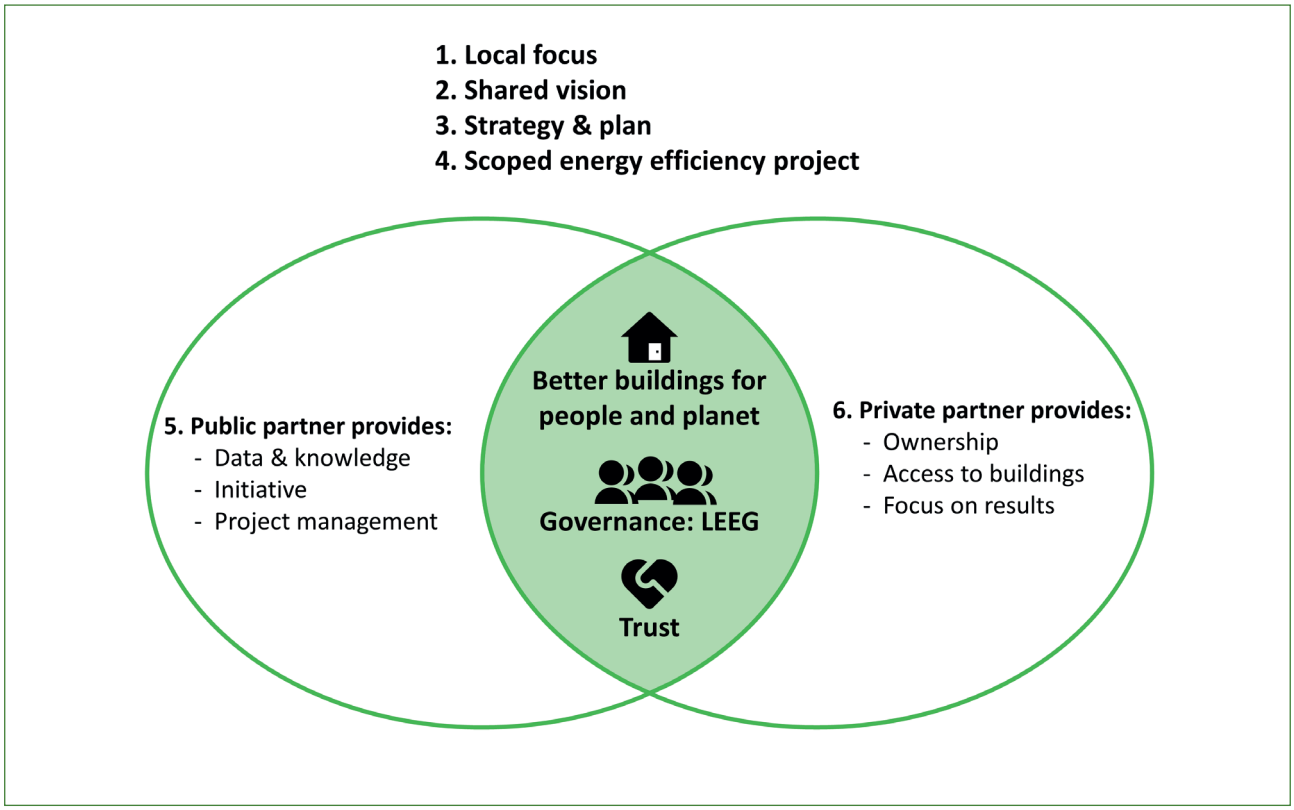

Figure 5: Local Public Private Partnerships catalysing sustainability change.

4 | A step by step model to grow public private partnership

The Act Now! approach to grow Public Private Partnership for building energy retrofit is based on the Act Now! partner-learnings across the Baltic Sea Region. The learnings and feedback received is compiled into a step-by-step model, and it is our belief that this approach will work across the European countries and help inspire you, local authorities and private sector stakeholders scale up local building energy retrofit initiatives.

The model has 8 steps (Figure 6). The base for crossing public private partnership boarders, is public sector´s energy efficient building initiatives, experienced either from building new public buildings in nearly Zero Energy Buildings (nZEB) energy standards or energy retrofitting existing public buildings to nZEB-standards.

ty – co-creating the so called "PPP Customer Journey" for energy retrofit of buildings.

This chapter will explain the Act Now! PPP step by step model and exemplify the steps by best practice examples from the Act Now! municipal partners across the Baltic Sea Region.

4.1. | Build on learnings and relations from energy renovation of public buildings (Step 1)

The platform for crossing public private partnership boarders, is public sector´s energy efficient building initiatives, experienced either from building new public buildings in nZEB energy standards or energy retrofitting existing public buildings to nZEB-standards.

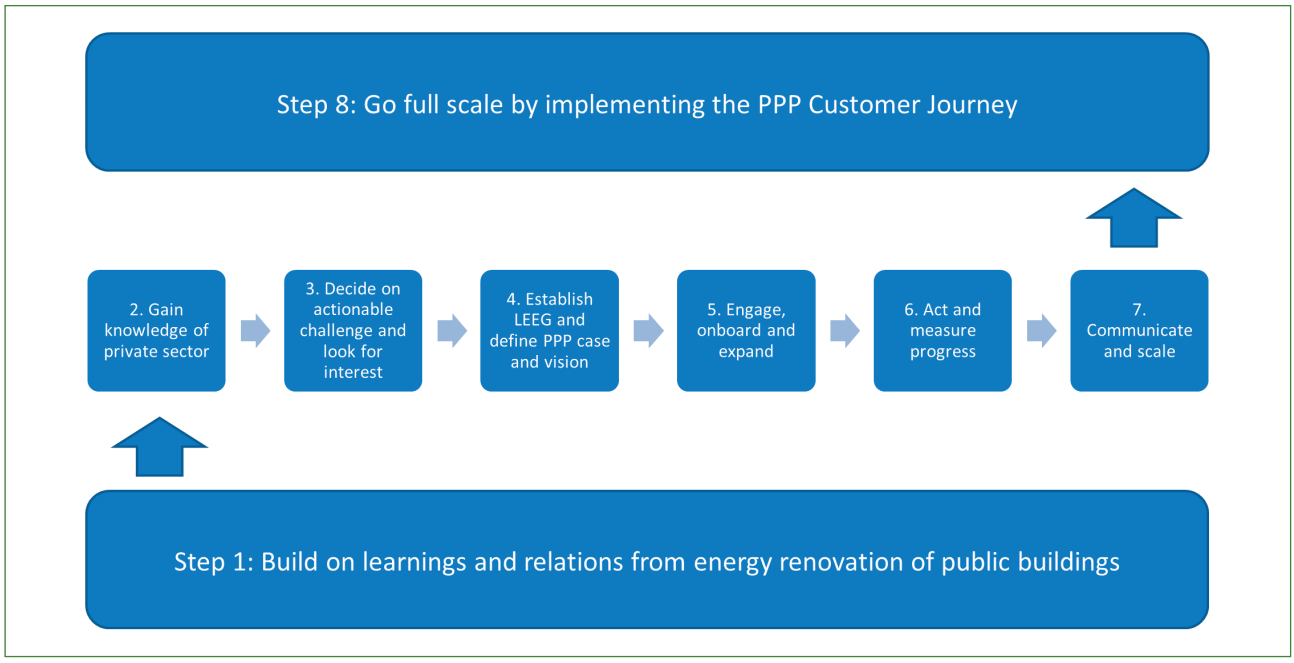

Figure 6: The Act Now! step by step model for creating Public Private Partnerships.

The Act Now! project has documented, that a Local Energy Efficiency Group (LEEG) can facilitate the necessary alliance of local partners, that is required to turn a building opportunity into a demonstration showcase, that can be used for further expansion of the nZEB retrofit ambition.

Based on the experiences, learnings and relations created in such projects, the PPP journey can begin. The main part of the PPP-journey is based on an 8-step sequence. It initiates, proves and consolidates the partnership and will ultimately lead to an ambition to anchor a new DNA of public private partnership mind-set across the municipali-

The municipal experience might have consolidated and developed into filing a SEAP (Strategic Energy Action Plan) or a SECAP (Strategic Energy and Climate Action Plan) following the guidelines created by the EU Covenant of Mayors[10]. According to the Covenant, the SEAP/SECAP must identify all energy consumers across all sectors that the local authority can influence. The Covenant's key sectors are the following:

- municipal buildings, equipment and facilities
- tertiary (non-municipal) buildings, equipment and facilities
- residential buildings
- transport

[10] https://www.covenantofmayors.eu/en/

However, a (quick) search across selected Baltic Sea Region countries shows that a limited number of municipalities have filed SEAPs/SECAPs and in case they have, the plans mainly focus on municipal buildings, equipment and facilities, energy supply/production and transport. This also reflects why energy efficiency improvement in the private sector building very seldom become a focus area for SEAPs/SECAPs

The learning from past building retrofit initiatives across all Act Now! partners further shows, that the majority of such building/energy initiatives were taken by local municipalities. They focused typically on building a new Kindergarten or school living up to high energy standards, alternatively retrofitting an existing municipal building to high energy standards. The ambition required consulting engineering expertise from outside and the local craftsmen also were trained to implement/install the solutions. The municipality probably have repeated the retrofit-exercise by more buildings, using the same consulting engineers and craftsmen (or by choosing different companies). Thereby they already contributed to growing energy/building knowledge not only inside the municipal staff, but also creating energy/building competence in the private sector.

These competencies and especially the people-relations to the private sector companies (like consulting engineers and construction companies) is an important asset for next step PPP-ambitions for municipalities to engage the private sector and its investors in energy retrofit of the buildings within the private sector.

If a SEAP/SECAP or any other local strategic energy or heating plan has been developed, the established people-relations from the participating stakeholders, like utility/energy-companies, consulting engineers, construction companies, other industry/business participants, will potentially contribute to additional value creation for the next step PPP-ambitions.

Our focus has been energy retrofit of municipal buildings, but we have recently had a successful meeting with an apartment house manager, where we have exchanged information about municipal plans and provided information about financing models for increasing energy efficiency of apartment buildings.

Our ambition is to use the energy efficiency experience gained in municipal buildings, street lighting etc. to open new doors to private sector, entrepreneurs, capital companies, energy producers etc. More education is required and a joint SECAP might potentially be the positive outcome of our efforts. ***Gulbene, Latvia***

4.2. | Gain knowledge of private sector (Step 2)

This step is focused on how the municipality can prepare for PPP-engagement and actions by collecting information and gaining knowledge about the private sector in general.

If your municipality has created/filed a SEAP/SECAP, the municipality probably already has gained knowledge about the private sector´s energy challenges and CO2-reduction potentials within the following sub-segments

- private homeowners
- house associations
- private rental homes
- the business sector
- utilities and sports facilities

If no SEAP/SECAP has been created, an alternative approach might be to review planned/current building retrofit activities within each of the above 5 segments. Access to such information is probably available by contacting local consulting engineers or using other already established PPP people-relations established in Step 1, focused on municipal building energy retrofit or new buildings to nZEB standards.

The ambition should be to identify a PPP-segment, which has high energy efficiency improvement (or CO2-reduction) potentials, and where the case-demonstration can serve as a catalyzer for full scale deployment the sub-segment and the associated stakeholders.

Based on our LEEG-discussions, we have during spring 2020 analysed our territory heating-energy consumption using the Heating-Energy-Atlas-tool and realized significant potential for CO_2-savings by addressing the thousands of private home-owner families in Bremerhaven. Our ambition is to build on current strong relations to the local utility/energy companies and to engage interested stakeholders to a joint communication platform. ***Bremerhaven, Germany***

4.3. | Decide on actionable challenge and look for interest (Step 3)

In this step, you decide your segment-challenge and make your preliminary general PPP-survey from Step 2 more robust for the chosen challenge.

If this is your first attempt to reach out for PPP, our recommendation is that you focus on house associations, utilities and sports facilities for the initial case/project, as they traditionally are easier to influence, but consider also private homeowner families showing interest in ambitious building energy retrofit as a potential showcase.

The approach should be catalytic. How can you and other local stakeholders create a demonstration case that will document that the building challenge can be retrofitted, and will serve as a catalyzer for scaling up the segment actions.

Be selective and focus on identifying a case-project, which is do-able and where a win-win situation can be created with the building-owners and the public private stakeholders potentially forming the case-partnership.

A SWOT-analysis will help you address the following assessment questions:

- What is the level of interest in the chosen PPP-segment?
- What are the main concerns, challenges and needs for the building owners?
- What are the main concerns, challenges and needs for the associated stakeholders?
- How will this demonstration case help you and the local community open up the entire sub-segment?

You should as part of your survey engage local people or experts with more knowledge about the PPP sub-segment or the focused/selected challenge; these people will help you gain more knowledge and the relations might be useful for your next step.

Municipal buildings in Elva, Estonia, have been energy retrofitted and new buildings built to high energy standards. The Elva district heating system is supplying both municipal and private buildings with green heat based on local woodchips.

Contacts to private sector have been made either during public events, based on personal or institutional networks, caused by the need of information or additional knowledge, during market mapping exercise in the process of investment preparation or other.
Elva, Estonia

In our part of Finland, the homeowners and private sector are afraid that Public Private Partnership will bring more regulations and costs for them. Therefore, the challenge is to make them see the benefits that such cooperation will bring. We will support the PPP-cooperation by giving the private sector more information and commit them as part of the LEEG activities.
Sievi, Finland

4.4. | Establish LEEG and scope the PPP case (Step 4)

In the previous steps you have surveyed the private sector segments and challenges – and you have decided for an actionable challenge reaching out for an entire PPP-subsegment. Or you have decided to create a demonstration-case that can help your local community catalyse a bigger change within a PPP-subsegment as a role model.

A key objective of Act Now! has been to increase capacity of municipality staff and local stakeholders necessary for energy retrofit of buildings. As already mentioned in Chapter 3, the core instrument for this is the creation of a Local Energy Efficiency Groups (LEEG) consisting of municipality staff and external stakeholders. These groups can serve as local project steering groups, learning groups and future instruments for coordination of local energy retrofit building measures.

The LEEG is a unique opportunity to allocate all the necessary competences and resources necessary for solving your selected PPP challenge and demonstration case. Especially considering that no one in your local society has ever before fixed the challenge.

You probably already have such a formal or informal LEEG group functioning from your building energy retrofitting initiatives within the public buildings.

Your next step is to establish a LEEG for the selected PPP-challenge, and the challenge is to secure that the necessary competencies are available to unlock the case-opportunity.

Based on the Act Now! experience, the typical LEEG-members for PPP-subsegments are representatives from the following:

- Consulting engineers and advisors
- Local craftsmen and representatives from the local construction industry
- Building owner representatives
- Local banks and real estate agents
- Local schools and other education institutions
- The municipal building authority
- Municipal employees working with private sector business-creation, rural-area development
- A local politician interested in public private partnership and/or the selected challenge
- Other relevant people for understanding, planning and implementing the actions

It is important to consider WIIFM (What´s In It For Me) for your selected LEEG-participants, as there has to be a strong value creation to avoid any traditional compensation by paying fees, salaries etc. The value creation to the participants will include:

- impacting future planning and new business creation locally
- increasing knowledge about energy retrofit solutions from discussions
- expansion of personal network
- new business ideas and concept to be developed
- public recognition for your ideas

Our suggestion is, that you identify your LEEG dream-team and meet with the potential LEEG-members individually face-to-face in advance to learn to know them better, check the value proposition and have their qualifying input for the decided actionable challenge.

The better you prepare the process, the more successful you and the actions will be.

Use the gained knowledge to qualify, shape and scope the challenge further and invite then for the first meeting, where you present the challenge and allow the LEEG-participants to interact and share their ideas. Make sure they feel comfortable with the process. It is important that the project becomes a shared project with shared goals, not only to secure a strong common LEEG ownership, but also to secure a high quality of the decided scoping of the PPP-project.

If possible, you can improve the success of this initial meeting by asking the Mayor to welcome and thank the LEEG-participants for their commitment to turn the challenge into actions.

In Silute District Municipality, Lithuania, implementation of smart meters in public buildings has helped building users (teachers, pupils, visitors) understand how even small measures can be important. Now the municipality is approaching the private sector's building stock to scale up the impact of learnings gained in the public sector.

Silute District Municipality is encouraging owners of private properties to renovate buildings, update water and heating supply systems by using various funding mechanisms. As a result, private houses are being renovated and there is a queue of applicants for receiving funding. ***Silute District Municipality, Lithuania***

In Gdynia, Poland, training sessions focused on Energy Management Systems, have attracted strong private sector participation. More and more private sector people ask for advice and support, due to the Municipality promoting energy measures at information portals and social media. The local LEEG is expanded and include private sector participants.

Meetings with housing associations, cooperatives and residents revealed that guidelines about behaviors, operation of the monitoring system or devices must be constantly updated, repeated, reminded.
Gdynia, Poland

Based on political discussions and decisions, Bremerhaven Municipality opened the LEEG. The extended LEEG attracted 33 private sector participants in addition. Previously the LEEG consisted of only 10 participants, mostly municipal representatives. Subsequently a better understanding of the private sector mind-set and thinking is the expected outcome, including securing the necessary competencies for the LEEG.
Bremerhaven, Germany

4.5. | Engage, onboard and expand (Step 5)

Your LEEG is now recruited, the participants have accepted the challenge and they have committed themselves by helping you shape the PPP project.

You have an action plan, and it is now time to engage your LEEG-participants in communicating the project and its value proposition, gaining further community support, onboard necessary participants, engage relevant building owners, reach out for funding and financials and implement the actions.

A stakeholder-analysis might help you and the LEEG-participants identify all important stakeholders and get them onboard the project. Make sure that your project is communicated and known, not only in your local community, but also at regional and national level.

Supporting engagement of neighbourhoods and local districts in larger scale energy efficiency improvements should be incentivized through awareness raising campaigns etc.

Make sure you communicate not only the project, but also its potential value creation to climate, competence, job-creation etc. to relevant stakeholders. This will help you reach out for additional funding based on value creation to society.

Based on the LEEG-concept, ProjectZero decided in 2018 to form eight LEEGs representing each a core society PPP-challenge. The purpose was to create a robust local structure/platform for the creation of the new Roadmap2025.

The eight LEEG-groups represented the following PPP-segments: homeowners, house associations, private rental buildings, people transport, private enterprises, farming, heavy transport and energy from renewables. Almost 100 local experts participated in the eight LEEG-groups and created in cooperation more than 50 projects.

The working groups are now focused on execution of the Roadmap2025, they have a strong ownership and meet four times a year in the individual LEEG-groups and once a year at the joint Roadmap2025 Summer Summit for celebrating results, sharing knowledge and become inspired by new ideas from outside.

Sonderborg´s Mayor Mr. Erik Lauritzen has himself been the chairman of the farmers LEEG since 2018.
Sonderborg, Denmark

4.6. | Act and measure progress (Step 6)

Your project is now known in your local community, there is a plan, it is progressing, you have your stakeholders on board and your LEEG is functioning.

Our suggestion was to start with a pilot/demonstration-case, but you might already be working with further iterations and need to act and measure progress.
The common Plan – Do – Check – Act (PDCA) method[11] will help you progress your project based on a continuous improvement approach (Figure 7).

The PLANing is already made in the previous steps, but make sure that your plan has clear objectives and that they are measurable.

The DO phase implements the plan and collect either hard-core measurable data from the project or soft response learning/observations from the process implementation.

During the CHECK phase, the data and results gathered from the DO phase are evaluated. Data are compared to the expected outcomes to see any similarities and differences. The testing process is also evaluated to see, if there were any changes from the original test created during the planning phase.

The ACT (adjust) phase is where you improve your process. Records from the „DO“ and „CHECK“ phases help you identify issues within the process. These issues may include problems, opportunities for improvement, inefficiencies and other issues that result in outcomes that are less than expected. Root causes of such issues are investigated, found and eliminated by modifying the process. Risk is re-evaluated. At the end of the actions in this phase, the methods of participation have been adjusted, and/or the process has better standards or goals. Planning for the next cycle can proceed with a better baseline/understanding.

The established LEEG has helped Mönsterås Municipality to implement energy efficiency measures and pushed the process of investing in an energy monitoring system. The SEAP/SECAP for Mönsterås Municipality is now updated and includes energy efficient buildings.

The next step will be to reshape focus from short term refurbishment to long term sustainable energy efficiency. Mönsterås Municipality is considering connecting to the “Goda Hus” (Good houses) network consisting of academic, public and private sector participants ready for next step energy efficiency initiatives.
Sweden, Mönsterås

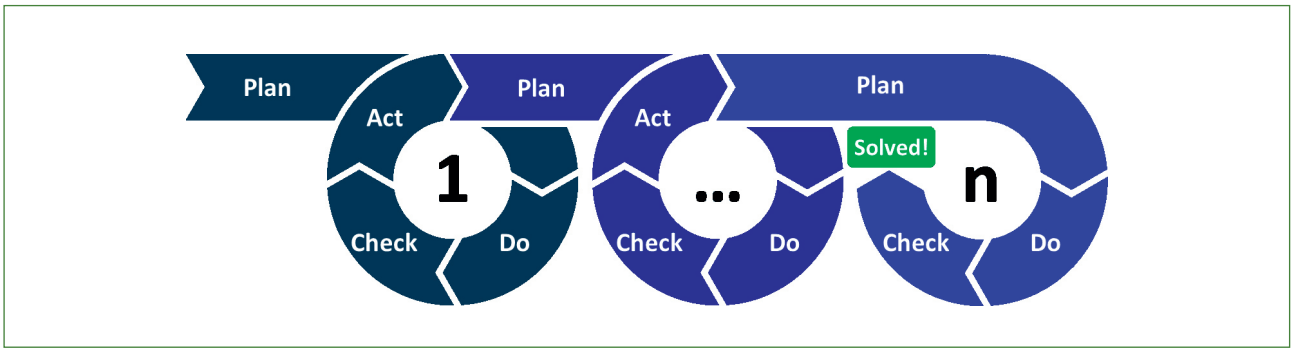

Figure 7: The PDCA - Plan, Do, Check, Act method for continuous improvements.
(Source: Christoph Roser at AllAboutLean.com, published under a Creative Commons Attribution-Share Alike 4.0 International license)

[11] https://en.wikipedia.org/wiki/PDCA

4.7. | Communicate and scale (Step 7)

Following the previous steps, your project should be in good shape based on a strong value proposition. You frequently use the PDCA method and secure that your project/ambition is on track and adjusted to real life without lowering the ambitions and defined goals.

To reach out for bigger scaling, your opportunity is to improve your stakeholder engagement based on frequent updates with project achievements and results. Your communication measures should not only be based on traditional and digital medias, but also based on a strong strategic communication, where your project is core of the local storytelling by key stakeholders.

Strategic communication means infusing communications efforts with an agenda and a masterplan[12]. The masterplan involves promoting the brand of your project, urging people to do specific actions, or advocating particular legislation. The combination of climate and job creation is an excellent platform for taking the communication to the next level strategic communication.

This will require that your project has documented a robust value proposition, has turned the project plan into a masterplan and created buy-in from key stakeholders. Remember your mission is PPP and therefore you and the LEEG-participants should secure buy-in from not only the Mayor and the city council, but also leading local business owners/managers should recognize the project as innovative and important for not only the climate transition, but also for local job-creation, building new competencies and frame the future DNA for the municipality.

The project has turned into a transition project for the area and new (strategic) opportunity doors will potentially open for scaling the project and its masterplan.

4.8. | Go full scale by implementing the PPP Customer Journey (Step 8)

Your PPP building energy retrofit project can potentially achieve very good results and impact by following the described Steps 2 – 7; but to achieve full scale implementation, your municipality/community need to implement a customer journey design process co-created with local building energy retrofit stakeholders.

In this PPP-guideline, our reference is the REFURB[13] Customer Journey, discovered and tested as part of the EU H2020 REFURB-project (2015-2018), where partners across 6 European counties created and tested methodology to create "the offer you can't refuse" targeted at private homeowners.

The REFURB customer journey is a well-defined and structured process. It secures that building owners are guided and supported across all involved stakeholders from they become interested until the building retrofit work has been completed and the homeowner families are "wanting more" (energy renovations).

The 11-step REFURB Customer Journey model (Figure 8) was originally in 2015 created by VNG (association of Dutch municipalities) in cooperation with PricewaterhouseCoopers (PwC). The project was conducted on the basis of existing research and a number of interviews with experts appointed by VNG. The approach was created to provide an efficient working method for rolling out building energy retrofit initiatives at local community level. The 11-step model includes the following customer/homeowner steps:

1. Becoming aware
2. Becoming interested
3. Becoming active
4. Considering the offer
5. Financing the offer
6. Selecting a supplier
7. Installation and payment
8. Experiencing the solution
9. Organizing instruction and service
10. Sharing the positive outcome
11. Wanting more

Even though the Customer Journey is a good model for understanding the design, the implementation of such customer journey requires both PPP-maturity and a strong participation from all stakeholders including capacity building across all sectors.

> *The homeowner LEEG in Sonderborg, ProjectZero and local stakeholders including the EUC Syd Technical College and Vocation School are now, as part of the Act Now! project, implementing the necessary training measures to secure a common stakeholder language and a safe process for the homeowners from step 1 to step 11.*
>
> *The creation of the Customer Journey design is attracting strong interest from other Danish municipalities, who have experienced, that there is a need for a homeowner safe and integrated stakeholder alignment and designed process, when crossing sectors locally.*
> ***Sonderborg, Denmark***

[12] https://www.idea.org/blog/2011/03/16/what-is-strategic-communications/
[13] https://www.refurb-project.eu

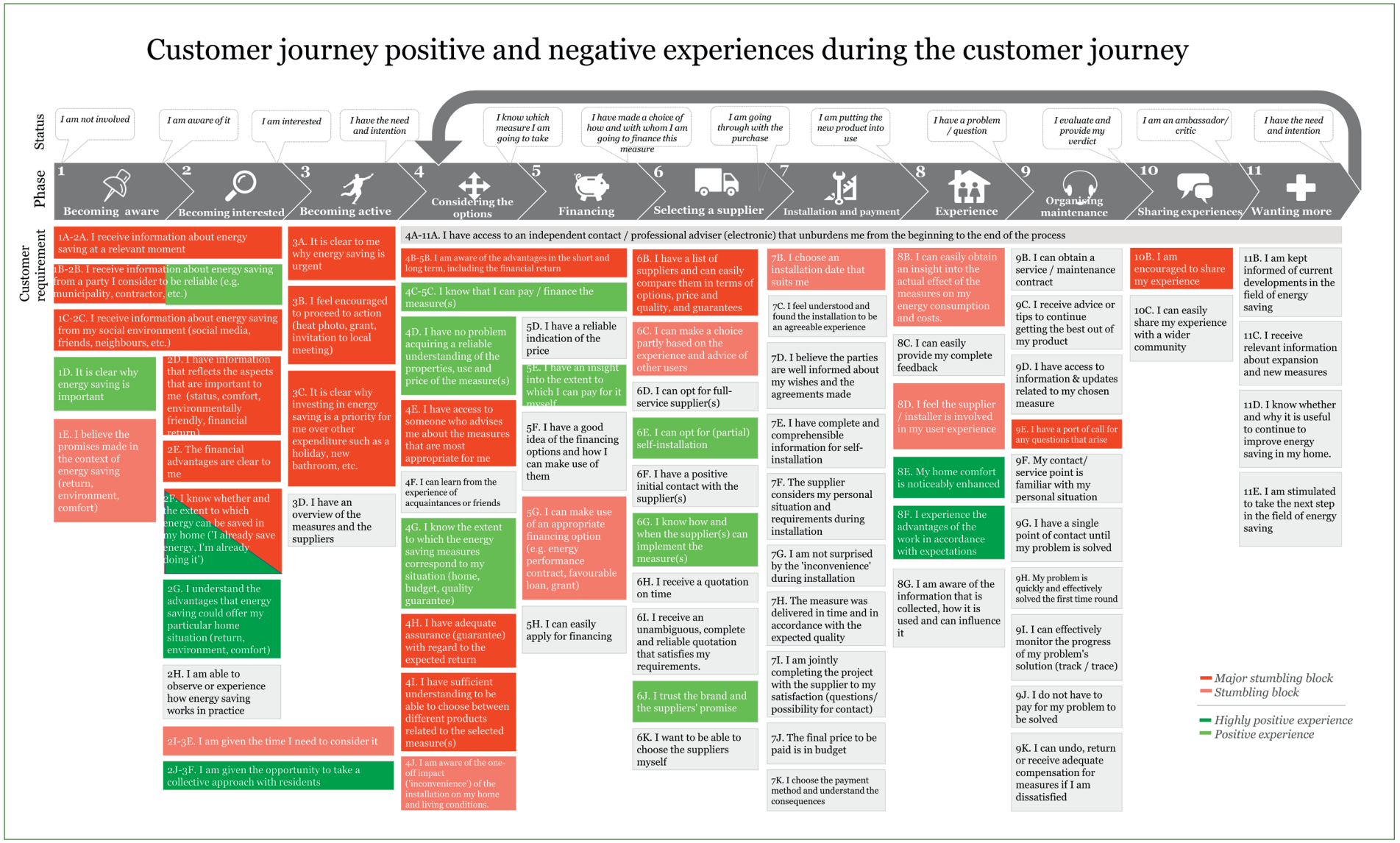

Figure 8: The REFURB Customer Journey.
(For more information study the reports from especially work package 4 at www.refurb-project.eu, here follow Publications -> Develop the compelling offers -> D4.4 Constitution of the compelling offers)

(Source: VNG Vereniging van Nederlandse Gemeenten (Dutch association of Municipalities), 2016)

5 | Private sector segments and drivers

To provide a better understanding of the private sector and how to approach it as a municipality, this chapter will present different private segments and their motivation and potential gains from joining new partnerships

The Act Now! focus is building energy retrofit and the definition of private sector is all local society buildings, except the municipalities own buildings. The private sector can therefore be sub-segmented into the following private sector segments:

- private homeowners,
- house-associations,
- private rental homes,
- the companies,
- utilities and sports facilities

Each of the subsegments main characteristics and drivers will be briefly described and exemplified to improve the understanding of the segment characteristics and inspire the municipal authorities to engage and create local PPP-projects and cooperation.

5.1. | Private homeowners

In the private homeowner subsegment, the family owning the buildings and the family occupying the buildings is the same. This means, that if the family see the motivation for energy retrofit of the home and can afford the investment, then the decision is easy taken and can be implemented. Families are very different, not only in size, but also in values and family-values might change during the life cycle from kids-family to youth family to empty nest families. Females might have different values than the male part of the family and Danish research[14] indicates that it should be taken into consideration that energy retrofit is a family decision.

Energy retrofit measures in a private owned home include better insulation, new energy efficient windows, a tight building envelope, green district heating or electrical heat pumps (replacing oil-, gas- and wood-burners), integrated rooftop photovoltaic and electrical battery storage and energy efficient appliances and electronics. These are complex decisions, but when properly implemented help the building become nZEB (nearly Zero Energy Building) and help the occupants have a better and affordable life.

Families have different motivations (drivers) for initiating energy retrofit initiatives and economic pay-back time is often considered as the main motivation. But also, better indoor climate, a healthier home, an improved Energy Label and lowering the family carbon-footprint should be communicated and considered important elements of the value proposition. Many families are not aware of the potential value creation. Therefore, communication of the entire value proposition targeting different homeowner segments is important to turn homeowner energy retrofit opportunities into actions.

> *In Sonderborg, an independent energy advisor (named Charlie) during 2010 – 2014 visited more than 1,500 families; listened to their housing dreams, reviewed their energy consumption and the energy performance of the house and discussed with the families how energy retrofit actions could help the homeowners create a more comfortable and affordable home. The program was co-financed by the Danish Innovation Fund and created to document how energy retrofit can work hand in hand with creating new green jobs.*
>
> *More than 60 % of the visited homeowner families implemented the measures, saved energy, improved quality of family life and became co-creators to more than 100 new local craftsmen jobs.*
>
> *The Charlie energy advisor proved that there often is a need for information and face-to-face support before the family is ready to take a safe energy retrofit investment decision – but also that male and female values are not always the same and that more attention to female values should be considered as part of the communication measures.* ***Sonderborg, Denmark***

5.2. | House associations

The house association segment might vary from country to country but is generally characterized by multifamily buildings owned in cooperatives. This means that one tenant-family seeing the motivation for energy retrofit need to be scaled up by a majority of the tenant-families voting in favour for building retrofit initiative – before it happens.

Very often, the initiatives are not driven by the tenants, but by the administration as part of regular building maintenance and improvement works. And in such case, the renovation proposition has to be presented to all the tenants in the associated building block and a joint voting will decide whether the proposition is approved or not. There are multiple ways of joint financing an investment by the house association, and the investment is normally amortized by a proportional increase in the monthly rent.

[14] https://ccrs.ku.dk/staff/?pure=en%2Fpublications%2Fwe-forgot-half-of-the-population-the-significance-of-gender-in-danish-energy-renovation-projects(fecd6e91-a6a0-46cc-bc24-fc946f975156).html

An energy retrofit, has in contradiction to traditional building maintenance a saving or generate even an income, which improve the business case and the value proposition to be presented to the tenants. The economic payback time might vary from a few years (LED-light) to 50 – 100 years (reconstruction of the building envelope). Roof-top installation of solar photovoltaic power production is often payed back within 10 years and integrated roof-top PV systems within 12+ years. An improved indoor climate, a healthier home and lowering the family carbon-footprint should be communicated and considered important elements of the value proposition.

Collective energy retrofit measures in a house association are technically similar to home-owners (Chapter 5.1). Inside each flat, the tenant-family can save energy by keeping an eye on the energy meters and change behaviour, change to LED-light etc.

In house associations, the measures are the same as for the home-owner segment, but the decision making is more complex. You need to engage "democracy" in making energy retrofit activities happen in house associations. Modern society-oriented house associations are often very focused on contributing to combatting climate change and support their tenants save energy and money.

Many families are not aware of the potential value creation and therefore communication of the entire value proposition targeted different homeowner segments is important to turn homeowner energy retrofit opportunities into actions.

In many countries, the municipality is also a local authority for the house associations. It might have to guarantee loans and has therefore an opportunity to influence values and decision making with the house associations by promoting specific policy settings, including standards for building energy retrofitting, heat sources, installation of meters etc.

Six independent house associations in Sonderborg realized in 2017 that they had a common building energy retrofit challenge and should create a common journey including approaches, tenant engagement and energy policy development etc. The individual board of directors, and the respective administrations, decided to create the Happi-project and apply for EU-funding for a joint project engaging app. 3,300 existing homes across the house associations.

The application was approved and private partners together with the house-associations have created a house association LEEG for securing the project execution the best possible competencies and decision power.
Sonderborg, Denmark

5.3. | Private rental homes

The private rental home segment varies from country to country, but is generally characterized by multifamily buildings owned by private investors and a very often complex and protective legislation to protect tenants against unreasonable landlord rent increases. The potential conflict of interest is unfortunately very often also reflected in a minimum direct dialog between landlord and his tenants, which make energy retrofit measures very complex to discuss, decide and implement successfully.

The energy retrofit measures in a private rental building are again technically similar to home-owners (Chapter 5.1) Inside each flat, the tenant-family can save energy by keeping an eye on the energy meters and change behaviour, change to LED-light etc.

There are traditional ways of financing an investment by the landlord, and the investment is normally amortized by a proportional increase in the monthly rent. For energy retrofit investments, the cost of the renovation is an investment of the owner and the benefits include a potential cost saving of the tenant-families. Subsequently it should be possible to create a win-win situation. However, the traditional lack of trust and dialog between landlords and their tenant-families is a major barrier for making energy-retrofit happen in reality.

ProjectZero, Sonderborg discovered in 2013 a need for a coordinated approach to unlock energy renovation opportunities in the Sonderborg-areas almost 6,000 landlord owned flats.

A multiple step approach was defined, including a situation analysis (including SWOT analysis), a strategy creation, a testing of the proposed actions and a roll-out (based on improved dialog and continued discussions) with the local landlord association and its board of directors.

The outcome has been that 35 local landlords joined training courses during 2015 – 2017 and now understand opportunities and challenges, including the need for a constructive open dialog with their tenants and a website for a step-by-step approach has been implemented. The local landlord-association has committed interest and resources for continued discussions.

The initiative and program-creation received substantial co-financing from the national Landowners' Investment Foundation having a strong interest in creating, demonstrating and broadcasting new methods to engage landlords and tenants in energy retrofit measures.
Sonderborg, Denmark

This segment is not the easiest to unlock, however as private rental homes are a major segment in many countries, it is important to engage and create a long-term strategy also for this segment. As the Sonderborg-case describes, being an ambitious front runner might attract co-financing for the initial initiatives.

5.4. | The companies

The companies in the business sector are characterised by being 100 % private sector (business) driven. However, there are good opportunities to onboard also small and large businesses on the journey towards ZEROcarbon communities.

The business sector includes shops, small and medium scale enterprises (SME) with manufacturing or services, farmers, large manufacturing companies etc. They all use energy in their production or service concepts and their employees consume energy travelling to work. Energy represents a cost and potentially also a barrier and/or opportunity towards potential strong climate consumer-groups or NGOs, depending on the specific industry/country.

Companies generally focus their attention on their core business and therefore often give very little attention to energy consumption. Companies invest mainly in their core business and energy investments which must be paid back within 3 years to be attractive, for some business subsegments (like shops) even in a shorter time.

The Act Now! projects is focused on energy retrofit in building, but the energy retrofit measures across the business sector addresses a wider range of potential initiatives like changing light into LED, insulation, new energy efficient windows, a tight building envelope, heat automatic systems, connecting to green district heating or electrical heat pumps, re-use of wasted process heat, rooftop solar photovoltaic, own wind turbine etc. The challenge is however that the owner of the building in many cases is not always the user and that limited building energy retrofit initiatives can be implemented with less than 3 years payback-time.

The use of energy and various energy sources supplying the business can in a calculation be turned into a carbon footprint calculation, which will show how the business contributes to the climate challenge. Large global organizations are by end of the value-chain customers (like Walmart) forced to monitor and declare their carbon footprint calculation, carbon strategies and specific reduction initiatives. This strategic push on large companies is spreading to other companies along the "inspired" value chains.

The Carbon Disclosure Project (CDP) is such a global organisation established to push, inspire and support large "investors, companies (and cities) on taking urgent action to build a truly sustainable economy by measuring and understanding their environmental impact" (www.cdp.net).

Business is still driven by maximizing profit and energy saving can save cost, but the new driver is Corporate Social Responsibility (CSR), where companies who are positioned close to the consumer-markets in the value-chain, have to consider the risk of being recognized as a company not taking sufficient climate actions.

ProjectZero, Sonderborg created in 2008 the ZEROshop-program allowing almost 300 shops in the Sonderborg region to take easy climate initiatives and become a visible participant in the ProjectZero transition to a ZEROcarbon Sonderborg by 2029. The easy initial steps include change to LED-lightbulbs and elimination of standby-consumption. Participating shops have been awarded by a ZEROshop label for the shop window and a diploma handed over by the Mayor of Sonderborg.

Almost half of Sonderborg´s shops are now active participants in lowering their energy consumption and carbon footprint - a journey that starts with a white award certificate, continuing with a bronze, silver, gold and ultimately a green award certificate, when the carbon reduction exceeds 70 %. The ZEROshop label and certificate also help ProjectZero visualize and communicate Sonderborg's climate transition to citizens and tourists shopping.

The ZEROshop-program has been developed together with the local shop associations, their management and boards-members and the first mover shops in a co-creation process. ***Sonderborg, Denmark***

The business segments account in many countries for app. 30 % of the energy being used and a lot of this is used for heating buildings. The employees and customers of local companies are local citizens, many of them also engaged as homeowners or tenants – and thereby closing the inspiration loop. It is therefore important to work with the business sector, get the various companies inspired, have them start their own journey and continue to support the journeys by network creation, publicity, award and promotion activities.

5.5. | Utilities and sports facilities

These other building-owners represent an interesting segment, when local authorities aim at improving buildings energy retrofit across sectors, in public private partnerships.

Utility companies are companies which supply utilities, such as gas, electricity, district heating etc. Often, they are public owned/controlled by the municipality, but they can also be semi-public (citizen owned) or even private. Anyhow, they are important stakeholders for expanding the local building

energy retrofit activities as they already distribute and work across sectors. They often have their own buildings, which should be retrofitted in nZEB-standards as inspirational showcases for local citizens, businesses etc.

Sports facilities cover a wide range of often non-profit facilities, where local citizens can enjoy and exercise sport. The facilities range from indoor and outdoor swimming facilities to gym, riding, rowing, sailing and playgrounds for tennis, foot- and handball facilities; all using plenty amounts of heat, electricity, hot and cold water. They all have huge opportunities for reducing their carbon-footprint, but the programs ideally have to be based on engaging the users, in order to secure a strong user-participation.

Sonderborg, Denmark, has 35 different sports facilities with different ownerships. In 2013 Sonderborg municipality and ProjectZero created the ZEROsport-program, to inspire the local facilities, their management, board of directors and facility users to turn the facilities into nZEB demonstration labs based on improved energy efficiency and conversion to green energy sources. The motivation for the facilities is to reduce energy cost.

The facilities receive annually awards based on their initiatives and results as described in Chapter 5.4. All sports facilities in Sonderborg are now participating in the ZEROsport-program. Several of them have managed to attract local/regional/national sponsors for their investment, which means that they lowered their energy cost and carbon footprint, without any debts. 35 % of Sonderborg´s 74,000 inhabitants enjoy sport at one or more of these facilities and become inspired for new energy retrofit activities at home or at works – or they start using their bike to sport. ***Sonderborg, Denmark***

The utilities and sport facilities, are two examples of civil society building owners that can help local authorities connect to multiple society stakeholders, fuel and speed up the transition. When local authorities start working with their local network and cross boarders, new windows of opportunities will open and continue to energize the local transition.

6 | Inspiration: How to create a sustainable city, the ProjectZero formula

You might argue that the eight-step model approach presented in Chapter 4, in the real world has more steps towards creating a robust PPP-structure to support the municipal transition towards CO2-neutrality- and we agree.

The Act Now! partner ProjectZero, Sonderborg/Denmark has long term experience, it was created as a Public Private Partnership in 2007. The ProjectZero vision is focused on turning the Sonderborg region CO2-neutral by 2029.

ProjectZero has its main focus on transitioning the energy system including buildings, industrial processes, energy sources and transport. The ProjectZero PPP-vision/project attracts a lot of interest from international visitors. Based on their request ProjectZero in 2019 created a guideline describing their journey. If you like to get inspired even further than this Act Now! Guideline has taken you, move on to upscaling by studying ProjectZero's guideline "How to create a sustainable city – the ProjectZero formula".

7 | Relevant articles and sources

Building and renovating. The European Green Deal. Start a 'renovation wave'. 2019.
https://ec.europa.eu/commission/presscorner/detail/en/fs_19_6725

Building renovation in the Clean Energy Package: implications at local, national and EU levels.
Buildings Performance Institute Europe (BPIE). November 2019.

Build up. The European Portal for Energy Efficiency in Buildings.
https://www.buildup.eu/en

EU Buildings Factsheets
https://ec.europa.eu/energy/eu-buildings-factsheets_en

DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency.
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.L_.2018.156.01.0075.01.ENG

DIRECTIVE 2010/31/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 May 2010 on the energy performance of buildings.
https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32010L0031&from=EN

The Refurb-project. EU H2020 project implemented during 2015 – 2018 focused on nZEB building energy retrofit implemented across 6 counties.
www.refurb-project.eu.

Questions & Answers on Energy Performance in Buildings Directive.
https://ec.europa.eu/info/news/questions-answers-energy-performance-buildings-directive-2018-apr-17_en

Further Act Now! Material:
'Act Now! Manual "From SEAP to Investment'
'Act Now! Guideline Identification of Most Effective Energy Efficiency Measures'
'Act Now! Guideline Energy Efficiency Strategy for Municipal Buildings'
'Act Now! Guideline Financing of Energy Efficiency Projects'

Act Now! project website:
https://actnow-baltic.eu/

Act Now! Online Learning Platform:
The four guidelines helping you to set up and implement your energy efficiency strategy:
actnow-baltic.eu/learning
Further tools and helpful information (Questionnaire, SWOT analysis, Capacity Self-Assessment Tool etc.):
actnow-baltic.eu/learning/tools
Examples from the municipalities which improved their energy efficiency capacities in the Act Now! project (Municipality Reports, actual Capacity Building Schemes and Case Studies, Feasibility Studies etc.):
actnow-baltic.eu/learning/municipalities


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