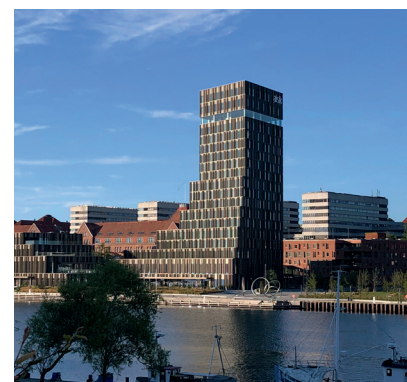




ACTION FOR
ENERGY EFFICIENCY
IN BALTIC CITIES

ACT NOW!



MANUAL

From SEAP to Investment



MANUAL

From SEAP to Investment

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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 CO₂ 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



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List of abbreviations

CBS	Capacity Building Scheme
EE	Energy Efficiency
EnMS	Energy Management System
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.
GHG	Greenhouse Gas
LEEG	Local Energy Efficiency Group
PPP	Public Private Partnership means in the report any formal collaboration between public authorities and private companies.
RTU	Riga Technical University
SEAP	Sustainable Energy Action Plan
SECAP	Sustainable Energy and Climate Action Plan
SWOT analysis	Strengths, Weaknesses, Opportunities and Threats analysis

1 | Introduction

Buildings are Europe's biggest energy resource. By 2013, buildings made up more than 40% of the final energy consumption in the European Union (EU). Using energy more efficiently in the building stock is therefore a key objective for policies of different fields and levels.

Municipalities are the key players for improving energy efficiency at the local level. They benefit from improved energy efficiency in different ways, including reduced GHG emissions, less energy expenses, improved working and housing conditions and many more.

While the benefits of energy efficiency are evident and many municipalities already have action plans in place, the implementation does not quite take off. Due to lacking capacities, many struggle to translate their plans into action.

However, looking at international (and national) climate protection targets, urgency is also evident. Europe and its municipalities need to get on track as soon as possible. Also, given that most energy efficiency measures such as building insulation and new heating systems are accumulating their effects only over a longer period of time, it is certainly the time to act now!

1.1 | About this Manual

This Manual helps your municipality to act now.

While there are many manuals and guidelines describing how to set up an action plan for sustainable energy, this manual focuses to increase your municipality's capacity to put these plans into action:

- Following the principle of customised capacity building, it will show you how to assess the existing capacities, and let you know what still needs to be established.
- It will also describe the idea of Local Energy Efficiency Work Groups (LEEGs): a network of local stakeholders aggregating the knowledge, perspectives and capacities for an effective and sustained implementation of energy efficiency measures.

The result is a solid basis to kickstart your energy efficiency activities. With the groundwork done, you are ready to tackle further activities that are described in the four guidelines that accompany this manual (Figure 1):

1. Energy Efficiency Strategy for Municipal Buildings
2. Identification of Most Effective Energy Efficiency Measure
3. Financing of Energy Efficiency Projects
4. Public Private Partnerships

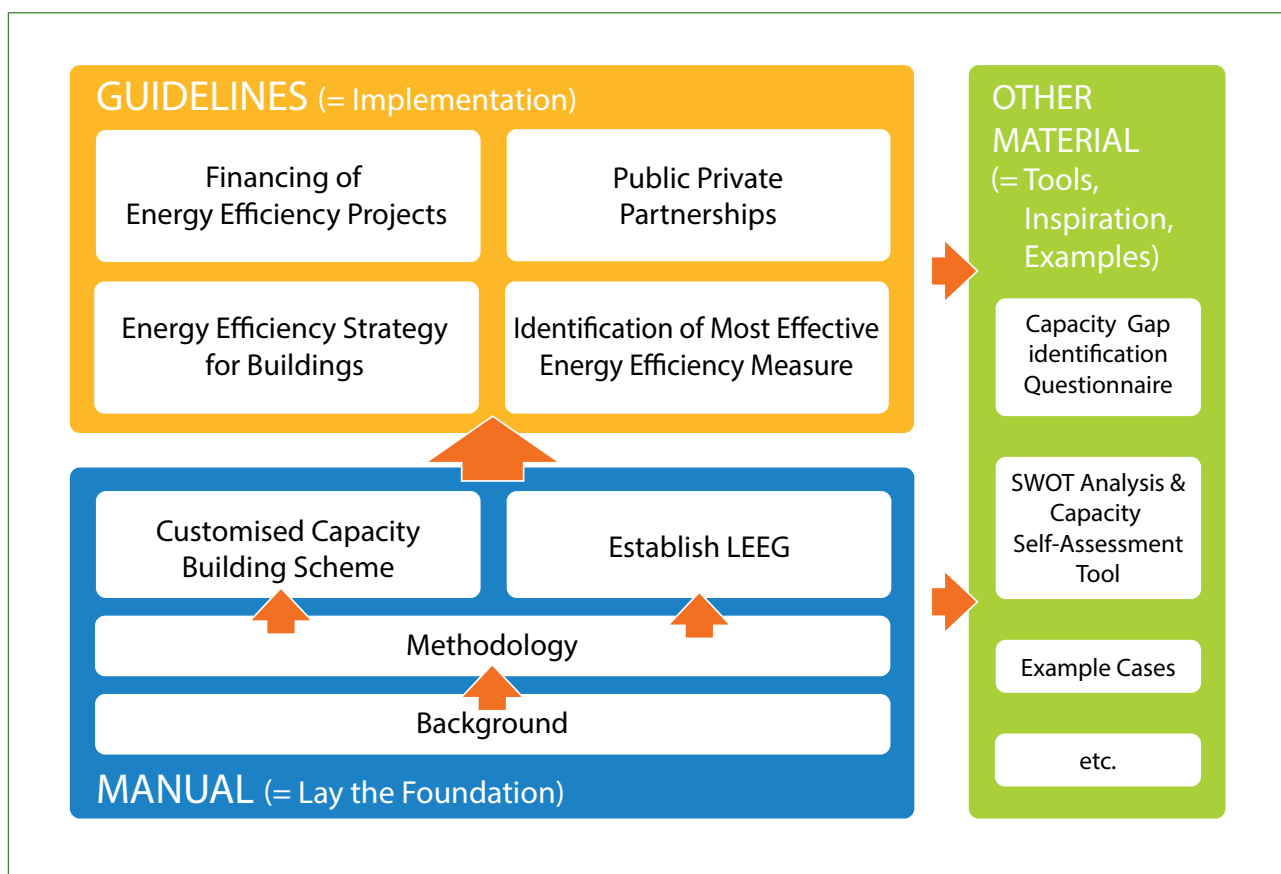


Figure 1: Relationship between this manual, the four guidelines and other material from the Act Now! Project.

See chapter 6 for more details about each guideline.

All four guidelines, this Manual and other accompanying tools and materials are available at <https://actnow-baltic.eu/learning>. Together they will assist you to help yourself implementing an effective energy efficiency strategy in your municipality.

Box 1: Hop on the tandem!

The *Act Now!* approach described in this manual follows the principle of help for self-help. This means that municipalities shall be able to build the capacities necessary to develop and implement energy efficiency projects on their own. Only by building the necessary structures and accumulating the knowledge gained within the municipality, continuous and effective progress over many years is possible.

However, this is by no means the same as going the whole way alone. Quite the contrary, assistance from outside may be helpful, especially when going the first steps. As long as the resulting capacities are built in the municipality, there is no need to be more royal than the king.

In the *Act Now!* project, most participating municipalities closely cooperated with an external partner which provided advice and assistance during the capacity building process. Some teamed up with a consulting firm, others with a university or a regional energy agency. Particularly when starting from scratch, this tandem approach helps initiating the process and keeping early efforts alive in order to create a lasting foundation for the years to come.

1.2 | Who is this Manual for?

This manual addresses anyone who seeks to improve energy efficiency in the building stock of his or her municipality. Most notably these are:

- members of **municipality staff** who are directly involved in activities related to energy issues inside their administration (urban planners, staff of construction departments, collaborators from property management and financial departments, energy management and local development).
- **staff of cooperating institutions or private companies** dealing with energy efficiency (housing companies, utilities, energy service companies, engineering companies)

1.3 | How is this Manual structured?

This Manual is structured in roughly four sections:

- **Background:** Chapter 2 sheds light onto the situation of the municipal building stock in Europe and the EU member states in the Baltic Sea region, and explains the necessity for energy efficiency in municipalities.
- **Identify and fill the capacity gaps:** Chapters 3 and 4 introduce the approach of capacity building developed and applied in the project *Act Now!* First, Chapter 3 provides how to identify the capacity lacks in regard of energy efficiency in your municipality. Chapter 4 explains how to use the results of Chapter 3 in order to build the lacking capacities.
- **Network building:** Chapter 5 provides guidance to establish your Local Energy Efficiency Group (LEEG), which is the very place your energy efficiency efforts shall take place.
- **A quick look ahead:** Chapter 6 provides quick introductions to the four guidelines that provide in-depth assistance for further enhancement of the capacities built with this Manual.

2 | Background – Why we have to Act Now!

Key Takeaways

- *Buildings consume more than 40 % of the energy in Europe. Increasing the energy efficiency in the residential and non-residential building stock is essential in order to reach the climate protection targets in the EU.*
- *Municipalities are key drivers for improving energy efficiency on the local level. They not only own and operate buildings, but act as important interface to the local society.*
- *While technology and solutions are widely available, municipalities struggle to increase energy efficiency due to lacking implementation capacities. The Act Now! approach aims to bridge this gap using customised capacity building schemes.*

With the EU and its member states pursuing their climate targets, the transition to green energy does not only require more renewable energy replacing fossil fuels, but inevitably less energy consumption throughout Europe. Thus, the EU follows the principle “efficiency first”. As part of the Clean Energy Package, the novelised Energy Efficiency Directive (2018/2002/EU) pushes to reduce the final energy consumption in the EU by at least 32.5 % until 2030. With this policy, the EU not only acknowledges the importance of energy efficiency for climate policy, but also for increased security of supply, less energy import dependence and higher economic competitiveness. As this manual is being written, the EU member states are approaching the deadline to implement the Energy Efficiency Directive in national legislation.

2.1 | Situation of buildings in the BSR

In the EU member states of the Baltic Sea Region, buildings consumed 42% of the final energy, with roughly two thirds originating in residential and about one-third in non-residential buildings (Table 1). Subsequently meeting the EU’s 2030 energy efficiency targets is only feasible with more efficient use of energy in buildings.

Table 1: Energy consumption in buildings in the EU and the member states of the Baltic Sea Region 2013.

Source: European Buildings Observatory / Eurostat

Country	Residential [Mtoe]	Non-residential [Mtoe]	Buildings total [Mtoe]	Share in final energy consumption
EU28	303,07	152,25	455,32	41%
Denmark	4,48	1,97	6,45	46%
Estonia	0,93	0,42	1,35	47%
Finland	5,17	2,87	8,04	33%
Germany	59,71	34,05	93,76	42%
Latvia	1,27	0,60	1,87	48%
Lithuania	1,47	0,60	2,07	43%
Poland	20,44	8,06	28,50	45%
Sweden	7,48	4,42	11,90	37%
BSR member states	100,95	52,99	153,94	42%

Accordingly, the EU has adopted the Energy Efficiency Directive to increase the energy efficiency in buildings. It includes ambitious energy efficiency standards for new buildings, but more importantly increasing energy efficiency in the aging building stock. As of 2014, more

than 77 % of the residential dwellings in the EU were built before 1990 (Table 2). Most of the Baltic member states have an even older residential buildings stock (except Poland and Finland)¹.

Table 2: Age of residential buildings stock in the EU and its member states of the Baltic Sea Region as of 2014.

Source: European Building Observatory/ Eurostat

Country	Share of dwellings built... [%]						
	~1945	1945-1969	1970-1979	1980-1989	1990-1999	2000-2009	2010~
EU28	22,7	26,2	16,0	12,5	9,3	9,6	3,7
Denmark	31,9	27,0	17,2	9,1	5,4	8,0	1,4
Estonia	17,2	27,0	20,2	19,7	5,7	8,0	2,2
Finland	12,2	21,5	20,4	17,6	12,0	10,9	5,4
Germany	25,2	34,1	14,9	11,0	7,7	5,2	1,9
Latvia	22,5	25,3	19,6	19,7	6,1	4,7	2,0
Lithuania	22,2	36,9	17,2	13,3	6,8	2,7	1,0
Poland	19,4	23,3	15,5	16,5	11,7	7,8	5,7
Sweden	26,2	34,3	16,2	10,2	5,9	5,5	1,7

However, age is only a rough indicator for the actual energy performance of the building stock. Some countries like Denmark adopted building energy regulation already in the 1960s and thus have relatively more efficient buildings also in the medium age group.

Looking at the energy consumption per floor area, data indicates – apart from regional differences – an overall low level of building energy performance throughout the Baltic Sea Region in both, the residential and non-residential sectors. Major renovation measures that significantly cut a building's energy demand, are only slowly picking up. Although the data availability is very limited, annual renovation rates in the Baltic Sea Region are at 1.5 % in the best case (Table 3).

Table 3: Rate of major renovation equivalent in the EU member states of the Baltic Sea region as of last available data year.

*Major renovation equivalent is defined as a measure that reduces a building's heat energy demand by 50 to 80 %. Source: ZEBRA 2020

Country	Rate of major renovations* in the residential building stock [%]	Year
Denmark	-	-
Estonia	-	-
Finland	-	-
Germany	1.5	2014
Latvia	-	-
Lithuania	1.1	2014
Poland	0.12	2013
Sweden	0.88	2013

² Data regarding the non-residential building stock is only available for few countries

Among the social effects of lacking energy efficiency in the building stock is the issue of energy poverty. Paired with low household incomes and high energy prices, inefficient buildings and energy appliances cause inadequate access to essential energy services like power and heating. Although the phenomenon cannot be captured in a single

statistical indicator, it is estimated that 50 million households in the EU are experiencing energy poverty. Beyond the financial aspect, energy poverty is associated with potentially severe consequences to health, well-being and social inclusion of the people affected² (Table 4).

Table 4: Primary energy poverty indicators in the EU and EU and its member states of the Baltic Sea Region.

Source: EU Energy Poverty Observatory.

Country	Primary energy poverty indicators [% of population]		
	High share of energy expenditure in income (2M ³) (2015)	Arrears on utility bills (2018)	Inability to keep home adequately warm (2018)
EU28	16.2 %	6.6 %	7.3 %
Denmark	-	5.1 %	3.0 %
Estonia	18,7 %	6.5 %	2.3 %
Finland	22.3 %	7.7 %	1.7 %
Germany	17.4 %	3.0 %	2.7 %
Latvia	12.7 %	11.6 %	7.5 %
Lithuania	13.9 %	9.2 %	27.9 %
Poland	16.3 %	6.3 %	5.1 %
Sweden	28.7 %	2.2 %	2.3 %

2.2 | Why energy efficiency in municipal buildings matters

The *Act Now!* project focuses on increasing the energy performance of the municipal building stock in the participating municipalities of the Baltic Sea Region.

A statistic breakdown of the amount municipality-owned buildings in the EU or its member states of the Baltic Sea Region is difficult due to insufficient data. It may also be largely different depending on the scale of the public sector in the respective countries. Table 5 provides only a rough indication, given that not all public offices and educational facilities are in municipal ownership. Also, municipality-owned housing is not included in Table 5.

Table 5: Share of floor area used for public offices and educational facilities in the non-residential building stock of the EU member states of the Baltic Sea region as of 2013.

Source: EU Buildings Observatory.

Country	Distribution of non-residential floor area by area of use (2013) [% of total floor space]	
	Public offices	Education
Denmark	32,1	18,4
Estonia	12,0	17,1
Finland	12,6	15,0
Germany	8,2	12,5
Latvia	12,5	29,6
Lithuania	5,4	24,0
Poland	6,9	23 ,0
Sweden	4,3	26,1

² See <https://www.energy-poverty.eu/about/what-energy-poverty>

³ The 2M indicator presents the proportion of households whose share of energy expenditure in income is more than twice the national median share. Note: where income distributions are more equal, variance in energy expenditure translates to higher 2M shares. High variance in energy/income shares can occur due to structural differences in energy expenditure between household groups, as well as in situations where energy is often, but not exclusively, included in rent.

Nonetheless, it is fair to say that municipalities play a vital role in the promotion of energy efficiency not only in the public, but also the private sector:

■ **Municipalities are building owners.**

Municipalities own and invest into a considerable amount of buildings in the residential and non-residential sectors: town halls, public libraries, schools and kindergartens, community centres, swimming pools, gymnasiums, municipal housing, technical facilities and many more. These are typically buildings with large floor areas and intense usage, which results in high demands for heat and electricity supply. The bill for the energy supply is a heavy burden to – in many cases notoriously tight – municipal budgets. Reducing the energy consumption in public buildings helps municipalities to relieve pressure off their finances, while securing the operation of public services that might need to stop due to unprofitable operation (e.g. swimming pools, libraries).

■ **Local administrations are building regulation bodies**

Depending on the national law the local administration has at least some degree of authority relating construction planning, land-use planning, and other related fields. In the best case, it holds the authority to directly regulate aspects of energy supply for new or refurbished buildings even in private ownership.

■ **Local administrations can provide information and advice to buildings owners.**

Being the local regulatory body, the municipal administration accumulates a large amount of data, information and know how related to building energy supply, e.g.:

- age and structure of the building stock
- location and condition of supply infrastructure (power lines, heating pipes, water and waste water pipes, natural gas pipelines etc.)
- air pollution data

This knowledge can be utilised to give advice to building owners willing to invest into energy matters.

■ **Municipalities can be good examples for their citizens.**

Municipal buildings like town halls, libraries, schools and community centres are frequently used arenas of public daily life. They are places that are not only exposed to the eyes of a few civil servants, but are accessible to citizens of different age and social background. This helps to make the benefits of energy efficiency measures more tangible and visible, e.g.:

- People experience the improved room comfort in refurbished buildings.
- Fuel and GHG savings can be communicated via local newspapers or other communication measures.

■ **Municipalities help fighting energy poverty.**

Municipalities can address the issue of energy poverty among its tenants by increasing the energy efficiency of municipality-owned housing blocks. With low-income households being the typical tenant group in this housing sector, lowering the energy expenses can not only relieve financial pressure, but also improve their living environment significantly. Municipalities may also reach out to private home owners to raise awareness and offer assistance in energy efficiency matters (*Act Now!* Guideline “Public Private Partnerships” on actnow-baltic.eu/learning). This way, it helps avoiding future cost risks due to e.g. old and inefficient heating systems.

2.3 | What is hindering energy efficiency in the municipal building stock?

While the demand for action for energy efficiency in the municipal building stock is clear, the actual implementation is lagging behind. However, this is not because of non-available technologies. Material, appliances and solutions, such as insulation, building automation, efficient heating and LED lighting are technically mature and widely available (although the market scale may be different from country to country).

Neither can the stalled implementation of energy efficiency in municipalities be blamed on the absence of ideas. To date, 243 municipalities from the eight EU member states of the Baltic Sea Region have submitted an action plan for sustainable energy to the Covenant of Mayors for Climate and Energy (Table 6). These are likely the ambitious tip of the iceberg. Although the total number of municipalities in the Baltic Sea states with any sort of SEAP/SECAP cannot be determined, it is fair to say that the concept of an action plan containing energy efficiency measures is commonly known and accepted throughout the Baltic Sea States.

Table 6: Number of signatories of the Covenant of Mayors for Climate and Energy with an action plan submitted as of June 2020.

Country	Signatories of Covenant of Mayors with an action plan submitted
Denmark	36
Estonia	5
Finland	12
Germany	61
Latvia	21
Lithuania	14
Poland	40
Sweden	54
Total	243

The *Act Now!* project addresses the difficulties to put the existing plans into action, providing assistance to municipalities in the EU member states of the Baltic Sea Region and the city of Kaliningrad in the Russian Federation. While an action plan can be established using external expertise, its execution requires substantial internal resources in terms of personnel, structures, expertise and finances. Being an elaborate long-term strategy including a vast number of partially interlinked measures, and requiring regular review, executing SEAPs or SECAPS can be overwhelming, especially (but not only) for smaller municipalities.

The *Act Now!* approach addresses the following main capacity lacks:

- **Poor monitoring of energy consumption data and insufficient energy management** systems result in insufficient knowledge about the status quo of energy consumption in the municipal building stock. Not knowing where to save which amount of energy prohibits the municipality to take even the first, effective step.
- Energy efficiency measures of significance require **initiating and planning investments** of significant scale, as well. Especially small local administrations and co-operating institutions (i.e. housing companies, utilities) lack knowledge and capacities to induce procurement and project management procedures of scale.
- In order to implement these investments, the municipality must **look for financing opportunities**. Given that most municipal budgets are tight or even operating in the red, know how for third-party funding is essential.
- For the local administration, courses of action are rather limited to the public sector. **Stimulating the private sector** (i.e. businesses, home owners) can unlock large energy saving potentials, but requires robust and attractive structures for communication and cooperation.
- While individual technical measures have rather a shallow impact on the local society, the municipality needs **skills to raise the public awareness** towards energy efficiency in the long-term. This way, the action plan will change the underlying structures of the local society.

2.4 | Customised capacity building – our key to success

Putting into focus the lacking capacities of municipalities for SEAP implementation, it becomes quickly evident that there is no one-size-fits-all solution. Not only are municipalities in the Baltic Sea States bound to different national legislations. Any municipality and local administration is operating in highly specific local circumstances. Each of them has different administration structures and decision-making procedures, political background, local business structure, population and many more factors to take into account. Building one kind of capacity may require different measures from case to case.

Thus, the *Act Now!* approach pursues the principle of **customised capacity building**. The following chapters will provide knowledge, guidance and assistance to

- successfully identify which of the necessary capacities are lacking in your municipality, and which ones are already in place,
- establish a customised capacity building scheme to fill the capacity gaps and
- establish your Local Energy Efficiency Work Group (LEEG), which aggregates the capacities necessary to kickstart energy efficiency in your municipality.

3 | Identify the gaps: Capacity assessment methodology

Key Takeaways

- *It is essential to provide a consistent Capacity Building Scheme (CBS) for a municipality in the EU in order to more effectively implement an existing SEAP, update a SEAP to a SECAP including new emissions-reduction targets and timeframes or improve an existing energy plan.*
- *A Capacity Building Scheme should be systematic and simple to use for the municipality in order to further tailoring more optimized actions once the gaps and needs are identified.*
- *The Act Now! approach for customised capacity building schemes includes 3 main tools: an initial questionnaire intended to evaluate and understand their current situation, a SWOT analysis and a quantitative self-assessment tool implemented in an excel platform to prioritize and identify the key actions for the capacity building scheme.*

As previously described the *Act Now!* project provides a consistent methodology identifying capacity gaps for SEAP implementation in municipalities. The aim is to have an optimal and tailored **capacity building scheme** uncovering the identified obstacles. The methodology is also applicable for municipalities that would like to update their current SEAPs to SECAPs or even to municipalities that would like to create a new SECAP without having a SEAP.

The **customised capacity building methodology** is based on 2 main stages (Figure 2):

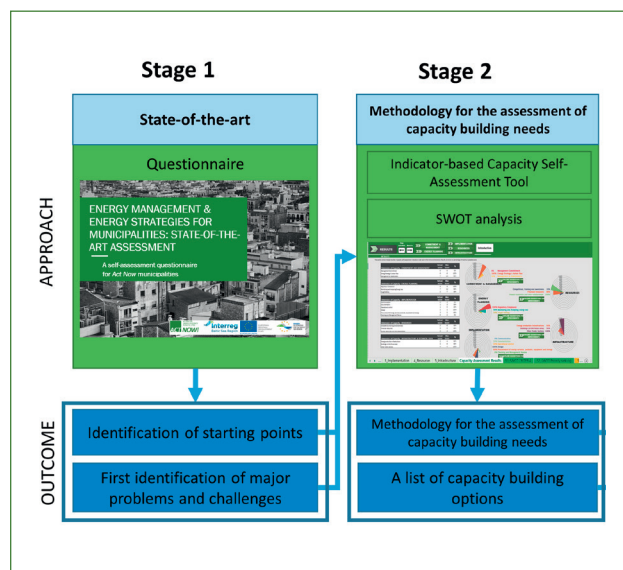


Figure 2: Act Now! customised capacity building methodology.

The starting point towards the proposed approach begins from the strategic local energy planning. Further steps are oriented towards the organization and process analysis in the administrative environment and approaches needed to rearrange work flows and energy management systems. In this context technical solutions for energy monitoring and the identification of potential investments in energy efficiency projects should be explored as well as the related implementation of knowledge capacity building schemes.

The main elements characterizing each stage are:

- **STAGE 1:** first identification of major problems and challenges in the Energy Management System (EnMS) and Energy Efficiency (EE) within the SEAP, SECAP or municipal energy plans. This task is fulfilled by the use of a specific **questionnaire** as a simple tool for the municipality to evaluate and understand their current situation, to identify areas of strength for building upon, and also to identify areas where improvement may be desirable or even necessary (See chapter 3.1 for further details, and the *Act Now!* learning platform for the actual questionnaire: actnow-baltic.eu/learning/tools);
- **STAGE 2:** identification of specific needs and gaps by implementing a **SWOT analysis** and a **Multi Criteria Approach** in quantitative self-assessment tool. These tools aim for identification of the potential key priorities for implementing a Capacity Building Scheme.

Within the assessment methodology, mostly related to the municipal building stock, some attention must be paid also to the building stocks of private-owners and housing associations, being important for the overall Energy Management System (EnMS) and Energy Efficiency (EE) strategies at municipal level (See also the *Act Now!* Guideline “Public Private Partnerships” available at actnow-baltic.eu/learning)

3.1 | Questionnaire for capacity gaps identification

The questionnaire is thought to be filled in by municipal administrative and operational staff in close cooperation with the energy department (energy working groups if existing) and finally approved by the municipal council. Once the questionnaire is completed it should be regularly reviewed. Ultimately, who is involved in actually filling in the questionnaire depends on each municipality’s individual structure and capacity.

The questionnaire covers four main areas. It provides the ground for the Capacity Building Scheme (CBS using capacity-building tools and solutions relevant to each respective

topic. It is offering a systematic approach to strengthen municipal capacity both on energy efficiency management and on the existing energy management system (EnMS). Table 7 shows the main areas, the specific contents and the major outcomes addressed in the questionnaire.

Table 7: Structure of the questionnaire.

Main part	Specific content	Major outcomes
1. Municipality profile and context	1.1. General description 1.2. Targets, policies and investments 1.3. Building energy efficiency	■ National framework ■ Energy balance & consumption patterns ■ Political commitment ■ Fund allocation ■ Supportive aspects & obstacles
2. Existing energy management models and future visions in the selected building segment	2.1. Existing energy management models 2.2. Future visions and expectations	■ Building stock ■ Energy management in buildings ■ Major problems & future challenges ■ Next steps
3. Stakeholders and major target groups	3.1. Identification of stakeholders 3.2. Identification of major target groups	■ Relevant stakeholders ■ Stakeholder & citizen involvement ■ Target groups (TG) identification ■ TG challenges & first ideas for solutions
4. Municipality competences and resources		■ Human resource & organizational structures ■ Existing knowledge & awareness ■ Existing capacity building measures ■ Funding guidance for public sector

The questionnaire provides the basis for a tailored capacity assessment by defining a specific profile for the municipality in terms of framework conditions and building stock identification. Please obtain the questionnaire as well as examples filled by the municipalities participating in the *Act Now!* project from the project website (questionnaire download from actnow-baltic.eu/learning/tools and municipality answers from actnow-baltic.eu/learning/municipalities).

3.2 | Application of SWOT analysis to assess the main steps of a capacity building scheme

In order to reach significant capacity improvements in municipalities within the context of EnMs and EE, the gap between each municipality's current energy efficiency capacity and the desired capacity or aimed performance has to be analysed, based on two pillars:

1. the review of the organisation's strategic plans and the needs and context assessment;
2. an evaluation of performance gaps.

The **Strengths, Weaknesses, Opportunities and Threats (SWOT)** analysis is a commonly used approach to assess the current and desired performance gaps. After the implementation of a performance and needs assessment, improvement measures must be selected, which in this case are defined as various capacity building strategies [1].

SWOT analysis is a valuable and structured tool for simple, useful and qualitative analysis of various management procedures, projects and plans [2]. It is a "situation" analysis which allows evaluating the gap between the current and a desired performance or level [1] [3]. As a structured approach the SWOT analysis improves the comparability and transferability of the results and allows to define more specific and measurable objectives [1].

The input data for SWOT analysis include the output from strategic plans, from needs assessment and the state of various collected performance measures. The output will provide significant insight for a successful strategy formulation [4].

SWOT analysis is carried out through a less formal „brainstorming” process by individuals, teams, or organizations. A brainstorming session provides both a powerful learning experience to the stakeholders as well as increases their awareness of the potential issues for capacity building [3].

The SWOT analysis described in the following section can be implemented using the SWOT functionality in the Act Now! Capacity Self-Assessment Tool available from:

actnow-baltic.eu/learning/tools.

For application examples by the municipalities in the Act Now! project, see:

actnow-baltic.eu/learning/municipalities

3.2.1 | SWOT analysis application process

The main steps for the SWOT analysis application [1] [3] [5] are summarized according to figure 3.

In **Step 1 and Step 2** both situation-related and operational parameters are identified that are substantial for defining an objective for a performance improvement initiative [1] [4].

In **Step 2** factors that are enhancing the desired performance are called Strengths, those inhibiting it are identified as Weaknesses. Strengths and Weaknesses are internal indicators. Strengths characterize a system's own

resources and capabilities, e.g. employee knowledge, new technologies, particularly for a municipality they include the areas in which the municipality is more effective and efficient than others or in respect to the level requested by standards. Subsequently a system's Weaknesses include its lack of capabilities and features. Determination of the Weaknesses for each of the municipalities will lead to resolution of potential future problems regarding their long-term strategies and plan [1] [6].

The analysis also considers external conditions that have impact on the desired performance (external analysis). Other sources also characterize the internal factors as controllable and external ones – as non-controllable factors. External enhancing factors are classified as Opportunities, while hindering factors are defined as Threats. Opportunities include external possibilities that a municipality might pursue or exploit for benefit, while Threats could potentially reduce the municipality's performance. For a municipality Threats could be e.g. change in legislation, requirements, lack of energy efficiency specialists in the region [1] [6] [7].

The assessed internal and external factors are summarized in a SWOT matrix in the Step 3 (Table 8).

The categorization of various SWOT factors can be led by following questions [based on [1]]:

- Does this item represent an asset or liability to the municipality?
- Is this item within municipality's control?

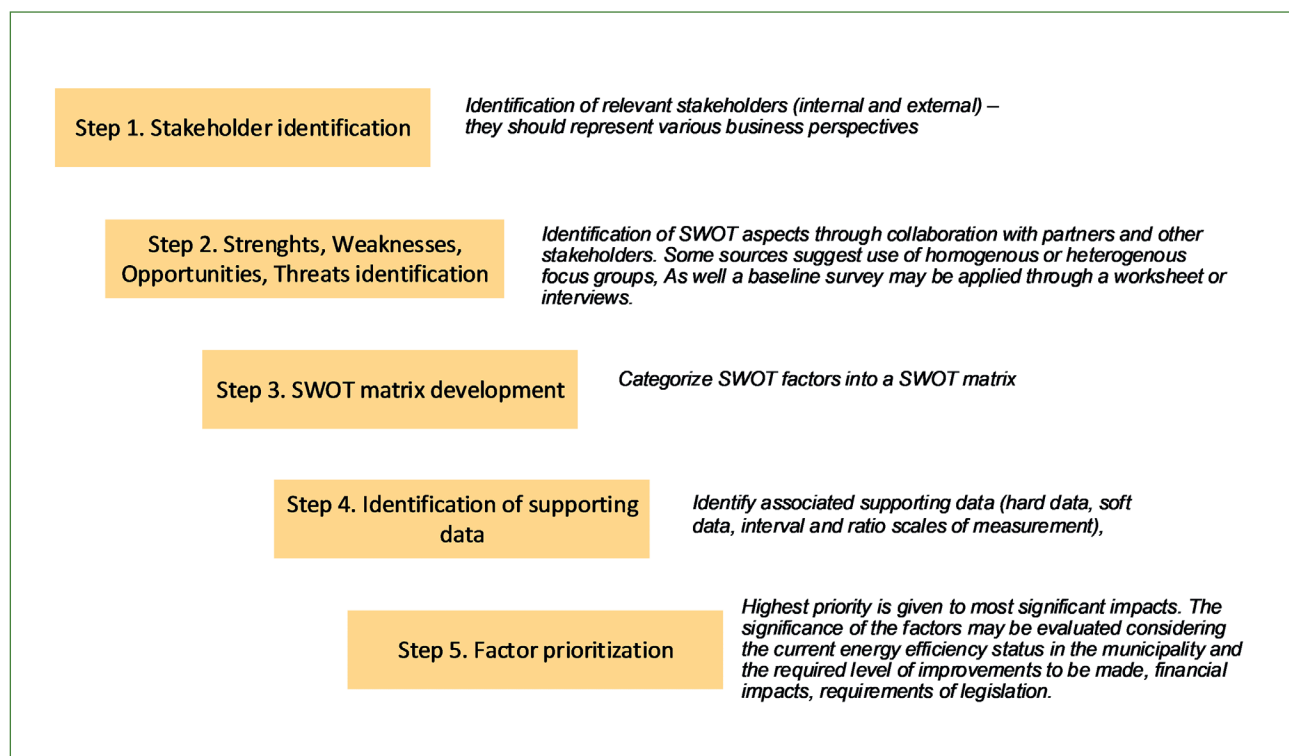


Figure 3: SWOT steps.

To ease the identification of SWOT factors for Step 4 a number of leading questions may be applied as summarized in Table 8 [based on [7]].

Table 8: Generic SWOT analysis matrix Key questions for SWOT categories.

	Strengths	Weaknesses
	<ul style="list-style-type: none"> ■ What capacities are currently strong? ■ What are the factors supporting the energy efficiency? ■ Which are the municipality's advantages over the competition? ■ 	<ul style="list-style-type: none"> ■ What could be improved? ■ What should be avoided? ■ What obstacles hinder energy capacity improvement? ■ What elements need strengthening? ■ ...
	Opportunities	Threats
	<ul style="list-style-type: none"> ■ What benefits may occur? ■ What changes in usual practice and available energy efficiency technology may occur? ■ What policy changes may occur? ■ What changes in standardization may occur? ■ What changes in socio-economic behaviour may occur? ■ ... 	<ul style="list-style-type: none"> ■ Do the relevant stakeholders show their willingness and interest to support the technology energy efficiency? ■ What external obstacles can hinder the capacity improvement measures? ■ Are any potential changes threatening the energy efficiency measure implementation and capacity building? ■ ...

3.2.2 | The SWOT-AHP hybrid method

Step 5 is the latest stage of the SWOT analysis requiring to prioritize the identified factors by a weighting process like the Analytic Hierarchy Process (AHP)

Although the SWOT analysis is a very useful tool, researchers have noted its lack mostly on identifying the SWOT factor groups and not defining groups with most impact on successful strategy implementation, as well as lack of analytical determination of factor importance [4]. Therefore, a hybrid SWOT-AHP (Analytic Hierarchy Process) method was introduced [4], it complements SWOT with additional quantitative information and prioritizes the factors.

Analytic Hierarchy Process (AHP) is a multi-criteria decision-making method intended for complex problem solving [6]. AHP provides a measurement of the relative importance of the identified factors accordingly to stakeholder's point of view [8].

The hybrid SWOT-AHP methodology applies to the municipality's energy efficiency capacity research as follows:

- The questionnaire is used as a base to determine the current situation and draft the potential SWOT analysis matrix. Thereafter the evaluation of the SWOT factors must be performed by the members of an expert focus group (representatives of the municipality).
- Following the identification of the main SWOT factors, the expert focus group members will use their insight to perform the pair-wise comparisons guided and structured through a common evaluation template.
- The data analysis is performed in the provided Excel tool and specific priority indexes are calculated (see example below) for evaluating results.

Thus, in order to provide a more in-depth analytic approach to the municipality's SWOT analysis, the presented methodology includes the implementation of a SWOT-AHP analysis with three main steps [5] [8] (Figure 4):

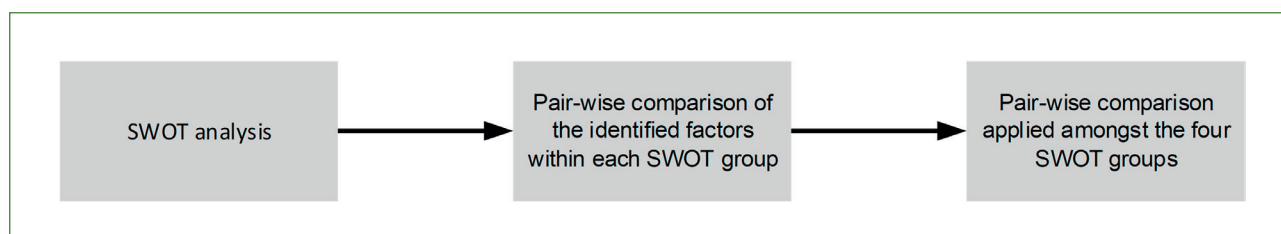


Figure 4: SWOT-AHP analysis.

- Stage 1. Implementation of SWOT analysis including identification of key factors that influence the decision (typically performed by participants or stakeholders). It is recommended that this identification should focus on up to ten most significant factors within each group.
- Stage 2. Implementation of a pair-wise comparison of the identified factors within each SWOT group. The comparison process is led by two main questions – which factor is more important and by how much. A Likert scale (1-9) is applied for the separate pair-wise comparison of all factors (Figure 1). Using the provided Excel tool, a priority value (sub-factors relative local importance) is computed for each factor using the Eigenvalue method and the highest-ranking factors are further analysed.
- Stage 3. The pair-wise comparison method is applied amongst the four SWOT groups. The four most important factors that were selected for representation of the individual groups (Step 2) are mutually compared. A scaling factor is computed for each group of factors, and together with their local priority values, they are used to calculate the overall priority.

improvements. The proposed capacity self-assessment methodology consists of five strategic phases of capacity development [9]:

- Assessment of the present capacity
→ *Where we are now?*
- Definition of the desired state/ future vision
→ *What do we want to achieve?*
- Comparison of the present situation and future desired state, identification of capacity gaps, planning strategies and actions to fill these gaps and achieve desired goals
→ *How do we get there?*
- Implementation of capacity building measures
→ *What actions do we take?*
- Monitoring and evaluation to feedback experiences into the planning phase
→ *How do we stay there?*

The Act Now! Capacity Self-Assessment Tool is available from:

actnow-baltic.eu/learning/tools.

3.3 | Capacity self-assessment tool

Figure 2 shows the framework for the Excel-based quantitative self-assessment tool which has been developed within the project *Act Now!* project. It is an easy and systematic tool for municipalities to prioritize actions and

Based on the five steps described above, a schematic representation of the methodology for capacity self-assessment is given in Figure 5.

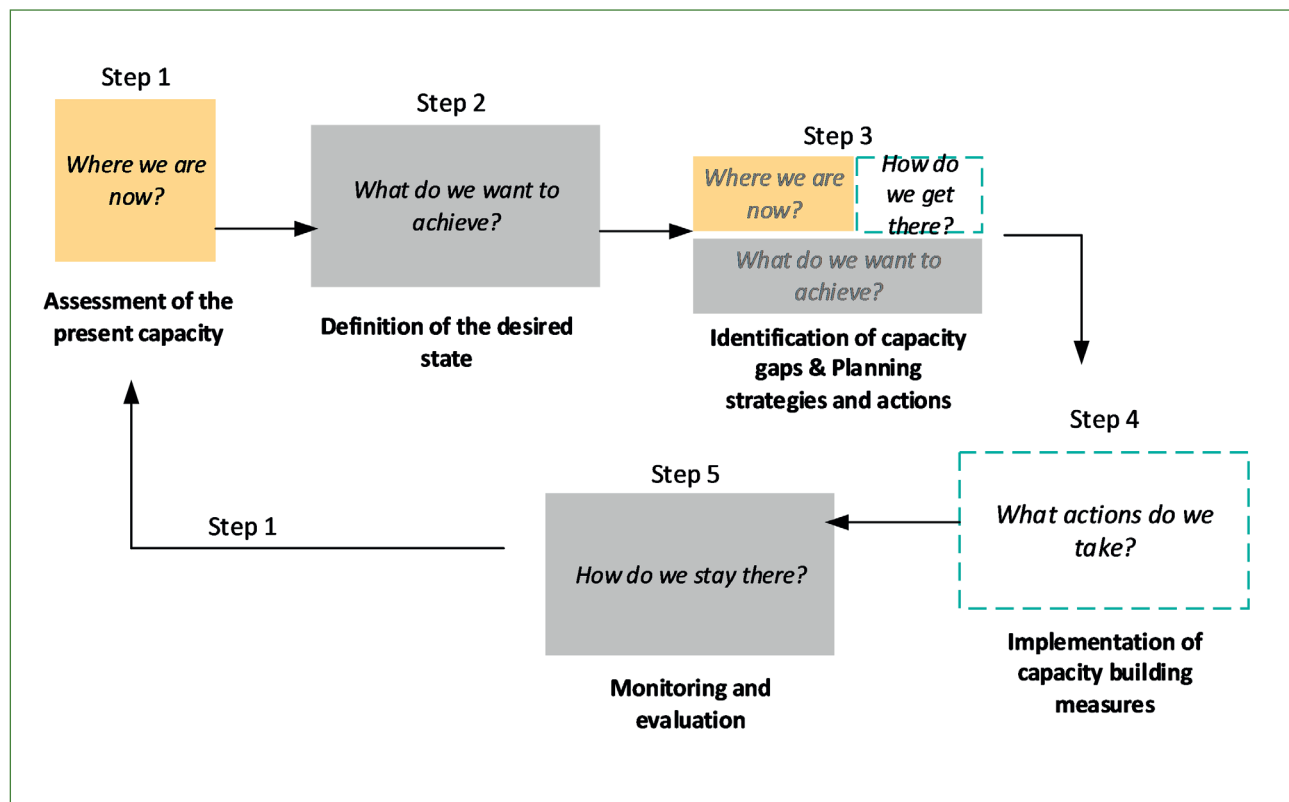


Figure 5: Five steps of capacity building process through the use of the quantitative self-assessment tool.

Results of the self-assessment are summarized in a table describing the existing and the possible capacity under each evaluation criteria and merging the estimated capacity gap with possible capacity building schemes (Table 9, adapted from [10])

Table 9: Capacity assessment matrix for a municipality implemented in the quantitative self-assessment tool.

No.	Capacity evaluation field	Existing capacity	Possible future capacity / Max score	Estimated capacity gap	Possible suggested strategies
1	Example 1	Score: 2 Compliance with evaluation criteria (EC): <ul style="list-style-type: none">• EC 1• EC 2	Score: 6	Score =4 Non-compliance with evaluation criteria (EC): <ul style="list-style-type: none">• EC 3• EC 4• EC 5• EC 6	<ul style="list-style-type: none">• Strategy 1• Strategy 2• Strategy 3
2					
3					
TOTAL score:					

The Excel-based tool “Energy management capacity self-assessment tool” is developed considering requirements for developing effective systems and processes in organizations to improve its energy performance according to the ISO 50001 energy management standard. The tool recognises

the role of home-owners and housing association (Figure 6); particularly the “Customer Journey” approach by the REFURB project [11] was taken into consideration. (See also the Act Now! Guideline “Public Private Partnerships”, available at actnow-baltic.eu/learning)

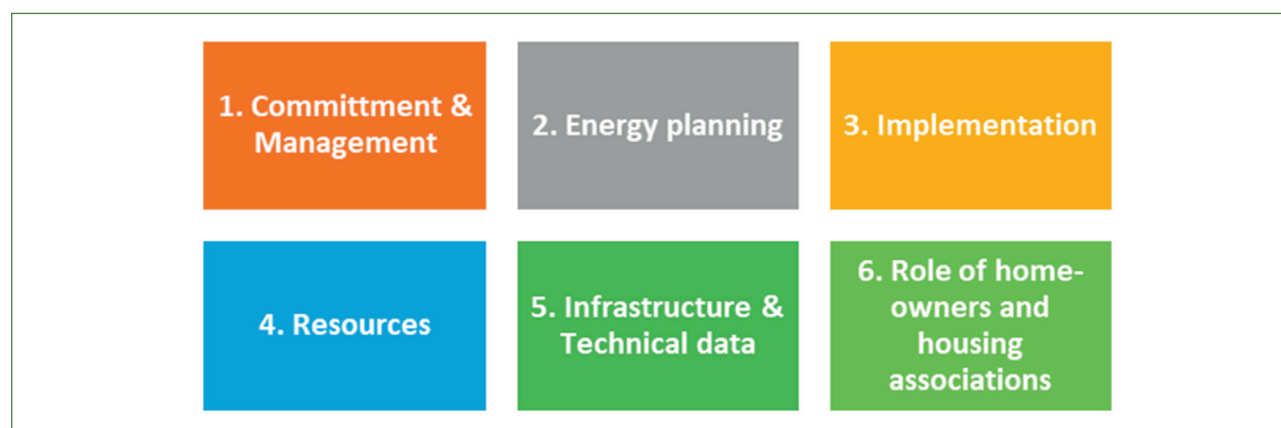


Figure 6: Six macro-dimensions for capacity evaluation implemented in the self-assessment tool.

3.3.1 | Capacity evaluation criteria

The capacity evaluation criteria are grouped under six macro-dimensions as shown in Figure 6.

Each macro-dimension contains a number of criteria to evaluate the existing capacity (Table 10).

Table 10: Selected criteria for existing capacity evaluation.

Macro-dimension	Micro-dimension	Evaluation criteria
1 Commitment and Management	1.1 Management Commitment	<ul style="list-style-type: none"> • A written energy policy for the identified building focus areas in the Municipality • Energy Policy approved by the top management (e.g. Mayor, city council, PPP) and communicated to all municipality employees • Energy policy communicated to external stakeholders (e.g. business-sector) and to public • Energy Policy includes regular revision and update (if applicable)
	1.2 Energy Strategy & Action Plan	<ul style="list-style-type: none"> • Existing written Strategy document • Contains a commitment with quantitative improvement targets and timeline and an Action Plan for implementation • Strategy and Action Plan approved by the top management and shared with private sector partners • Recently written, updated or reviewed / revised • Valid for at least 3 coming years/ revised
	1.3 Management & Stakeholders	<ul style="list-style-type: none"> • Energy management system in place and certified • Local working group (supported/agreed by the management) • Appointed management representative/organization responsible for energy • Regular working group meetings and exchange between working group and top management • Directly involved (municipality) employees identified and instructed • Directly involved relevant stakeholders identified and instructed • Indirectly involved relevant stakeholders identified and instructed
2 Energy planning	2.1 Regulatory Compliance	<ul style="list-style-type: none"> • Review completed to determine legal (and other) requirements applicable to the municipality (i.e. policy, strategy and action plan) • Relevant regulation communicated to responsible employees • Regular review/revision of regulations • The municipality is compliant with regulations or there is a clear plan for compliance
	2.2 Monitoring and Analysing Energy Use	<ul style="list-style-type: none"> • Past and present energy use and consumption evaluated with appropriate energy performance indicators • Energy consumption monitored on a regular basis and analyzed against major energy performance indicators • Regular review/revision of energy use and consumption • Energy performance communicated to top management on a regular basis • Documented energy consumption baseline in place with regular revision • Energy consumption monitored against the baseline • Areas of significant energy use identified based on energy analysis • Possibilities to improve energy consumption identified and prioritized • CO₂ emissions calculated • Future energy use and CO₂ emissions estimated

Macro-dimension	Micro-dimension	Evaluation criteria
	2.3 Target Setting	<ul style="list-style-type: none"> • Documented energy saving targets • Targets based on energy performance analysis consistent with Energy Policy/ Strategy • Financial, operational and business conditions, technological options and views of interested stakeholders considered • Targets are reviewed and revised (if applicable) on a regular basis • Documented Action Plan consistent with targets • The Action Plan includes regular revision and updates
3 Implementation	3.1 Communication	<ul style="list-style-type: none"> • Energy Policy, targets and energy performance regularly communicated internally to all employees • A process is established by which any employee can make comments and/ or suggest improvements • Energy Policy, targets and energy performance are regularly communicated externally
	3.2 Documentation	<ul style="list-style-type: none"> • Core elements of the energy management system are documented in paper, electronic or other medium • Procedure for control of documents is established, implemented and maintained • Energy management system documentation is maintained
	3.3 Operational Control	<ul style="list-style-type: none"> • Operations and maintenance activities related to significant energy uses identified • Criteria for effective operation and maintenance of significant energy uses established and set • Facilities, processes, systems and equipment operated and maintained in accordance with operational criteria • Operational controls communicated personnel and eventually shared with local stakeholder • Nonconformities or potential nonconformities registered, evaluated and corrective/preventive actions taken
	3.4 Design	<ul style="list-style-type: none"> • Energy performance improvement opportunities considered in the design of new, modified and renovated facilities, equipment, systems and processes that have significant impact on municipality's energy performance • Results of the energy performance evaluation incorporated (where appropriate) into the specification, design and procurement activities of relevant projects
	3.5 Procurement of energy services, products, equipment and energy	<ul style="list-style-type: none"> • Energy consumers that have, or can have, an impact on significant energy use identified and documented • Criteria for assessing energy use, consumption and efficiency over the planned or expected operating lifetime established • Procurement of energy services partly evaluated on the basis of energy performance • Procurement of products and equipment and partly evaluated on the basis of energy performance • Procurement of fuel and energy partly evaluated on the basis of energy performance

Macro-dimension	Micro-dimension	Evaluation criteria
	3.6 Checking and Management Review	<ul style="list-style-type: none"> Internal audits conducted at planned intervals Energy management system is reviewed by the top management and city council at planned intervals
4 Resources	4.1 Competence, training and awareness	<ul style="list-style-type: none"> Local working group members/ key personnel have appropriate education and competences to implement energy management and the improvement action plan activities Clear job descriptions for key personnel including the management team Employees at all levels are aware of the energy management system Training needs are identified associated with the control of energy use and the operation of energy management system Municipality provides trainings or take other actions to improve competence of its employees related to energy use also in connection with relevant stakeholders Wider awareness raising initiatives held regularly (e.g. for local community)
	4.2 Financial resources and Energy Financial Commitment	<ul style="list-style-type: none"> The Energy Strategy and Action Plan are taken into account when planning yearly (municipality) budgets Certain amount of yearly budget is dedicated to climate and energy related projects Certain amount of annual budget is dedicated to energy saving measures in buildings Municipality searches for funding of energy efficiency measures through project proposal applications Successful experience with third party financing
	4.3 Human resources and inter-relationships	<ul style="list-style-type: none"> Personnel assigned for climate/ energy projects Energy managers position in place Cross-department communication established Access to information ensured
5 Infrastructure and technical data	5.1 Energy production infrastructure	<ul style="list-style-type: none"> Technical data about heat and electricity supply is available Biomass fuel quality is being measured Bioenergy potential at municipal level is assessed and/or reported on a GIS-system platform
	5.2 Buildings (in the focus area)	<ul style="list-style-type: none"> Installed electric energy meters in each building Smart meters with remote data collection installed in each building Existing electric energy metering system at system's level and at appliance level Individual heat energy meters in each building Complete monitoring and measurement systems connected to cloud/ software for real-time data visualization Remote control of energy systems (electricity and/ or heat) Valid building energy performance certificates in place
	5.3 Other Public Sectors	<ul style="list-style-type: none"> Energy audit/ inventory done for public lighting within the past 3 years Technical data available for public lighting Technical and energy consumption data available for municipal vehicle fleet Technical and energy consumption data available for public transportation

Macro-dimension	Micro-dimension	Evaluation criteria
6 Role of home-owners and housing associations	6.1 Municipality and home-owner segment synergy	<ul style="list-style-type: none"> Are goals and baseline established for the home-owner segment? Is a value proposition developed for the selected segments? Is a „Customer journey“ process (or similar approaches) in place within the municipality (including communication, implementation, follow-up)? Is there an independent single-point-of contact person to support home-owners' decisions? Has a home-owner segment working group been established? Is the implementation progressing and results monitored and reported? Have the stakeholders along the „customer journey“ been trained to understand roles & responsibilities?
	6.2 „Customer Journey“ in-depth analysis	<ul style="list-style-type: none"> Have sufficient communication-means to support the decision-making process been implemented? Are the implemented activities enough to secure a high process quality across stakeholders? Are the implemented means enough to secure and motivate further energy retrofit iterations with same home-owners? Is a „Business Model Generation“ tool being used to secure a fully functioning value proposition? Is the implementation progressing and results monitored?

The evaluation of the existing capacity (based on the set of criteria under the first five macro-dimensions as above) is then performed using an Excel-based tool as presented in Figure 7.

You can download the *Act Now!* Capacity Self-Assessment Tool from actnow-baltic.eu/learning.

1 COMMITMENT & MANAGEMENT **2 ENERGY PLANNING** **3 IMPLEMENTATION** **4 RESOURCES** **5 INFRASTRUCTURE** **6 HOME-OWNER SEGMENT** **RESULTS**

Dimension of Capacity - COMMITMENT AND MANAGEMENT

This section identifies whether there is a political commitment to support energy management in the Municipality, a written strategy and action plan and existing organizational management structure setting ground for energy management implementation.

Management Commitment					
Evaluation Criteria	Result	Description	Actual Score	Max Score	Your Comment
A written energy policy for the identified building focus areas in the Municipality	<input checked="" type="checkbox"/>	Energy Policy is a statement by the municipality of its overall intention	1	1	
Energy Policy approved by the top management (e.g. Mayor, city council, PPP)	<input checked="" type="checkbox"/>	Top management has demonstrated its commitment to support energy	1	1	
Energy Policy communicated to all municipality employees	<input checked="" type="checkbox"/>	Energy Policy is communicated at all levels within the municipality.	1	1	
Energy policy communicated to external stakeholders (e.g. business-sector)	<input type="checkbox"/>	Energy policy is communicated all over the Municipal territory.	0	1	
Energy Policy communicated to public	<input type="checkbox"/>	E.g. via municipality's web-site.	0	1	
Energy Policy includes regular revision and update (if applicable)	<input type="checkbox"/>	Energy Policy is regularly revised, and updated as necessary.	0	1	
			3	6	50%

Energy Strategy & Action Plan					
Evaluation Criteria	Result	Description	Actual Score	Max Score	Your Comment
Existing written Strategy document	<input type="checkbox"/>	Related to energy and/or climate. E.g. the Sustainable Energy Action I	0	1	
Contains a commitment with quantitative improvement targets and timeline	<input type="checkbox"/>		0	1	
Contains an Action Plan for implementation	<input type="checkbox"/>		0	1	
Strategy and Action Plan approved by the top management	<input type="checkbox"/>		0	1	
Strategy and Action Plan shared with private sector partners	<input type="checkbox"/>		1	1	
Recently written, updated or reviewed / revised	<input type="checkbox"/>	Within 3 years.	1	1	
Valid for at least 3 coming years	<input type="checkbox"/>		0	1	
			2	7	29%

Figure 7: Example of the excel-based tool for self-assessment of energy management capacity.

In the Excel tool under each of the five macro-dimensions a set of criteria for capacity assessment is given. The criteria are grouped under several micro-dimensions. The municipality assesses its capacity based on the given criteria. If the municipality fulfils the criteria, tick the box ☒, if not, leave the box empty ☐. For each positive answer, the municipality receives one point. The total actual score is the sum of positive answers. The total maximum score is the sum of evaluation criteria under the respective capacity field as described in Table 11.

Table 11: Example of answers of the Excel-based tool for self-assessment of energy management capacity.

Macro-dimension	Evaluation criteria	Result	Score	Max Score
1. Commitment & Management	2.1.1 A written energy policy	<input checked="" type="checkbox"/> = 1 point	Score = SUM of <input checked="" type="checkbox"/> answers = 1 point	Max score = SUM of evaluation criteria = 5 points
	2.1.2 Energy policy agreed by the topmanagement	<input type="checkbox"/> = 0 point		
	2.1.3 Energy policy communicated to public	<input type="checkbox"/> = 0 point		
	2.1.4		
	2.1.5		

3.3.2 | Results and interpretation from the Excel-based self-assessment tool

Results are presented from each micro-dimension as shown in Figure 8 using a radar chart.

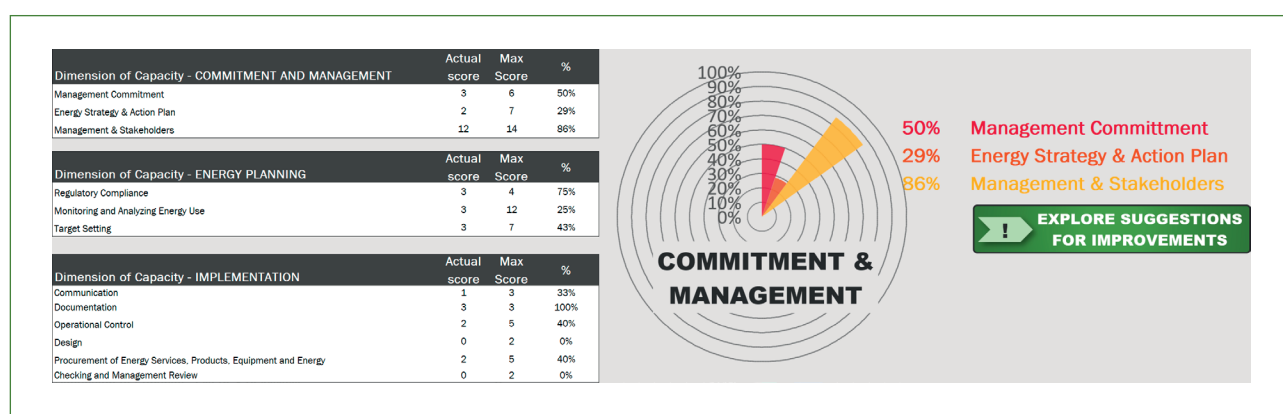


Figure 8: Example of visual representation of the output from the self-assessment macro-dimension "Commitment & Management".

The user can explore capacity building suggestions based on answers delivered for each evaluation criteria. The tool automatically links "No" answers (the box is empty ☐) with suggestions for improvements.

Management Commitment	
Evaluation criteria	Result
A written energy policy	<input type="checkbox"/>

In the “Results” section by clicking “Explore suggestions for improvements” the user will be brought to the section “Recommended capacity building” (Figure 9).

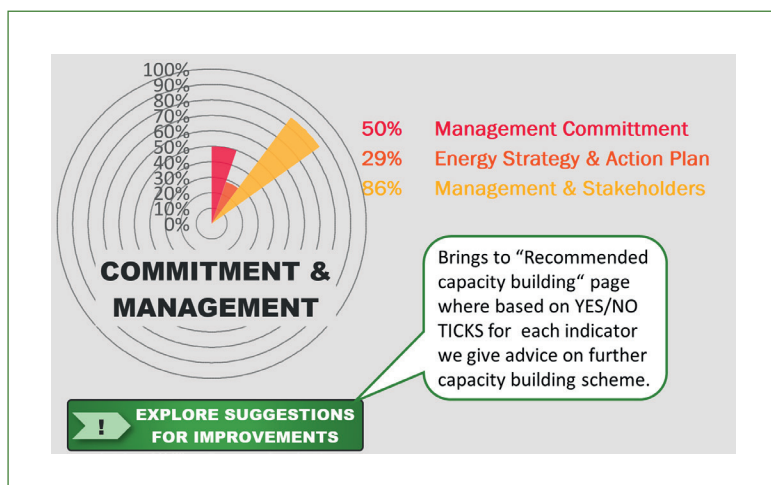


Figure 9: Final results visualization.

The final results presented can be considered as “normalized” results on a scale 0-1 (or 0-100%) supposing at this stage equal weight of each criteria (e.g. Management Commitment, Energy Strategy and Action plan, Management and Stakeholders, etc.).

The tool allows two types of final scoring: one includes the home-owners and housing associations (right side of Figure 10), the other does not include it. Subsequently municipalities with a focus on home-owners and housing associations can establish the potential gaps and thus properly address their capacity building schemes accordingly.

The implemented Excel tool is also reporting automatically potential Capacity Building Schemes for the identified gaps from the self-assessment tool. For an in-depth understanding of the tool please look at the learning platform actnow-baltic.eu/learning/tools.

These tables show the final score on a 0 - 10 scale		These tables show the final score on a 0 - 10 scale	
Dimension of Capacity - COMMITMENT AND MANAGEMENT 0,0		Dimension of Capacity - COMMITMENT AND MANAGEMENT 0,0	
Management Commitment	0,0	Management Commitment	0,0
Energy Strategy & Action Plan	0,0	Energy Strategy & Action Plan	0,0
Management & Stakeholders	0,0	Management & Stakeholders	0,0
Dimension of Capacity - ENERGY PLANNING 0,0		Dimension of Capacity - ENERGY PLANNING 0,0	
Regulatory Compliance	0,0	Regulatory Compliance	0,0
Monitoring and Analyzing Energy Use	0,0	Monitoring and Analyzing Energy Use	0,0
Target Setting	0,0	Target Setting	0,0
Dimension of Capacity - IMPLEMENTATION 0,0		Dimension of Capacity - IMPLEMENTATION 0,0	
Communication	0,0	Communication	0,0
Documentation	0,0	Documentation	0,0
Operational Control	0,0	Operational Control	0,0
Design	0,0	Design	0,0
Procurement of Energy Services, Products, Equipment and Energy	0,0	Procurement of Energy Services, Products, Equipment and Energy	0,0
Checking and Management Review	0,0	Checking and Management Review	0,0
Dimension of Capacity - RESOURCES 0,0		Dimension of Capacity - RESOURCES 0,0	
Competence, Training and Awareness	0,0	Competence, Training and Awareness	0,0
Financial Resources and Energy Financial Commitment	0,0	Financial Resources and Energy Financial Commitment	0,0
Human Resources and Inter-Relationships	0,0	Human Resources and Inter-Relationships	0,0
Dimension of Capacity - INFRASTRUCTURE & TECHNICAL DATA 0,0		Dimension of Capacity - INFRASTRUCTURE & TECHNICAL DATA 0,0	
Energy Production Infrastructure	0,0	Energy Production Infrastructure	0,0
Buildings (in the focus area)	0,0	Buildings (in the focus area)	0,0
Other Public Sectors and Municipal interventions	0,0	Other Public Sectors and Municipal interventions	0,0
		Dimension of Capacity - HOME-OWNER SEGMENT 0,0	
		Municipality and home-owner segment synergy	0,0
		"Customer Journey" in-depth analysis	0,0
Capacity Self-Assessment Tool for Local Authorities (Municipality)		Capacity Self-Assessment Tool for Local Authorities (Municipality)	
FINAL SCORE	0,0	FINAL SCORE	0,0

Figure 10: Final scores results visualization.

3.3.3 | Strategies for capacity improvement

Overall, there are many types of common capacity building activities described in the literature. Of these, peer-to-peer working methods are widely used for capacity building among municipalities. The EU projects *CASCADE* [12], *Conurbant* [13], *COVENANT CAPACITY* [14], *eReNet* [15], *LEAP* [16], *50000&1 SEAPS* [17] confirm that methods encouraging the learning from each other is an effective strategy to share and compare experiences, successes, lessons learned and extend knowledge exchange among participating parties. Considering experiences from previous EU-funded projects, we focus on three methods enabling learning from each other described in [18].

Peer-to-peer working

Peer-to-peer working is a knowledge sharing approach based on the formation of supportive working groups. Within these working groups participants provide mutual review and back-up of the work or methods being assessed. Peer-to-peer working can be considered as collaboration between two or more participants.

Mentoring

Mentoring is a partnership between two participants, the “mentor” and the “mentee”. During the process, the mentee has the opportunity to collaborate with a more experienced partner to improve capacity and enhance knowledge. The mentor has greater expertise than the mentee in regards to the topic that the mentoring is covering.

Work shadowing

Work shadowing (observing) involves a direct relationship between a “learning” participant and “experienced” participant with the learner spending a period directly observing or engaging with the expert’s specific work tasks – these could be thematic tasks, partnership tasks or more technical tasks related to implementation.

Others

There are other strategies to be considered when developing capacity building schemes in your municipalities, for example:

- Training courses (one-off intensive training courses, modular training courses)
- Technical expertise / advice
- Facilitated workshops or exercise

Finding the best fit for your capacity building is the task for all involved stakeholders of your municipality

4 | Closing the gaps: Capacity Building Schemes

Key Takeaways

- *Different Capacity Building Schemes from the implementation of the Act Now! approach have been developed providing a validation of the proposed method*
- *The proposed Capacity Building Schemes provide a wide spectrum of the application of the prioritizing process within the identified gaps and needs*

4.1 | How a Capacity Building Scheme should be implemented

The implementation of the methodology described in Chapter 3 aims at tailored solutions for uncovering the capacities gap of municipalities for a SEAP/SECAP implementation or developing a new SECAP. This action is anything but trivial and should systematically involve:

- a consistent assessment of the initial capacity of the municipality;
- a prioritization of the energy efficiency (EE) measures in the municipal building stock considering decrease of energy consumption and other key factors
- a proper financial strategy implementing tailored financial mechanisms;
- a proper engagement of the private sector with private public partnerships (PPP) lead by the Municipality to effectively improve energy efficiency in the existing building stock in a holistic approach and in close collaboration across sectors.

For a detailed description of these aspects see the four *Act Now!* Guidelines available at actnow-baltic.eu/learning

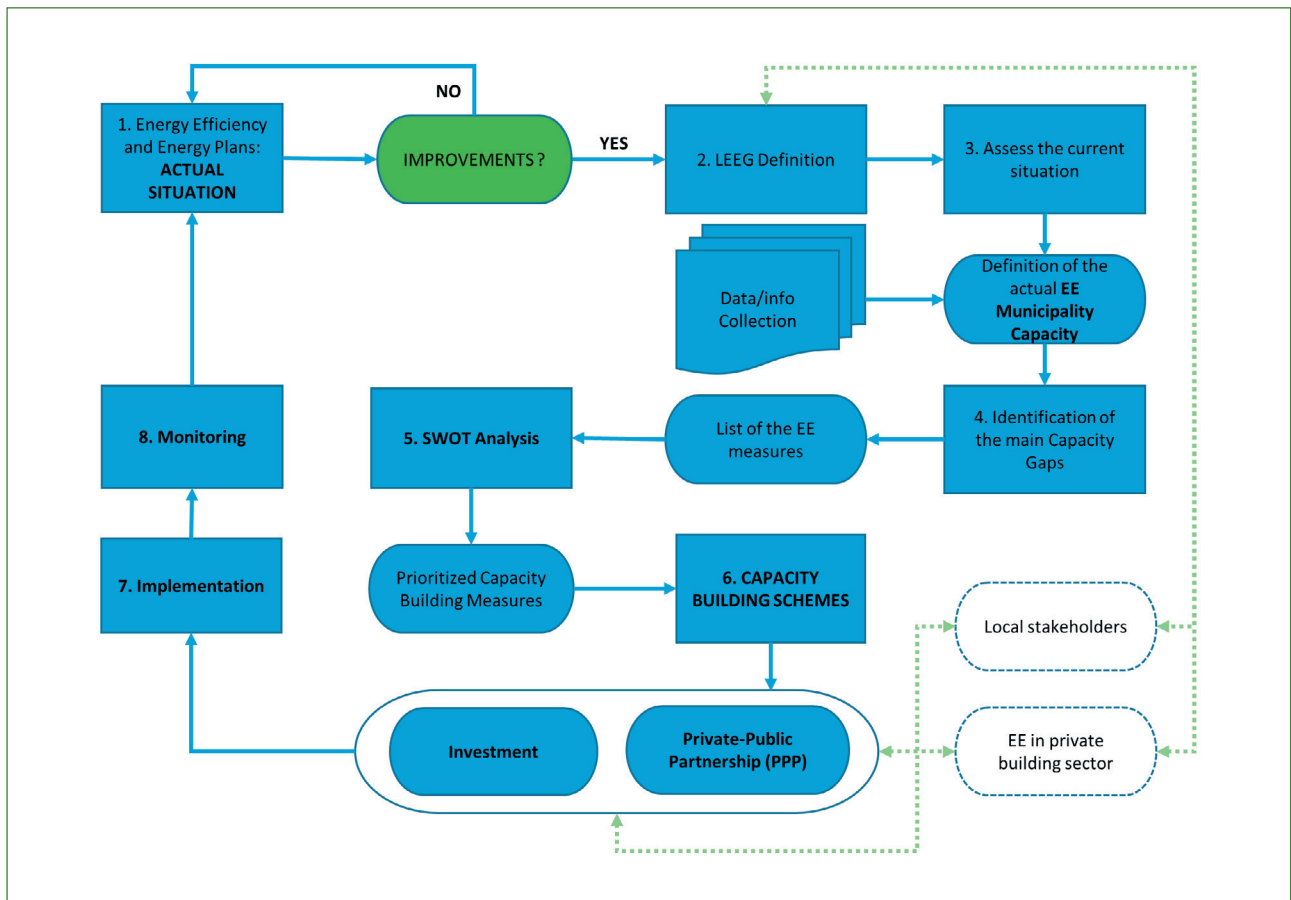


Figure 11: Act Now! practical approach to implement Energy Efficiency measures for a municipality.

This practical approach is depicted in Figure 11 showing the central role of a customized capacity building scheme towards the implementation of EE measures for the municipal building stock.

The *Act Now!* approach highlights the importance of a synergetic approach among the municipal management staff and a Local Energy Efficiency Group (LEEG).

4.2 | Capacity Building Schemes from *Act Now!* project municipalities

Within the following sections the results of the application of the *Act Now!* methodology to the development of tailored Capacity Building Schemes (CBS) are presented. The summary of the reported results is mainly focused in the identified capacity gaps and the consequential main topics addressed into each CBS. For a closer overview for each Municipality.

The detailed CBS documents and the specific implemented training steps developed by each municipality involved in the project are available on actnow-baltic.eu/learning/municipalities.

4.2.1 | Magistrate of the City of Bremerhaven (Germany)

Identified Capacity Gaps

According to the state-of-the-art assessment of the energy management and energy strategies as part of the *Act Now!* project the following main problems were identified:

The lack of a genuine municipal energy policy of the municipal political parties as a compass for the administration. In 2019 neither the party programs of the governing parties nor the coalition agreement of the ruling coalition contained a binding, trend-setting declaration on climate policy. This led to the fact that city has several SEAPs of the administration which reflect the work programs on energy policy, but at the same time individual measures must be discussed repeatedly and brought painful to an implementation decision. While the SEAPs are adopted politically, they mostly contain only binding measures which have an effect within the administration itself. The energy and climate policy important non-public sectors with the greatest savings potential, such as private households, services and trade, are not reached by the administration in this way.

- **Law restrictions for the local government prevents it to intervene effectively in the energy consumption of private households or enterprises.** There is no binding regulation for the private sector (in the building sector) that enforces working towards the political climate goals. The collection of energy consumption data in the private sector is difficult due to high data protection hurdles in Germany. Especially older private buildings are subject to high pressure from unfair speculation with real estate and are therefore withdrawn from energy refurbishment due to greed for profit and lack of interest on the part of the owner. At the same time, the owner's property is legally protected.
- **Severe budget restrictions.** Budgetary restrictions restrict the financial scope of the municipality down to zero in incentive programs. Any purchase and investment are subject to strict financial reservation and is practically impossible unless the mandatory municipal provision of basic services is concerned. An ailing rental housing market and poor building fabric in old buildings have set off a downward spiral from which impoverished homeowners hardly find their way. As a result, the renovation rate suffers.
- **Energy efficiency and climate protection are not categorised as mandatory municipal provision of basic services** Against this background, it is fatal that the municipality has to struggle with a debt burden of 1.6 billion and an interest burden of 50 million Euro per year, as there are always budget expenses stops in which only compulsory tasks of the municipality can be financed.
- **Knowledge of financing methods and technical solutions** seems to be underdeveloped in the most sectors like public authority, house owners, enterprises.

Capacity Building Scheme

- The Bremerhaven LEEG was formed to review the energy policy working program, since 2015 the valid municipal energy program. The Bremerhaven LEEG evaluates the implementation status of the energy policy working program and defined a strategic core statement of the Climate Protection and Energy Program KEP2020 (a SECAP on the level of the federal state Bremen).
- The Bremerhaven LEEG updates entries in the management tool for the European Energy Award. This management tool records the individual measures for increasing municipal energy efficiency and automatically establishes cross-references between the fields of measures.
- The Bremerhaven LEEG defined core areas among different municipal department in order to prioritize energy policy measures for further processing- including the "Klimameile Alte Bürger". The measure of

"Integrated Climate Neutral Quarter Concept – Klimameile Alte Bürger" has been approved as one of the measures with a high cost-benefit-ratio for the municipality and the owners of housings. The concept is considered as a good example for a capacity building process and a lessons learned lab in capacity building. As a selected priority measure from the energy policy work programme it unexpectedly became part of the government party's programme for the new legislative period (2019 – 2023).

4.2.2 | Gulbene Municipality (Latvia)

Identified Capacity Gaps

According to the state-of-the-art assessment of the energy management and energy strategies as part of the *Act Now!* project the following main problems were identified:

- **Lack of financial resources for policy implementation**, in terms of: lack of funding to employ skilled experts and lack of funding to long-term integrated planning;
- **Lack of knowledge/awareness for policy planning and implementation**, in terms of: lack of specific objectives and activities in previous planning documents; no internal rules of procedure or guideline for buildings (individual planning); no specific targets for energy performance in buildings, no responsibility;
- **Low awareness and involvement of stakeholders and municipality staff**, in terms of:
 - low motivation for municipality staff to change daily routines;
 - only voluntary initiatives;
 - no common rules or tools in the buildings; lack of unified data processing and tools to provide easy-to-understand information;
 - no discussion with stakeholders in the planning process;
 - low level of communication with the general public;
- **Lack of energy data**, in terms of:
 - no fuel consumption data in some district heating systems; no data on local electricity production from renewable energy sources (RES) in the region;
 - lack of heat metering equipment in parishes (of 101 buildings, about 45 buildings do not have a heat meter);
- **Building renovation projects**, in terms of:
 - failures in the project design phase due to short deadlines and specialists' negligence;
 - resistance of building users who are very used to old models of practice;
 - low awareness and knowledge of general public about energy and climate issues.

Capacity Building Scheme

The tailored action plan towards the definition of an optimal Capacity Building Scheme has been defined taking into account the following main steps:

1. Developing an energy strategy based on a SEAP approach and the implementation of a non-certified (at least in the first phase) Energy Management System (EnMS) in line with the requirements from the ISO 50001;

2. Defining the key roles of the LEEG and the interaction with the municipality management staff;
3. Defining a specific action plan for increasing competence, training and awareness in the municipality management staff and the LEEG.

This was implemented in six workshops with the following structure (Figure 12):

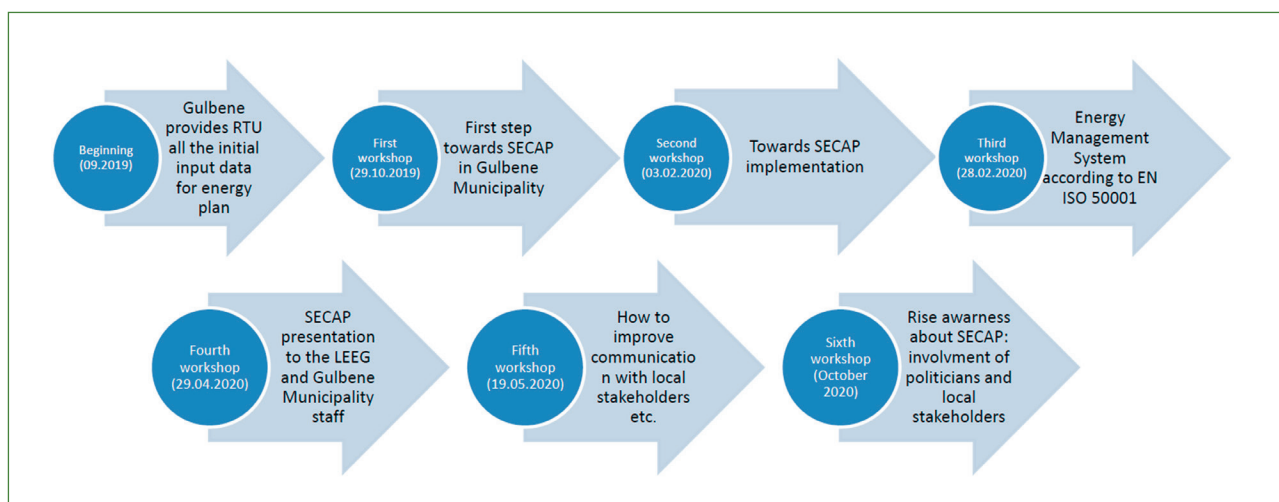


Figure 12: Capacity Building Scheme for Gulbene Municipality with 6 main workshops.

During the *Act Now!* project implementation was thus possible to finalize the SECAP for Gulbene Municipality as main output from the tandem approach between the coaching expert partner RTU (Riga Technical University) and Gulbene Municipality. The SECAP is in the approval stage by the Municipal Council and ready to be presented to other neighbouring municipalities in the Vidzeme Region of Latvia in September 2020.

The tailored action plan towards the definition of an optimal Capacity Building Scheme was defined taking into account a synergetic approach among the municipality staff, an established LEEG and the *Act Now!* coaching partner RTU. The general scheme is reported in Figure 13.

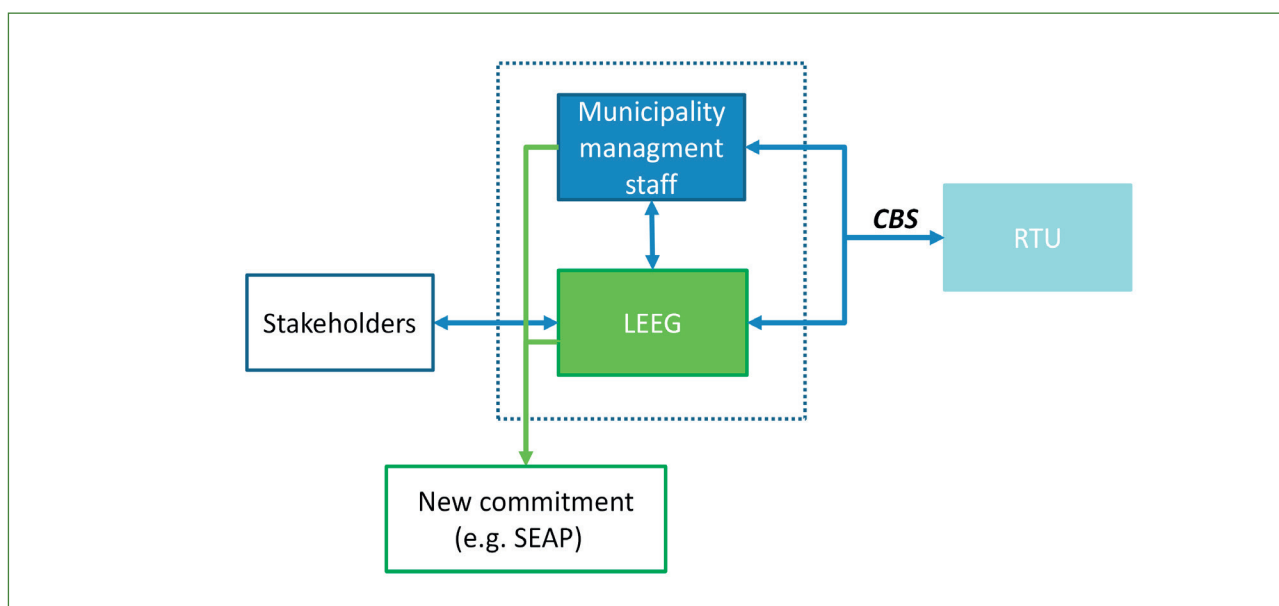


Figure 13: Act Now! working scheme for CBS implementation in Gulbene Municipality.

4.2.3 | Gdynia Municipality (Poland)

Identified Capacity Gaps

According to the state-of-the-art assessment of the energy management and energy strategies as part of the *Act Now!* project the following main problems were identified:

- **Early stage of energy data collection**, in terms of: the city has access to an energy management system; however, data implementation is at an early stage, low motivation of building administrators to input data in the collection process, low wages when it comes to finding qualified administrative assistance, lack of funding to employ additional staff to assist in data collection, irregularities in data collection and problems with supplier's invoice correctness;
- **Lack of financial resources for efficient fulfilling of current energy efficiency plans**, in terms of: reach of municipal projects is limited by low funding, the number of participants willing to modernize heating systems in residential buildings highly exceeds available subsidies, the municipality works actively to raise awareness, yet promotion remains limited by funding;
- **Minimal cooperation between local municipalities**, in terms of: better cooperation between local municipalities to actively address common metropolitan problems is needed, a system of know-how and experience exchange within local municipalities is needed, lack of a coherent energy data collection system, different interests and motivations of individual municipalities potentially create conflicts of interest.

Capacity Building Scheme

Based on the main outcomes from the capacity assessment tool and questionnaire the following key actions have been addressed:

- Energy efficiency auditing of selected municipality owned educational buildings;
- Increasing awareness about energy consumption and ways of increasing energy efficiency among building users;
- Strengthening the role of the established LEEG for exchange of energy efficiency related practices and building a contact base for future cooperation in projects related to energy efficiency.

These topics were included in five main seminars aiming to increase the technical knowledge within both the LEEG and the municipality management staff and also increase the participation of citizens in respective public events.

4.2.4 | Sievi Municipality (Finland)

Identified Capacity Gaps

According to the state-of-the-art assessment of the energy management and energy strategies (including the implementation of the energy plan existing in Sievi) the following main problems were identified:

- **Heterogeneous system structure**: the main part of the municipal buildings in the downtown are connected to one Energy Management System framework but remote locations and/or parishes are out of monitoring. In addition, there is a lack of a common protocol that should include all buildings in one view;
- **Missing commitment**: Sievi has no SEAP yet, this shows a lack of political motivation for ambitious commitments.

Capacity Building Scheme

The identified gaps were used to create the future vision for a consistent Capacity Building Scheme with a specific focus on:

- providing monitoring solutions for village schools unlocking investments initiated by the *Act NOW!* project,
- moving towards a redefinition of the overall municipality energy balance and preparing the path towards the implementation of a SEAP.

In detail the CBS defined and implemented more than 20 specific actions until 2022 in the five dimensions 'commitment and management', energy planning, implementation, resources and infrastructure.

4.2.5 | Šilutė District Municipality (Lithuania)

Identified Capacity Gaps

Šilutė District Municipality approved its SEAP in 2012, but it was more like a formality (and image building). Since 2012 no essential follow-up on the implementation of the SEAP existed (should have been in 2016). In addition, they did not estimate a CO₂ emissions baseline, which makes it difficult to assess a reduction. The last estimation had been done in 2010.

From the assessment of the initial capacity of the municipality the following main gaps were identified:

- Lack of political commitment for climate and energy related issues, because all the savings (for example from energy efficiency) are currently allocated to cover municipal debts, rather than invested in implementation of climate and energy related measures;
- The Municipality does not have enough funds to finance energy and climate related policies;
- Lack of ability and capacity to use EU structural funds support more effectively;
- Municipality staff does not understand that they could contribute to solving those problems which is highlighting a lack of knowledge, time, motivation and awareness;

- Lack of energy monitoring systems (only 3 buildings from 50 municipal buildings)
- Lack of motivation and awareness of stakeholders, citizens (no involvement of them)
- No dedicated people only for this topic (those, who are implementing this project lack time for it);
- No measures have been taken yet for capacity building.

Capacity Building Scheme

The identified gaps were used to create the future vision for a consistent Capacity Building Scheme with a specific focus on the definition knowledge exchange plan based on: seminars, workshop, article in the local news and media.

This was mainly addressed to create a synergy among the Municipality and the *Act Now!* expert partner able to:

- provide a regular updated of the existing SEAP;
- engage both stakeholders and Municipality staff within the definition of commitments to energy policy;
- better communication of the energy policy to the public in fact increasing awareness of the importance of a real active SEAP;
- have a consistent Energy Management System in operation with real time data collection carrying out a regular analysis of the energy data through current energy performance indicators;
- set clear targets to ensure compliance with energy performance analysis;
- improve the internal communication even within the municipal staff about municipality's energy policy in order to increase their awareness and engagement;
- create a training program to enable the working qualifications of the personnel concerning energy efficiency aspects;
- propose and recruit an energy manager with appropriate qualification and skills;
- to strengthening
- the existing infrastructure such as installation of individual energy meters in each public or private buildings or installation of remote controls for energy systems (both electrical and thermal).

4.2.6 | Elva Municipality (Estonia)

Identified Capacity Gaps

With the questionnaire for the initial capacity assessment the following main capacity gaps were identified:

- **Lack of reliable data.** Data collection and aggregation has been identified as a barrier towards developing possible energy efficiency improvement measures. Investment in energy monitoring system is the main measure to overcome this barrier.
- **Lack of capacity in energy management.** Elva municipality has and will organize seminars for stakeholders who are responsible for energy management in their organizations. The installed EMS shall provide an excellent platform to exemplify the importance and benefits of a strategic approach to real estate management.
- Additional improvement potential in collaboration. Traditionally local municipalities have been working individually on their real estate and energy management plans. During the *Act Now!* project Elva municipality is seeking to cooperate with other municipalities nationally and regionally to share and learn from existing projects and seek cooperation on new initiatives.

Capacity Building Scheme

The identified key actions of the CBS were involving 5 main capacities: Commitment and management, Energy planning, Implementation, Resources and Infrastructure. In particular, the CBS, based on sharing knowledge with conference, seminar and strengthening the role of the LEEG in the Municipality, was mainly addressed to:

- Improve the share the communication at municipal level of energy policy commitments and milestones in order to increase the relevant knowledge;
- Revise and update energy policy regularly with a public revision process;
- Calculate and demonstrate carb on footprint, compile an energy balance with the compilation of a carbon budget;
- Develop measurable goals by an active role of the LEEG;
- Improve or introduce EnMS by specific and tailored investments;
- Improve the technical knowledge on energy data use and analysis with tailored capacity training modules;
- Use LEEG as promoter for the proof-of-concept on the positive impacts of energy efficiency measures and consultant for the municipality government for feasible solutions;
- Increase the communication with direct and indirect stakeholders;
- Consult municipality employees and allocate sufficient resources by a central role of the LEEG;
- Harmonise the way of working and the interaction with the local stakeholders in order to learn how to compile documentation among different municipality departments and organisations in more systematic and efficient way (including a consulting role of the LEEG).

4.2.7 | Sønderborg Municipality (Denmark)

Identified Capacity Gaps

The following main capacity gaps were found implementing the given questionnaire:

- Lack of national level strategy and guidance, in fact the national framing has been less ambitious the last 2-4 year lacking on a long term perspective;
- Lack of financial resources for policy implementation. Even if the city council has planned a fund of 1.335.000 € for the next 3-4 years there will always be a lack of funding at municipal administration level;
- Strengthening citizens' involvement. This could be proposed by the implementation of a joint "customer journey" (*Act Now!* Guideline "Public Private Partnerships" available at actnow-baltic.eu/learning; and [11]);
- More tailored building renovation projects in rural areas are needed in order to avoid empty buildings in the rural area villages by a good quality in energy efficiency in these buildings, to create awareness among all owners of private buildings (especially younger owners) for the need of energy renovation (comfort of living) in their houses and for effective fund implementation of energy efficiency measures.

Capacity Building Scheme

Subsequently the Capacity Building Scheme focused on:

- Implementing a work group of approximately 8-10 key stakeholders within the local context of Sønderborg;
- Creating the REFURB-toolbox [11] and using this instrument in the further process together with the LEEG to approach the private home owners for energy renovation and energy efficiency of their buildings.

4.2.8 | Mönsterås Municipality (Sweden)

Identified Capacity Gaps

For Mönsterås the results of the questionnaire highlighted the following main problems:

- **Lack of strategy documents and management** mostly in terms of:
 - Need to establish policy, strategy and action plan documents with clear goals for the municipality's future work;
 - Non existing energy management system;
 - Need of increased cooperation among staff in the municipality to get a better understanding regarding energy efficiency and energy management system;
- **Lack of complete data collection** mostly in terms of:
 - Lack of unified data processing system where data is collected and followed up in a mutual tool;
 - Incomplete data collection strategy due to the need of access to different energy suppliers' systems;
 - Lack of opportunity to monitor data on a regular basis (monthly, weekly, hourly etc.) for the energy management system;
 - An automated data collection is also desirable.
- **Low awareness and involvement of stakeholders, municipality staff and citizens** mostly in terms of:
 - Public procurement Act, which complicates the ability to set requirements that lead to increased energy efficiency on suppliers.
 - Lack of knowledge among citizens and low interest in what renewable energy and energy efficiency means.
- **Lack of funds** mostly in terms of:
 - Need of funds related to implementing energy efficiency measures.
 - Lack of key figures for the calculation of investment required to achieve a certain saving measure.
 - Lack of inter-departmental energy group within the Municipality showing the need of cooperation between the municipality employees to form a group of people with different energy interests and skills.

Capacity Building Scheme

The Capacity Building Scheme was thus oriented towards the following main goals:

- Raise awareness among the municipality employees by establishing a group of people interested in energy management issues and by giving them financial resources and teaching new skills related to energy management.
- Improve the municipal energy management system in terms of installation of energy meters including data analysis. This will provide the background for the definition of a renovated energy plan for municipal buildings included in the SEAP based on more specific energy efficiency guidelines.

- Since energy efficiency issues are not current in the general debate, it is difficult to capture the citizens' interest in the issue. Initiatives on national or international level should be taken into account to increase awareness.
- A lack of knowledge among users of the buildings and interest in what renewable energy and energy efficiency means.

4.2.9 | Kaliningrad Municipality (Russia)

The implementation of the *Act Now!* methodology has been tested in a region outside the EU. It was important for the validation of the proposed methodological approach.

Identified Capacity Gaps

Based on the same questionnaire for exploring the initial capacity of EU municipalities the following main aspects were identified for the Municipality of Kaliningrad (project partner of *Act Now!*).

- **Lack of financial resources for policy implementation** mostly in terms of:
 - lack of financing of energy saving activities in the Municipality and in the municipal enterprises;
 - the financing of energy saving measures is formed from the own funds of municipal enterprises, which are clearly not enough;
 - lack of involvement of financial institutions, private investors and others, as they are not satisfied with the long payback periods of energy-saving projects.
- **Low ability (capacity) at the top political level and the overall perception in the Municipality** in terms of policy planning and implementation mostly in terms of:
 - politicians are aware of the importance of solving climate and energy challenges but their hands are tied due to lack of knowledge, financial and human capacity;
 - the overall attitude and perception about climate and energy challenges in the Municipality at the municipality staff level is below average;
 - climate and energy problems in the Municipality at the level of the municipality's staff are perceived as routine work within the framework of implementation of the municipal energy saving program.
- **Low awareness and involvement of stakeholders and municipality staff** mostly in terms of:
 - Low awareness and lack of technical competence about energy management, energy efficiency in buildings, funding sources and financial aspects of climate and energy efficiency projects;
 - Lack of a specific personnel/unit assigned to work with energy efficiency and climate projects, the work is integrated into daily routine of employees of different departments of the Municipality;

- There is no more than one specialist employed as an energy manager in the Kaliningrad Municipality and at each municipal enterprise responsible for energy and energy management and climate issues;
- Low motivation and lack of incentives for municipality staff leads to routine approach and not to the approach "depending on the result";
- Lack of involvement of stakeholders in dialog with the Municipality, especially scientific institutions;
- Lack of unified data processing and tools to provide easy-to-understand information;
- Necessity of conducting tender procedures for the provision of services, where there is no high probability for the interested party to win the tender.

- **Lack of energy data** mostly in terms of lack of energy metering devices. Currently, the availability of energy metering devices in the municipal infrastructure is estimated at 80% of the required volume, which does not allow for full control of energy consumption and, accordingly, the energy management system is not fully operational;

- **Lack on building renovation projects** mostly in terms of:
 - There is no integrated approach to renovation of buildings, especially in apartment buildings and municipal facilities due to the lack of sufficient funding;
 - Low awareness and knowledge of the general public about energy and climate issues.

Capacity Building Scheme

Based on discussion and main outcomes of the questionnaire key actions for implementing a specific CBS are oriented towards: development and introduction of an energy management system, evaluation of the current system conditions, transition to automated metering of energy consumption, use of modern energy-saving technologies in the implementation of activities, conducting energy surveys of all municipal facilities; assessment of the possibilities to introduce energy service contracts. These have been implemented within the following capacity building training plan.

5 | Building the structure: The Local Energy Efficiency Group (LEEG)

5.1 | Introduction and aim

A central role for the above mentioned developing of capacity building schemes play the Local Energy Efficiency Groups (LEEGs). They are one of the focus areas of the project *Act Now!*

Municipality managers as well as professional advisers are very important for establishing LEEGs and the main target group of this chapter.

Sonderborg municipality as well as ProjectZero Sonderborg, Denmark (www.projectzero.dk) are experienced partners involving citizens in actions that reduce CO₂ emissions.

LEEGs initiate actions for energy renovation and energy efficiency reducing CO₂ emissions and thus counter climate change. In the following text we will often refer to SEAP/SECAP (Sustainable Energy Action Plan/ Sustainable Energy and Climate Action Plan).

The starting point in the municipality is decisive for what tasks LEEG must handle. Is the municipality already well underway with actions, that reduce energy consumption, is the overall framework established or does the municipality start from scratch?

The process that the municipalities have been through in the project *Act Now!* describes a method, that other municipalities can use when establishing a LEEG.

5.2 | Why a LEEG?

Key Takeaway

■ *Establishing a LEEG increases and ensures focus on actions, that reduce energy consumption*

With the EU project *Act Now!* and thus the establishment of a LEEG, the EU Commission wants to accelerate the actions that contribute to counteracting climate change. Establishing a Local Energy Efficiency Group is creating a cooperation partner for driving energy efficiency.

The municipalities today mostly do not have a LEEG, but have many skilled employees, who possess knowledge about buildings, energy, climate, planning of urban and rural areas etc. They may be scattered in several departments and not work together on a clear goal. By establishing a joint group- a LEEG, it is possible to gather and coordinate the knowledge, that is in the municipality, to define and make a political decision for a goal and set a strategy with actions, that meet the overall goals, that governments in EU countries have signed on to work for. In addition, the intention of establishing a LEEG can also be to go outside of the municipal organization and involve businesses and citizens in the LEEG and thus involve other actors/external stakeholders.

The first step is to consider whether it is necessary to establish a LEEG. To help you decide, we have formulated 7 questions that can be answered with a “yes” or a “no”. The topics in the questions will be weighted differently from municipality to municipality, as the starting points in the municipalities are very different.

1. Is there a political vision to counter climate change?
2. Is there a strategic plan?
3. Is the municipality’s consumption of energy known?
4. Is the municipality’s cost of energy known?
5. Is there any measurement in all buildings of energy consumption?
6. Is the potential for energy improvements known (Euro and CO₂)?
7. Is there a focus in the municipality and among the municipality’s staff for CO₂ reduction and climate?

The seven questions are issues, that should be considered in relation to the tasks, that a future LEEG must solve and

the framework under which a LEEG works. Of course, many tasks can also be managed from a private advisor outside the organization.

Consider whether there are benefits to establishing a LEEG and solving tasks in the municipal organization?

Considerations on these matters also play a role in choosing who should participate in a LEEG.

Many tasks of municipalities follow particular procedures or are routine tasks. Special project tasks, that come once in a while will normally be resolved by advisors outside the municipality authority. Do the employees have the necessary skills even if there are many well educated employees?

Is it possible to establish a LEEG for this special project for energy renovation/ energy efficiency?

Table 12: Establishing a LEEG - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ Is the municipal organization prepared at the mental and organizational level for managers and employees? ■ Does the organization have the necessary knowledge? ■ Are there budgetary resources for renovation and energy efficiency? ■ Are there human resources? ■ Is there a schedule? 	<ul style="list-style-type: none"> ■ LEEG prepares a comprehensive plan e.g. SECAP for the initiatives that will reduce CO₂ ■ LEEG initiates the initiatives ■ LEEG participants gain new knowledge that stays in the organization and strengthens the organization in upcoming tasks ■ Politicians have a good basis for deciding on budgetary needs ■ With a SECAP politicians can prioritize what initiatives they want to implement in relation to the agreements concluded with the European union on CO₂ reduction. ■ LEEG has knowledge of the municipal organization, that the private consulting firm does not possess.

5.3 | What type of LEEG?

Key Takeaways

- *There is no single method for a LEEG*
- *A LEEG may be composed exclusively by municipal staff, but may also include members of external organisations, depending on the task and goals.*

The experiences from the project *Act Now!* are, that most LEEGs are very broadly composed of participants not only from the municipality, but also with participants from outside the municipal organization. Only one of the LEEGs in the project has no participants from outside the municipality organization. Common in most LEEGs is that more of the participants come from the municipality organization and less from the private sector.

With more stakeholders different competencies come together. Goals and tasks are determining the specific type of each LEEG and it is important to prioritize. There is not one most appropriate method for creating a LEEG.

The following chapters give two examples of the compositions of a LEEG in relation to the participants. In chapter 5.7 LEEGs in 4 different municipalities are described.

5.3.1 | EXAMPLE 1: LEEG with participants from the municipal staff

- Users of the municipal buildings
- Service assistants handling daily operations in the buildings
- Administrative technical staff responsible for building renovation
- Building maintenance, new building and technical IT staff specializing in the energy field
- City and environmental planners i.e. with skills in climate adaptation and SECAP and urban planning
- Healthcare personnel

Table 13: Municipal staff LEEG - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ Be precise about goals and tasks ■ The normal tasks that still need to be done ■ How to select members to the LEEG inside and outside the municipality ■ What is the profit of becoming a member? 	<ul style="list-style-type: none"> ■ A LEEG consisting of staff from the municipal organization contributes to strengthening the organization's general awareness of the consequences of climate change and sustainable development ■ To bring together participants in a LEEG from different departments in the municipality create new networks and contacts- may be useful in other cases ■ Members of the LEEG gain insight into the other's professionalism and can see the value in seeing a task from many angles. ■ Employees' knowledge will be upgraded in many areas, and it is maintained in the municipal organization

5.3.2 | EXAMPLE 2: LEEG mixed with participants from the municipality and participants outside the municipality organization

- Municipal employers,
- Real estate agents,
- Craftsmen,
- Financial institutes,
- Utilities,
- Private companies including companies with green products,
- Social housing associations,
- Private rental companies,
- Private homeowners.

5.4 | How the LEEG is organized

Key Takeaways

- *Different types of organization are possible; e.g. “regional LEEG” with “sub-LEEGs” at municipality level, or “preliminary LEEG” that makes groundwork before establishing the actual LEEG*
- *Clarify: membership structure, different roles*
- *Choose: chairperson, secretary*
- *Clarify expectations: time budget, meeting frequency, date & location, lifetime of LEEG, any payment to participants (transport, remuneration etc.)*

Table 14: Mixed participants LEEG - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ The goal and the task must also be relevant for the participants from the private sector ■ Participants /stakeholders from the private sector do not have much time for options not related to their own business, be aware of a schedule ■ Select the stakeholder that would be very important to have in LEEG and those that would be less important, but relevant to LEEG and prepare contact and communication based on this awareness ■ A clear and understandable communication with an invitation to join the LEEG is a prerequisite 	<ul style="list-style-type: none"> ■ The politicians’ vision and goals from e.g. a SEAP/SECAP and the general goal of sustainable development reach stakeholders outside the municipality organization ■ With their different knowledge they will be able to contribute to other types of actions compared to the purely municipality LEEG with primary focus on the municipal buildings ■ The mix LEEG has a strong focus on the balance between investing and financing in actions in building renovation, in developing new products and green working methods in private companies, in energy consumption in general and advising clients in relation to energy-efficient solutions ■ The mix LEEG is an internal network, that shares experiences and uses and strengthens each other’s knowledge to perhaps initiate new or other innovative actions, that would not be reflected in the pure municipal LEEG ■ Being able to see the possibility of greater cooperation in financing and investing in energy renovation and energy efficiency can result in a win-win situation for both sides ■ The participants outside the municipal organization are also each a good ambassador for the green transition in their personal networks outside the LEEG ■ The network, that is built up between municipal employees and participants from the private business sector, is of great value to all sides.

There are many different ways to organize a LEEG, it also depends on how the existing organization is in the municipality and how the political support is or will be in relation to establishing a LEEG. To establish a LEEG is not to establish a new department. When the project is finished the LEEG will be closed down or established as a 'new partner'. The definition of a project is, that it has a beginning and an end.

A LEEG can be the only one LEEG in the municipality and working with building renovation and energy efficiency. Or a LEEG can be a subgroup in a larger LEEG, e.g. a "regional LEEG" with independent "sub-LEEGs" at municipality level. Before establishing a "municipality LEEG" sometimes a "preliminary LEEG" is created first to do some ground-work. In some situations the "preliminary LEEG" or a part of it will merge to become the "municipal LEEG" during the process. Let us take a look at the LEEG:

A small team, here called the "preliminary LEEG" must find out who will participate in the LEEG. How many shall join the LEEG and how shall the organization be inside and outside the LEEG. The preliminary LEEG, that choose the LEEG participants, must define the organization of the LEEG in relation to the municipality organization. The preliminary LEEG examples of tasks:

- The goal and the main tasks of the LEEG
- Decide the participants
- The number of participants
- The organization in relation to the municipal organization
- Lifetime of LEEG

The municipality LEEG examples of tasks:

- The organization inside the LEEG
- Distributed of the roles
- Expectations from the municipality
- Expectations from the participants to the municipality

- Expectations between the participants
- Goal and tasks

When the LEEG is established the participants must discuss the organization inside the LEEG. The different roles must be distributed and the expectations from the municipality to the participants and from the participants to the municipality and the expectations between the participants must be discussed and accepted. Examples of the questions that should be addressed concerning the LEEG roles and activities at the beginning of the process:

- Is the chairman of the mix LEEG (a mix of municipal employees and private participants) employed in the municipality or can he / she be one of the private sector participants, where the secretary is one of the participants from the municipality that handles all the administrative work, i.e. meeting invitation, agenda, minutes, meeting room etc.?

It is important to have it clarified and decided at the beginning of the process. The expectations can be about, how much time is necessary for the participants in the LEEG, regarding the time for preparation of a LEEG-meeting, the time for the meetings and the time for various activities afterwards.

- How often does the LEEG meet?
- The meeting locations, are they in the municipal buildings, at the town hall, at the library or at premises of the private sector participants?
- At what time of the day will the meetings be held?
- For how long time will the LEEG exist?
- Will it be possible to change the participants?
- Will it be possible to extend/open the LEEG during periods, when special skills are needed?
- In relation to the non-municipal participants in the LEEG are they volunteers and should not be honored?

Table 15: Organisation of a LEEG - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ There are great and many challenges as it says in the text. ■ Get the overview of all the challenges and make a list with suggestion for solutions 	<ul style="list-style-type: none"> ■ A clear description of the LEEG organization will help to address disagreements and misunderstandings, both in relation to the political platform, to the municipality's overall management and to the staff as well as those, who participate in LEEG and those, who do not participate ■ A clear organization creates understanding, calm and confidence to LEEG both inside and outside the municipal organization ■ Actions, that LEEG initiates, will be easier and faster to realize

5.5 | Working and topics in the LEEG

Key Takeaways

- *There are hundreds of possibilities*
- *Recommendation after target is set: Use self-assessment tool & SWOT analysis and know which capacities are lacking for the task*
- *Know your framework: e.g. EU or national targets, local SEAP/SECAP (if already existing)*

Topics the LEEG should work on can be:

- General visions and goals,
- To develop overall strategic plans,
- To work more specifically on actions for energy efficiency and energy renovation,
- To establish a baseline for current CO₂ emissions and energy consumption.

But of course, there are many other options. With the lessons learned from the *Act Now!* project we recommend, that in the early stage the LEEG will conduct a SWOT analysis and use different tools to get a picture of the current situation and the capacities (see Chapters 3 and 4 as well as the SWOT analysis/capacity self-assessment tool available at actnow-baltic.eu/learning/tools)

Using that tool, the group gets a picture of the many challenges that lie in the task.

One of the prerequisites for working with the many possible tasks, is to a large extent, what competencies the participants in LEEG have and which they lack.

Besides the SWOT analysis also customized capacity building schemes and a self-assessment tool are developed.

These tools, that show the competencies of the participants and thus also the lack of skills, have a great value in order to measure the competences, and thus provide the LEEG participants with good prerequisites for solving the tasks.

Some municipalities have a Sustainable Energy Action Plan/ Sustainable Energy and Climate Action Plan (SEAP/ SECAP). Some municipalities have a clear definition of the content in the plan; however, several plans are of an older date and need to be updated, which is clearly one of the LEEGs' tasks. In the *Act Now!* project some LEEGs prepared a SEAP from scratch.

It is important to find out, what is the framework for the LEEG. To study goals and plans decided by the European Union, the national government, the region and/or the city council in the municipality will help identifying the framework for the LEEGs.

Table 16: Work topics in LEEGs - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ Be more detailed about the framework for the LEEG ■ Be aware of the segment and the communication ■ Be aware of: a baseline will be necessary in any case, data can be difficult to access ■ Existing plans, that are a few years old, may already be outdated 	<ul style="list-style-type: none"> ■ The LEEGs participants competences will be strengthened ■ The LEEGs participants will be familiar with the overall policy goals for energy and climate improvement ■ The participants in the LEEGs will be familiar with the overall policy goals for energy and climate improvement ■ These general plans can help to set the framework for the LEEGs ■ Goals and plans decided by The European Union, the government, the region and the City council will become visible and known primarily for employers and the politicians, but also the private sector and the citizens ■ Introduction and knowledge about the different tools can be used in other departments in the municipality

5.6 | The starting point of a LEEG

Key Takeaway

■ *Factors to consider are: culture of municipal organization; previous experience with a LEEG; task of the LEEGs, LEEG as catalysator, LEEG's lifetime, political support, motivation, commitment, personal resources, budget, equipment, IT*

Many factors, hard factors but also sensitive factors are important to be aware of before establishing a LEEG.

- How is the culture of the municipal organization?
- Is it the first time a LEEG will be established?
- What are the tasks the LEEG has to deal with?
- What competencies are needed in relation to the tasks?
- Is there political support to start a LEEG?
- Is the director and the chief of the department ready for it?
- What about the staff who do not participate in the LEEG?

Participating in a LEEG requires both motivation, commitment of the individual employee and resources in relation to time spent. Even if some employees are self-motivated, in their opinion it is a natural part of their job, it is worth paying attention to what makes the "job" in a LEEG attractive. Is there financial support or is there an offer of

education about energy and energy efficiency? Is it possible to plan interesting events and excursions for potential LEEG members?

There must be money for energy renovation of and improved energy efficiency for buildings and measuring equipment, IT equipment and staff training are costly. It is necessary to take hand on these challenges before starting the LEEG.

The new tasks and the understanding of an increased budget in the future must be political accepted. What is the expectation for the LEEG-lifetime and the flexibility regarding members of the LEEG? Will the LEEG act as a catalyst as well, so that some ideas and tasks can get started without the LEEG's direct involvement?

There are major differences between municipalities regarding visions and plans for energy renovation, energy efficiency and other types of action in relation to climate change. There can be many other influences, such as lack of resources, other priorities, lack of overview of consequences etc.

The experience of the *Act Now!* project is that the best basis for the work of a LEEG is, if a political decision exists for a SEAP or SECAP or an equivalent planning instrument. Where the level of ambition lies is ultimately a political decision, and it is the administrative leadership of the municipality that presents the opportunities for the politicians.

Table 17: Starting point of a LEEG - challenges and benefits.

Challenges	Benefits
<ul style="list-style-type: none"> ■ To create motivation factors, both for the municipal employers and for potential members of the private sector ■ Bring stakeholders with influence into LEEG ■ The staff is not used to working together in a group ■ To show participants in the LEEG, what is the profit of becoming a member ■ Money / job benefits must be visible ■ The normal tasks still need to be done ■ Some employees need more skills ■ Limited vision for politicians on energy efficiency ■ Energy efficiency is not the most important thing in the electoral program ■ Parties must have energy policy on their political agenda 	<ul style="list-style-type: none"> ■ Within the LEEG knowledge is retained in the organization for the benefit of other tasks ■ The social network inside and outside the organization grows and can be helpful in relation to other cases/projects, which may be solved both faster and with a better result. ■ Greater focus on energy consumption contributes for the fight against climate change ■ Long-term planning creates an overview and greater financial security and better opportunities for prioritization ■ Political visions and strategic plans become visible to citizens and increase staff motivation ■ Each participant gain insight into the other's professionalism and can see the value in seeing a task from many angles

Challenges	Benefits
<ul style="list-style-type: none"> ■ Change of policy makers due to election periods, no continuation ■ Limited Energy Efficiency budget ■ Politicians budget in an unpredictable way ■ Politicians use short-term planning instead of long-term planning ■ Creating an understanding of why we need to fight climate change ■ Finding the common ground for joint decisions ■ Implementation of LEEG output (based on a bottom up approach) in a policy framework ■ LEEG as a catalysator needs good communication, awareness “champion” visions 	<ul style="list-style-type: none"> ■ LEEGs become a catalysator by being a platform and promoting horizontal cooperation between actors with joint targets, e.g. NGO and create a strong story telling for LEEG and the outcome ■ LEEGs are becoming a catalyst for the involvement of other departments of the city administration, municipal organizations and enterprises

Box 2: Agenda for a first meeting in a LEEG

1. Welcome (a special guest the mayor, the director is invited for this first meeting)
2. Introduction of the participants
3. The task
 - The goal
 - Why do we do this, who has decided that?
 - The time frame for the task (starting point, duration, deadlines etc.)
 - Resources- the participants time spending for the task
 - Economy “inside and outside” for the LEEG participants and the meetings, for actions caused by the task
4. Organization and roles
 - The LEEG in relation to the organization in the municipality
 - The organization inside the LEEG
 - The role of all the participants, the chairman, the secretary
 - Responsibility- who is responsible for what
5. Method
 - Has a particular method already been chosen to be used?
 - Is the way of working together already defined or will it be discussed in the LEEG?
 - Tools developed in the project *Act Now!* are available
6. Expectation
 - What is the expectation regarding the participants?
 - What are the expectations between each other in the LEEG?
 - How often will the LEEG meet, at what time of the day are the meetings?
 - How much time will be scheduled for a meeting?
 - The locations for the meetings?
7. Schedule
 - Long term for the task
 - Short term more detailed schedule for the LEEG working
 - The next meeting
8. Miscellaneous
9. End of meeting

Thank you for being interested and motivated for being a participant in our new LEEG

5.7 | LEEG examples in 4 municipalities - a description

In the following text four municipalities describe their local energy efficiency group. These are four very different descriptions which give you an impression of challenges you might face when creating a LEEG. There are challenges before starting a LEEG, but also during the process. And once the LEEG is established there may still be other challenges, e.g. in the context of political elections. On the other hand, it is worthwhile to establish a LEEG, as it becomes a cooperation partner for driving energy efficiency.

The four municipalities are:

- Bremerhaven, Germany
- Elva, Estonia
- Association of Ylivieska Region and Sievi Municipality, Finland
- Sonderborg, Denmark

Further information (questionnaire and answers) you can find on actnow-baltic.eu/learning.

5.7.1 | Bremerhaven, Germany

Due to political change and formal decisions of the Magistrate Bremerhaven the local energy efficiency group structure has changed since December 2019. Bremerhaven's LEEG originates from Bremerhaven's Energy Policy Work Program called EPAP. The processing and updating of the EPAP is handled according to the licensed methodology of the European Energy Award. Before 2020 the working group was called "energy team" = LEEG Bremerhaven and was advised in its work by a certified expert for municipal energy efficiency. Management and the presidency were at the climate city office.

Since 2020 the LEEG in Bremerhaven is the "Arbeitskreis (AK) Klimaschutz" and consists of an inner circle (core LEEG, actively driving and managing the process) and an outer circle (enhanced LEEG, consulting, influencing, securing wider participation. The formal founding meeting was on 5th February 2020. Management and the presidency of "Arbeitskreis (AK) Klimaschutz is at the climate city office.

Previously the LEEG consisted of 9 participants, mainly department heads and heads of building management and town planning, city councilors for environmental protection as well as the councilor for supply and disposal, the director of municipal administration and a director of the local network distributor, the managing director of the local district heating plant and the manager of the local housing association.

Now the "Arbeitskreis (AK) Klimaschutz" (overall LEEG) consists of 43 participants, of these 10 are from the municipality and 33 are not (=private sector). Out of the 43 participants 14 are members of the inner circle (called "Fachkreis" = sub-circle of specialists). Out of these 14 participants are 8 municipal participants and 6 non-municipal.

The participants of the inner circle ("Fachkreis") will continue to work as a fixed group (Figure 14). The participants of the outer circle are expected to fluctuate slightly, depending on topics and time resources.

Since May 2019 the Bremerhaven Local energy efficiency work group (LEEG) is a 'stand-alone' partner with no specific coaching expert partner/no tandem within the Act Now! project and will continue in this way.

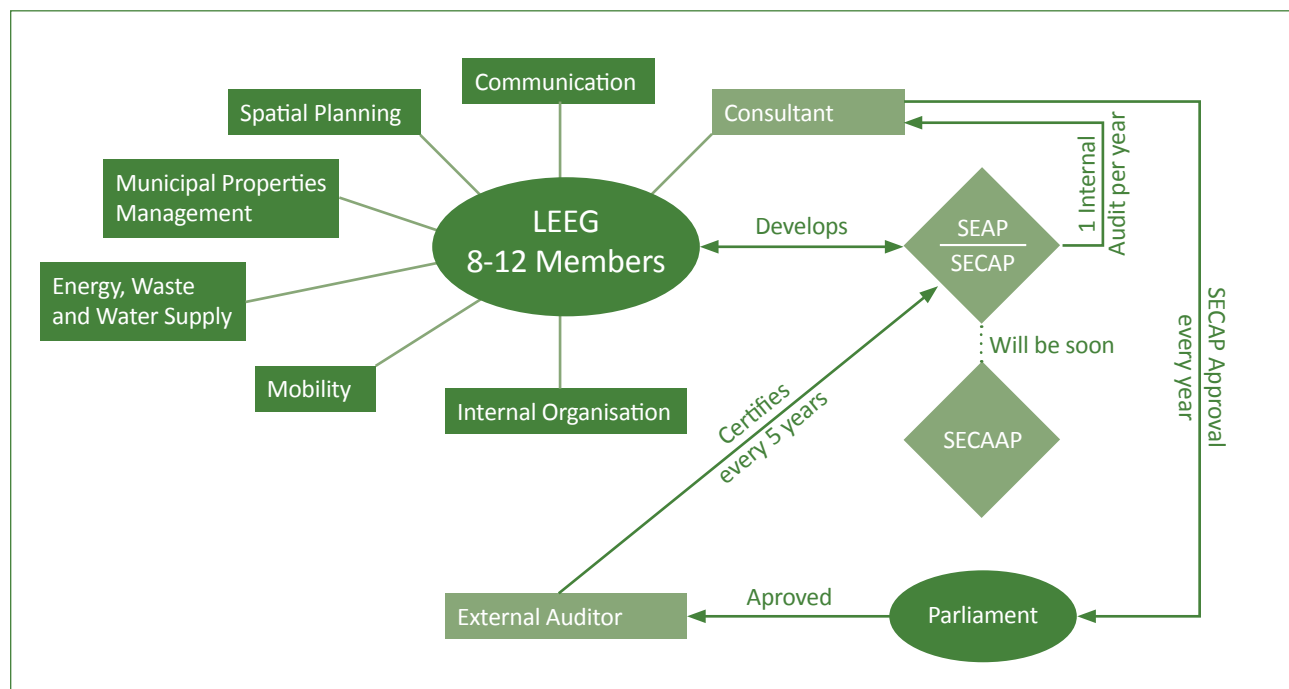


Figure 14: Organisation of the inner-circle-LEEG ("Fachkreis") and workflow since February 2020.

Effects and tangible results of the LEEG:

“Politically supported mandates for implementation of energy efficiency measures and concrete measures in political programs.

An energy manager has been agreed for handling the facility management.

Awareness of energy efficiency and networking of people (municipal and non-municipal) has increased.”

Success:

“Better acceptance within political parties. Higher visibility of energy efficiency topics.

On municipal level it is possible to wait until “the time is right” to implement measures of energy efficiency into real-life contracts, negotiations, strategies etc.

Long-term influence on developments for i.e. legal changes and subsequently have the chance/time-horizon to wait until the desired results can be implemented (“turtle-pace strategy”).”

5.7.2 | Elva, Estonia

Elva Rural Municipality is a somewhat different case in the Act Now! project.

When we started to prepare the project proposal more than four years ago, the administrative unit we know today as Elva Rural Municipality was actually a region of one

town (Elva, the original partner of the proposal) and five small neighboring rural municipalities – all to be merged into one rural municipality during the administrative reform carried out in Estonia. So, if we initially planned activities for a town with 5700 inhabitants covering 9,8 km², then after the reform we had to work with a region of 14 600 inhabitants covering 650 km².

Luckily for us all five small rural municipalities were informed about the planned project and supported the initiative with their letters of support. So, when the local energy efficiency workgroup (LEEG) was launched in Elva in May 2018, we saw it as a possibility to mitigate the effect of big change and to faster integrate the merged municipalities into the daily life of the new formation. We invited representatives into the team and mapped the energy efficiency potential of public buildings also outside the town of Elva. Besides, as one of the aims of the project was capacity building for stakeholders of local energy policies, regional planning and development, regional economic development and property management in municipalities which fit perfectly well for reducing disparities between different regions of the new rural municipality. There were quite many similarities – all merged municipalities had schools, kindergartens, administrative buildings, blocks of flats, district heating etc. Most of them had also development plans for the energy sector and they all had a basic understanding of their problems and the need for changes and improvements in the public buildings and the housing sector (Figure 15).

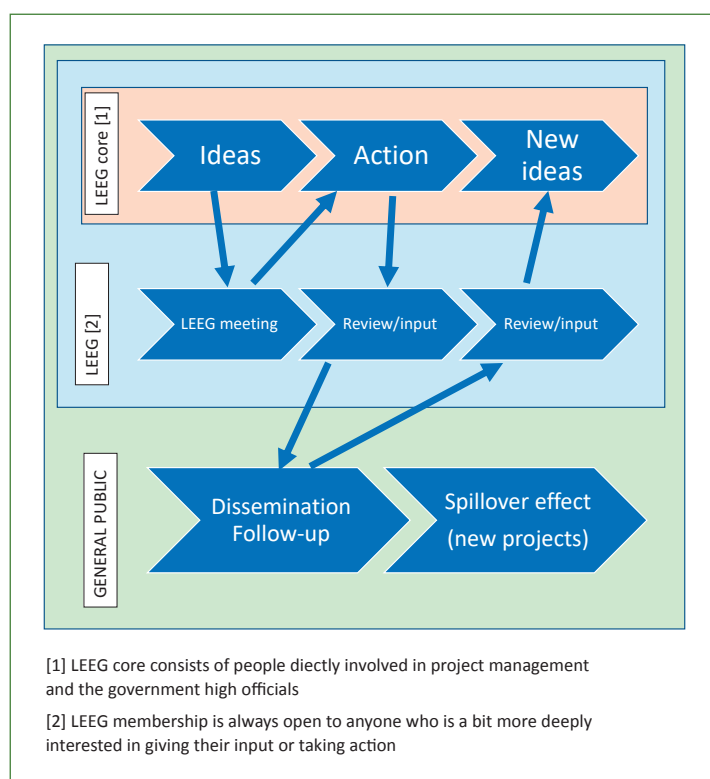


Figure 15: LEEG structure in Elva, Estonia.

From May 2018 until spring 2020 altogether 10 meetings of the group, now including 15 actively contributing members, have been held. The group members have been involved in all stages of investment development starting with identifying public buildings with highest potential and best visibility, screening their technical documentation, making the final selection to be included in the public procurement, preparation and implementation of energy audits, approval of procurement outcome, following the purchasing and installation process of the equipment and launching the data collection. Local energy efficiency group members have also supported the implementation of local workshops and the project meeting held in Estonia. As an added value a training element was included in each LEEG meeting to achieve a comparable level of technical knowledge and understanding of the importance and essence of the energy management system and monitoring tools.

The LEEG has become a real and active partner contributing with time, knowledge and actual work

making thus things move and develop much faster. This team has a very strong potential to become a permanent unit in the municipal structure with relevant knowledge, skills and capacity to identify even small important steps in a big picture of energy efficient Elva Rural Municipality.

Effects and tangible results of the LEEG:

“Heating company can plan future investment needs and extension possibilities much better. Consumption control and renovation of public buildings allow to provide heating to more consumers with the same amount of fuel due to considerably cut losses and overheating. Local municipality saves money with controlled consumption and decreased waste of energy.”

Success:

“A single person is not a power, but a team is. The most obvious effect is, that we have reached strong cooperation between the LEEG and the administration of Elva Rural Municipality.

LEEG has become a real and active partner contributing with time, knowledge and actual work making thus things move and develop much faster.

municipality was selected as the pilot municipality and the function of the preliminary LEEG was to create a new “way of thinking” in the municipality as well as making the establishment of a municipality LEEG easier. The growth of the LEEG came “from the inside” and the Sievi LEEG was established at the end of 2019. The preliminary LEEG was integrated in the Sievi LEEG in the beginning of the 2020.

In the Ylivieska region, there is another municipality, Kalajoki, that has an actively working LEEG. The LEEG has worked actively within the Act Now! project, testing the tools created in the project as well as changed ideas and good practices with other LEEGs (Figure 16, by Anne-Riikka Rautio).

Effects and tangible results of the LEEG:

“With the Energy management system (EnMs) the targets are found for the investments and the purpose to renew or to renovate the buildings.

Co-operation of Sievi municipality with the stakeholders to find new solutions for energy savings like hybrid heating systems, new renewable energy sources in heating and other energy savings targets like LED lighting investment and hot water use.

Improvement of energy efficiency and decrease in the CO₂ emissions of stakeholders.”

Success:

“The main result of Sievi Local energy efficiency work group (LEEG) is to accelerate Sievi municipality and stakeholder’s co-operation for new energy efficiency investment ideas and planning and to learn together how to use updated Energy Management System EnMs for energy use/savings in buildings. ”

5.7.3 | Association of Ylivieska Region and Sievi Municipality, Finland

The first step was taken in November 2018 when the regional group/LEEG was established. The regional LEEG gathered together the municipalities in the Ylivieska region and worked more on a general level, creating trust between the member municipalities. In April 2019 the next step was to establish a preliminary LEEG for one of the municipalities in the Ylivieska region. Sievi

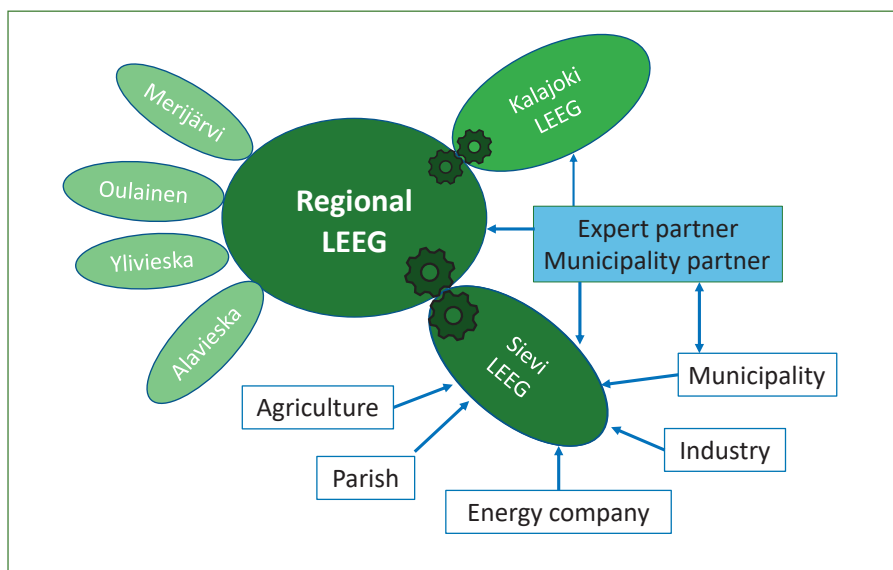


Figure 16: Organigram of the LEEGs of the Association of Ylivieska Region and Sievi.

5.7.4 | Sønderborg, Denmark

Public private partnership (PPP), citizen engagement and learning are the DNA of Sønderborg. Since 2007, the ProjectZero PPP has supported the city councils' ambition of carbon neutrality by 2029. The *Act Now!* LEEG approach has helped Sønderborg connect to key stakeholders, not only for creating additional homeowner actions, but also for planning and executing the Roadmap2025 in eight segments focused on achieving 75% carbon reductions by 2025.

The almost 100 LEEG-members of the eight working groups are focused on each their own segment challenges and opportunities within homeowners, house associations, private flats, personal transportation, businesses, farming, heavy transport, renewable energy production; but they have also become important local and national ambassadors for the climate transition of Sønderborg. And they are now focused on capacity building as part of the Roadmap2025 execution strategy.

The LEEG-members are motivated by the ProjectZero-opportunity to co-create the future Sønderborg and in cooperation with the citizens and companies achieve carbon neutrality by 2029.

Effects and tangible results of the LEEG:

*"Identifying the focus-areas.
Coordination of strategy implementation.
Creating training programs for craftsmen and local banks.
Local communication and ambassadorship.
Creating the homeowner strategy for Roadmap2025 and KPIs."*

Success:

"Creating and communicating a shared vision for the entire municipal territory as well as maintaining political support is important for success, but also a key challenge."

6 | Further steps

With a customised capacity building scheme in place and a LEEG ready to work, you have successfully built the foundations necessary to tackle energy efficiency in your municipality. In order to further increase the capacities, the *Act Now!* project has identified four fields of action that require a closer look. Each of the four guidelines prepared during the *Act Now!* project builds on this manual and will help you to further develop or implement the energy efficiency activities in your municipality:

The Guideline **“Energy Efficiency Strategy for Municipal Buildings”** explains how to make a strategic approach to improve energy efficiency in municipalities. While this Manual focuses on the municipal capacities needed, the Guideline focuses on what a municipality should do in order to set up an energy efficiency strategy.

The Guideline **“Identification of Most Effective Energy Efficiency Measure”** provides assistance to municipalities struggling to make their first step. Assuming a SEAP, SECAP or other strategy document is already in place, the guideline helps picking the most effective energy efficiency measure among the many options on the table. Using a system of decision criteria, the guideline helps making a robust and accountable decision.

The Guideline **“Financing of Energy Efficiency Projects”** takes a closer look on the financial dimension of energy efficiency in municipalities. It provides introduction to the basic principles of financial considerations such as appraisal methods and financing options.

The Guideline **“Public Private Partnerships”** describes, how the municipality can unlock the vast energy efficiency potential of the local private sector. It explores the courses of action municipalities have in order to engage with private stakeholders. Following the idea of the customer journey, it proposes a step-by-step approach to successfully scale up private retrofit activities through public private partnerships.

Want to dig deeper?

Further Act Now! Material:

‘Act Now! Guideline Energy Efficiency Strategy for Municipal Buildings’
 ‘Act Now! Guideline Identification of Most Effective Energy Efficiency Measures’
 ‘Act Now! Guideline Public Private Partnership’
 ‘Act Now! Guideline Financing of Energy Efficiency Projects’

Act Now! project website:

<https://actnow-baltic.eu/>

Act Now! online learning platform:

The Manual and 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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