



# PROSPECT

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#H2020PROSPECT

## Finance your sustainable and climate action

Experience from 195 public authorities in your hands  
for learning and replication



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# About this report

Guide and summary of main outcomes relevant for replication by local and regional authorities (municipalities, cities, energy agencies and regions) in implementing projects related to sustainable and climate action plans with innovative financing schemes

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**Leader:**  
EUROCITIES

**Authors:**  
Anne-Charlotte Trapp & Bernadett Koteles-Degrendele, EUROCITIES  
Vangelis Marinakis & Dimitra Tzani, UPRC

**Reviewed by:**  
Anthony Colclough, EUROCITIES  
Elena Marie Ensenado, IHS  
Elodie Bossio, FEDARENE  
Thibaut Maraquin, Energy Cities  
Mia Dragovic Matosovic & Jen Heemann, IEECP  
Anja Gahleitner, ESV

**Contact Person:**  
Bernadett Koteles-Degrendele [bernadett.degrendele@eurocities.eu](mailto:bernadett.degrendele@eurocities.eu)

The author would like to express their gratitude to all PROSPECT partners for their contributions to this report, as well as to all respondents who have provided their valuable insights and experience with regard to the financing of sustainable energy and climate investments.

## Who should use it

This report can be used by any interested **municipality, energy agency, city or region** who is planning to replicate energy efficiency projects. It will also be useful to the H2020 PROSPECT participants, as it summarises per module the main success factors and lessons learnt through that project.

## Purpose

Innovative financing is often an option for a climate project, but cities, municipalities and regions need to know how to activate and use it. This report synthesizing information of the experience of 195 local and public authorities who managed to use innovative financing schemes.

We know that there is a need to share knowledge, experience and to build capacity amongst local and regional authorities on how to finance climate projects and raise awareness about kind of innovative financing options exists. This report is a practical guide and summary for them based on different sources, materials which have been developed by the participants of H2020 PROSPECT project\*.

It is meant to support the journey from a project idea for climate actions and strategies through practical insights into financing and getting the authorities familiar with some good practices. For further details the readers can visit the project website and find the downloadable format of the report and good practices, and webinars. This publication is complemented by the Replication Plan (D5.5) which contains templates and further details.

## Structure of the report

This report can be used by any interested municipality, energy agency, city or region who is planning to replicate energy efficiency projects. It is also useful to the [H2020 PROSPECT](#) participants as it summarises the main success factors and lessons learnt per module.

The report works with the same five modules as it was defined at the beginning of the H2020 PROSPECT project. All materials have been developed in line with this logic, including the initial [handbooks](#). The five [modules](#) of PROSPECT, which are following: Public buildings, Private buildings, Transport, Public lighting, Cross-sectoral.

There are also individual replication [booklets](#) prepared out of the module chapters and are available on the website. This is meant to support the easy access and reusability.

*\*The H2020 PROSPECT project aimed to build capacity via learning programs (each 6 months) between 2017 and 2020 and 187 local authorities participated from 28 countries.*

*This report combines information from different sources produced during the H2020 PROSPECT project. It summarised the incredible experience of 195 local and regional authorities from 29 countries, who exchanged knowledge on innovative financing schemes through four learning cycles and 45 learning groups met and covered 18 innovative financing schemes and 36 good practices.*



## Countries

Cities:



1-4



5-10



11-20



21-30



31+

29

REPRESENTING

**+53** MILLION CITIZENS



## 1. Information collected from the applicants in the application phase

In the application form for joining PROSPECT, the candidates were asked to inform their climate-related projects for which they would like to use innovative financing schemes and also to add questions about such schemes. These questions and their answers were used as examples in the chapters/booklets produced in each of PROSPECT's module, which can be used as a guide for those who have similar questions.

## 2. Benchmark survey results

All the participants of PROSPECT have filled out a survey about financing and implementing their projects in which they self-assessed several aspects, presented in the next page.

## 3. Learning plans

The Learning Plan is a document co-edited by the participants of each learning group. In this document, the peers added information about their projects, experience, and knowledge and exchanged. At the end of the learning process, and based on what they learned, they filled out the "Conditions for success", which are necessary steps to set up or develop the financing scheme in their local context. For each of the conditions, the mentees evaluated the potential to apply the scheme by adding scores. A scale of 1-5 was given to the participants, being 5 for high potential and 1 for low potential. For the conditions rated 3 or under, the mentees prepared an action plan for addressing such conditions. This information was collected and structured per module in this report.

# Methodology: Benchmark questions

## Axis 1: Attract Investments

### 1.1. Local (and broader) strategy and commitments

Q1.1.1: What is your city experience regarding sustainable energy (SE) city-level projects? Has your city implemented a Sustainable Energy & Climate Action Plan (SECAP) or equivalent plan?

Q1.1.2: Are subsidies, tax benefits or other incentives available for private project investors and lenders? Are all types of city-level sustainable energy investments eligible for support?

Q1.1.3: Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?

### 1.2. Legislative & Regulatory situation (local)

Q1.2.1: Is the process to gain a construction/renovation permit (for sustainable energy related projects) fast and efficient?

Q1.2.2: Do public procurement (PP) procedures facilitate sustainable energy investments adequately?

Q1.2.3: Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?

## Axis 2: Identifying and utilising financing options

### 2.1. Project origination capacity

Q2.1.1: What percentage of the total annual city budget is available for sustainable energy projects? Please provide the absolute amount of available budget within a certain timeframe, as well as the proportion to the total city budget.

Q2.1.2: Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.

Q2.1.3: Are available international/ national/ regional funds and other financial support schemes for municipalities available? Are those sufficiently utilized by the municipality in the context of sustainable energy projects?

Q2.1.4: Is citizens' finance (such as crowd-funding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects?

Q2.1.5: Does the city cooperate/ communicate with other cities for sustainable energy projects?

Q2.1.6: Does the city cooperate/ communicate with other public actors (e.g. partnerships with the central government, regional authorities, public transport companies etc.) for sustainable energy related projects?

Q2.1.7: How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?

Q2.1.8: How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?

## Axis 3: Setting-up, implementing & monitoring SECAP or other sustainable energy projects financing

### 3.1. Servicing investment administration capacity

Q3.1.1: Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)

Q3.1.2: Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.

Q3.1.3: Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?

### 3.2. Operations management

Q3.2.1: Is there a standardized monitoring and verification (M&V) procedure applied to monitor and verify project effects?

Q3.2.2: Are operational standards and/ or quality assurance (QA) methods currently used? (to ensure good project quality and replicable results)

### 2.2. Project underwriting & evaluation capacity

Q2.2.1: Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?

Q2.2.2: Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?

Q2.2.3: Is a project evaluation process (either at the national or the local level) established and applied to sustainable energy projects?

# Methodology: Conditions for success

## Staff availability

- 1 – No staff available
- 5 – There are available staff

## Time needed for implementation

- 1 – The time needed to set up the scheme is not realistic to my context
- 5 – The time needed to set up the scheme is perfectly fine

## Governance related efforts

- 1 – The Municipality doesn't have experience or capacity to undertake all the coordination needed with stakeholders
- 5 – The Municipality is able to undertake all the coordination needed to set up this scheme

## Technical conditions required

- 1 – The Municipality doesn't have the technical knowledge to set up the scheme and is not able to build capacity or get external support
- 5 – The Municipality has all technical knowledge necessary to set up the scheme

## Financial framework

- 1 – There are no funds available to set up the scheme, and no perspective of change
- 5 – The funds to set up the scheme are available

## Legislative/regulatory framework

- 1 – There are no regulations, market maturity or other frameworks in place to set up the scheme in my context
- 5 – Framework to set up the financing scheme is already in place

## Communication

- 1 – The Municipality does not have experience or capacity to establish communication with stakeholders, citizens, etc.
- 5 – The Municipality is able to properly communicate with all stakeholders and citizens

## Level of own pre-financing required

- 1 – The Municipality does not have the necessary initial capital to set up the scheme and doesn't know of alternatives to raise it
- 5 – The Municipality already has the initial capital to set up the scheme, or an initial capital is not necessary

## (Include other factor specific to the project)

- 1 – Factor is a barrier in your context
- 5 – Factor is easy to address

## Link to benchmark survey:

<https://teeslab.unipi.gr/limesurvey/index.php?r=survey/index/sid/299173&lang=en&newtest=Y>

# About the Chapters / Booklets per Module

The chapters/ booklets have the following structure per module:

**INTRODUCTION:** Definition of the module (thematic area) and examples of questions related to that module.

**FINANCING SCHEMES:** Definition of the closest related financing schemes which are presented in the projects. Presentation of the summary of what mentee(s) highlighted about the financing scheme based on what they have learnt from the mentor's projects. This includes their impressions and the strengths and weaknesses of that financing scheme/project.

**PEERS:** Summary of the peers context in relation to the module (thematic area).

**PROJECTS/GOOD PRACTICE:** Examples of good practices on the module (thematic area), including an example from a PROSPECT's mentors.

**PROJECTS:** Overview of the types of projects that have already been implemented on that module.

**PROJECT IDEAS:** Overview of project's ideas gathered during PROSPECT, based on mentors experience, and also the learning objectives which are related to what the mentees aimed to learn.

**ROAD TO SUCCESS:** Overview of the most relevant success criteria reported, per module. For instance: In the transport chapter/booklet you may find: "What is the success criteria which is needed the most to make transport projects work?". We aggregated information about the categories which were presented in the benchmark survey. We decided to show the order of difficulty per category based on what was reported by most participants related to that specific module. Then, we took a closer look at the success criteria and checked which ones scored at or under 3. This we summarise as 'TOP 3 issues per category'. As next step, we also checked which questions reported to be at lower scored and we identified the 'TOP 3 issues per question.' We worked with the categories and questions which were pre-defined for the benchmark survey (see page 7 Benchmark questions). Finally, we looked at the learning plans. We selected few, well-defined issues which were highlighted by the participants. All these meant to give a basic insight into where the challenges may be, if a local or regional authority wishes to develop a similar type of project.

**To DOs / ADVICE:** Take away advice from different mentors which can be useful for any local or regional authority who wishes to replicate or develop a similar type of project.

**FEEDBACK:** Quotes from the peers who participated in PROSPECT.

**LINK WITH OTHER MATERIALS:** Useful links, such as webinars, good practices or the handbooks. Mainly related to the specific thematic area.

**ANNEX 1** refers to the projects offered by the mentors (supply). **ANNEX 2** refers to the benchmark survey results.



# Public Buildings

Covers buildings and facilities owned, managed, or controlled by public authorities. Facilities refer to energy consuming entities that are not buildings, such as wastewater treatment plants



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# Introduction

Public buildings are a priority area for local and regional authorities and a key element for achieving their energy goals. It is traditionally the most demanded area and perceived to be somewhat difficult but manageable amongst local governments. It is true that in terms of CO2 emission reduction, public buildings are not the highest contributor but if a higher number of municipalities shift to energy efficient solutions, it will have a significant and predictable impact. Most importantly, public authorities play an important role in the energy transition by acting as role models for citizens and companies. In the area of public buildings, there are many types of decisions, different models, and solutions. It may be less challenging but still very necessary to have peer to peer exchange and capacity building.

Example of questions:

- How is citizen finance (e.g. crowdfunding/crowdinvesting) organised in step-by-step (from the idea to the purchase and installation of equipment and management of money return)?
- How and why is it better than crowdfunding for public buildings?
- What are the main motives for the people to participate in this kind of projects and what is the role of local authorities in the process?
- It is hard to understand technical and financial aspects of Energy Performance Contracting (EPC) and mixed funding scheme.
- How could it be implemented for this/future energy projects?
- How to calculate the savings when using an EPC?
- What is the best way to prepare a financial analysis to assess the viability of a mixed funding scheme of EPC and structural funds (advantages, challenges, possible problems)?

# Zagreb, Croatia

# Crowdfunding

## What did our mentees think about crowdfunding?

### Impression

This financing scheme relies on co-financing from the residents/users who can be represented by their association or a similar entity for more convenient handling of the project implementation. Additional funding can come from various sponsors and donors. This type of investing seems a very interesting and promising solution for retrofit of public buildings.

### Strengths

The shares in the project belong to the residents themselves who are personally interested in investing in their own future. This approach can be applied to one building at a time, and the successful example of buildings previously retrofitted in this manner can serve as an incentive for others to do the same.

### Weakness

It requires convincing the residents to make a long-term investment. Some may be temporarily residing in the building, for example, and therefore not wish to participate. If it is a public non-residential building, it may be challenging to attract the needed number of the community members using the building. There must be a team effectively handling the technical and legal aspects of such projects, preferably the same for all similar projects. Strong political will is needed.

In public buildings, innovation in financing is often EPC, revolving fund or crowdfunding based.

Crowdfunding involves an open call, mostly through the internet, for the provision of financial resources either in the form of a donation or in exchange for some form of reward and/or voting rights. This can happen in combination with energy cooperatives, which are business models based on shared ownership and democratic decision-making procedures.

# Almada Less Carbon Climate Fund

## Revolving fund

To develop an internal financing scheme to support investment in Energy Efficiency and Renewables, Almada's Local Strategy for Climate Change contains several measures targeted at reducing the energy consumption of buildings and the transport sector. To support these measures, the Almada Less Carbon Climate fund was created in 2009 and it is supported by a specific budget line for energy efficiency and renewable energy investments dependent on an evaluation of the CO2 emissions from the municipal activities from the previous year (not a compensating mechanism but linking and making the connection between emissions, energy and investment). It supports local energy efficiency investments, serving as a benchmarking instrument for the measures of other key players in the mitigation of GHG emissions from both the public and private sectors. After seven years of successful operation, the fund is now being redesigned and upgraded to become a revolving fund. This means that the cost savings resulting from implemented energy efficiency measures will be returned directly to the fund, ensuring leverage of the fund, and boosting further investments in a clean energy transition.

### What did our mentees think about revolving fund?

#### Impression

For extraordinary projects that cannot be financed by the department budgets of projects that need short term investments to gain long-term benefits, the revolving fund can offer opportunities to accelerate the energy transition within the organisation and reward/motivate colleagues for their sustainable initiatives.

#### Strengths

Helps to raise awareness, makes ideas and action visible.

#### Weakness

It is not really revolving; you need a structural budget line. A small disadvantage of the Almada scheme is that it especially rewards measures with high saving rates. It would be interesting to look at a scheme that accumulates the savings of the measures to an acceptable rate of payback.

A fund established to finance a continuing cycle of investments through initial amounts received from its shareholders, creditors or donors and later on through amounts received from reimbursements of provided funding or loans to projects. These recovered funds become available for further reinvestment in other projects under a similar scope (e.g. revolving funds for sustainable energy will use the recovered funds to finance new sustainable energy projects).

# Greek Islands (AEGEA Energy Environment Agency), Greece

## Mixed funding schemes

What did our mentees think about mixed funding schemes?

### Impression

The presented mixed funding scheme of EPC and structural funds can be a very useful tool for Greek municipalities to finance their energy projects. Every aspect of the funded scheme was clearly analysed and thoroughly explained by an experienced mentor.

### Strengths

The mixed funding scheme is flexible and can be adapted to specific legal and economic contexts of each region, municipality and energy project. There are contractually guaranteed energy savings and financial consequences for the ESCO if these are not achieved. EPC supports solutions with higher-level technical quality than a general contractor, since the ESCO is usually a highly specialised company.

### Weakness

Facilitation services may not be available in Greece, lack of knowledge/trust to the ESCO companies by the municipalities. Some of its own investment (budget) is required by the municipality. EPC is not suitable to act on deep building renovation.

Energy Performance Contracting (EPC)  
with Structural Funds

Funding from financial institutions: Refers to different public financial institutions and their instruments, such as European Structural and Investment Funds, European Funding Programmes, Project Development Assistance (PDA) and financial institutions' instruments, such as municipal loans.

## What did our mentees think about EPC?

### Impression

EPC is an interesting financing and operation scheme, especially when high up-front investments are a barrier to project implementation. There are however some initial barriers to using EPC that need to be overcome, such as the lack of understanding and trust in EPC, no/few experienced ESCOs available and the low level of savings and long payback periods for building EPC.

### Strengths

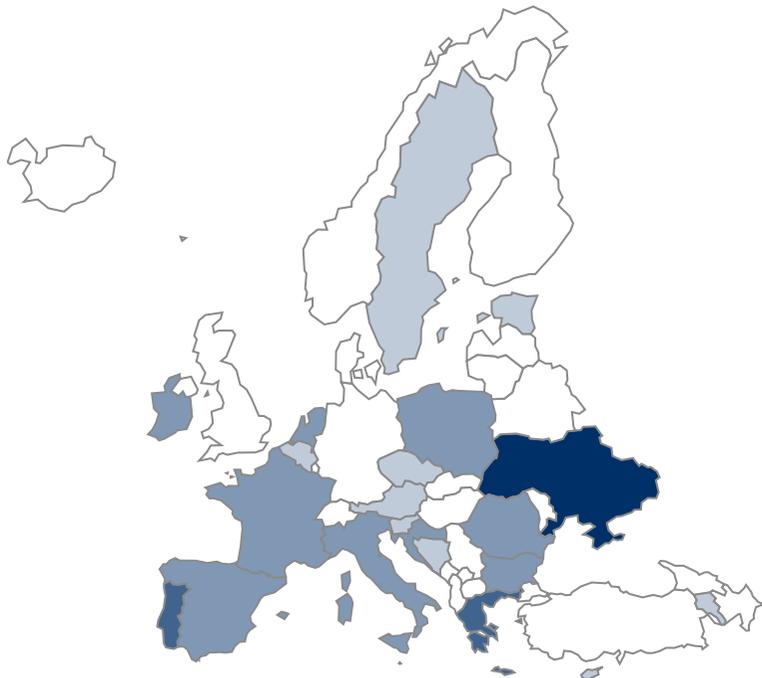
The ESCO guarantees the energy savings and is contractually responsible for achieving them. The investment costs are (at least partially) refinanced using the energy savings. The financial and technical risk are carried by the ESCO. EPC can take many forms and can be adapted to the legal, economic and social contexts of each region and project. EPC often supports solutions with higher-level technical quality than would otherwise be achieved since the ESCO contributes its expertise to the project.

### Weakness

The model is most suitable for projects with high savings and low payback times. EPC for building refurbishment is more complex than for street lighting and often can only cover part of the investment costs. Sometimes, project bundling can help increase the size of the project and make it suitable for EPC. Setting up the first EPC projects and contracts can be time consuming. However, as the EPC market in a region develops, knowledge and trust in the model increase and tend to reduce the transactional cost of EPC projects.

EPC is a contractual arrangement between a client (for example a municipality) and a service provider, a so-called 'Energy Service Company' (ESCO). Typically, the ESCO finances and implements energy efficiency investments. The difference between EPC and other types of financing schemes are the contractually guaranteed energy savings and consequences for the ESCO if these are not achieved.

# Where did the Mentors & Mentees of the module "Public Buildings" come from?



## Mentors:

- Austria: Upper Austria ESV - OÖ Energiesparverband
- Croatia: ZEZ - Green Energy Cooperative; Municipality of Karlovac
- Czech Republic: SMART CITY Litoměřice
- France: AURA Environmental Agency
- Greece: Aegean Energy Agency
- Ireland: Tipperary Energy Agency; KORE Retrofit
- Italy: Piemonte Region
- Portugal: AGENEAL - Municipal Energy Agency of Almada
- Slovenia: KSSENA - Energy Agency of Savinjska, Šleska and Koroška Region
- Ukraine: EECU - Association "Energy Efficient Cities of Ukraine"

## Mentees:

- Armenia: Municipality of Yerevan
- Belgium: Walloon Region
- Bosnia & Herzegovina: Canton of Sarajevo
- Bulgaria: Municipality of Sofia; Municipality of Svilengrad; Municipality of Gabrovo Bulgaria
- Cyprus: Municipality of Aradippou
- Estonia: Municipality of Tartu
- France: Municipality of Coutances; Municipality of Liévin; Municipality of Albertville; Municipality of Strasbourg
- Greece: Municipality of Milos; Municipality of Moschato; Cities Network "Sustainable city"; Municipality of Egaleo; Rafina-Pikermi Municipality; Municipality of Nea Ionia; Municipality of Dionysos; Pieriki Anaptixiaki-Local Development Agency for Municipality of Katerini
- Ireland: Castlepollard Local Development; 3 Counties Energy Agency
- Italy: Municipality of Pesaro; Municipalities of Palma Campania, San Gennaro, San Giuseppe vesuviano, Striano
- Netherlands: Municipality of Heerlen; Municipality of Hengelo
- Poland: Municipality of Bydgoszcz; Municipality of Siemiatycze; Municipality of Pałecznica
- Portugal: Câmara Municipal de Loures; Matoshinos; Municipality of Vila Nova de Polares; Ave Energy Agency
- Romania: Municipality of Timisoara; Municipality of Bucharest
- Spain: Municipality of Bigastro; AGENEX - Extremadura Energy Agency
- Sweden: Energikontor Norr
- Ukraine: Municipality of Khmelnytskyi; Municipality of Dnipro; Municipality of Mykolaiv; Municipality of Kropyvnytskyi; Municipality of Kryvyi Rih; Municipality of Mariupol; Municipality of Melitopol; Municipality of Sumi; Municipality of Karkhiv

### **PROJECTS: What type of projects have already been implemented?**

The type of projects range from EPC for public building retrofitting, to carbon climate funds and ELENA funds to upgrade the energy efficiency of public buildings.

### **PROJECT IDEAS: What type of project ideas have been gathered? What were the learning objectives?**

The project ideas range from building retrofitting and energy efficiency measures of cultural centres, municipal buildings, schools and social housing.

A well-functioning contracting market can contribute to achieving significant increase in energy efficiency and long-term energy and cost savings. In 1998, Upper Austria launched a dedicated programme to overcome barriers of EPC market development. Since then, over 250 projects have been funded, triggering total investments of around 65 million Euro. The key to the programme's success is the combination of a strong supporting facilitation service by the OÖ Energiesparverband, the regional energy agency, and a financial incentive offered by the regional government:

- The facilitation service provides comprehensive support to EPC clients, (potential) ESCOs and other financing bodies through, among others, useful tools (e.g. quick-checks, guides), an enquiry and advice service, regional events and project development and implementation assistance. Working closely with individual clients and ESCOs has greatly helped to increase know-how and trust in the EPC model.
- Additionally, financial support is granted to the clients to cover part of the costs of having the investment financed by an ESCO. It goes towards reducing either the annual rates paid by the clients to the ESCO or the duration of the contract.

Overall, this programme has led to a functional and well-developed EPC market in Upper Austria with many EPC projects implemented each year.

#### **Public buildings of the regional government:**

- 15 EPC projects encompassing 40 buildings (mostly office buildings, schools, cultural buildings, special care homes and maintenance buildings)
- Mix of implemented measures, i.e. optimisation of heating systems, thermal insulation, switch to renewable energy
- Total investment: approx. €4,850,000 (€60,000 to €1,100,000 per project)
- Total annual savings: 4,500,000 kWh, €340,000 energy costs, 1,500 t CO<sub>2</sub>
- ESCOs: Cofely Gebäudetechnik, Siemens

# Križevci Solar roofs via crowd investing and micro loans

The crowdlending campaign for the photovoltaic power plant using micro-loans model was successfully implemented in Croatia the first time as part of the project Križevci Solar Roofs. At the time there was an idea of how to utilise crowdfunding as a tool that enables project initiators to reach the financial resources for the implementation of the RES Renewable energy sources, and allows citizens to invest in the same project and receive a return on funds.

Since no such model had been implemented in Croatia until then, ZEZ company decided to do this in synergy with the local government. Through crowdlending campaign, ZEZ collected €30,000 within 10 days, from 53 citizens, for installing 30 kW power plant. This was the first time that citizens have been included and encouraged to invest in renewable energy from which everyone will benefit. Citizens invested in the project by giving a loan to the ZEZ for the period of 10 years with a 4.5 % annual interest rate. The cooperative used the loan to buy and install a solar power plant on the roof of the Development Centre and Technological Park in Križevci.

Križevci is now the only city in Croatia that has carried out a crowdfunding project in renewable energy sources using a micro-loans model. The project has been recognised at local and regional levels as a new and innovative way of financing renewable energy facilities. Due to the transparent way of financing, a greater number of citizens have been interested in investing in and benefiting from such kind of projects. This pilot project proved to be very effective, thus allowing ZEZ to continue their mission to replicate this model in other cities.

The city of Križevci is the owner and founder of Križevci's entrepreneurial centre (KPC), which manages the building of the Križevci Development Centre and Technological Park. KPC was founded with the aim of promoting entrepreneurship and creating a positive entrepreneurial atmosphere, strengthening of crafts and entrepreneurship in Križevci and in the area surrounding the administrative building of the Development Centre and the technological park.

ZEZ, as a cooperative and citizen-investor representative, leases solar equipment to KPC for 10 years. The obligation of the cooperative for the duration of the lease agreement is to maintain the solar equipment and the power plant in the correct condition, as well as to perform the necessary repairs and regular services. During the term of the lease, the power plant remains the property of the cooperative. After the expiration of the contractual period of solar equipment lease, the power plant is owned by the City of Križevci and continues to make savings. Based on the experience gained, ZEZ has come up with a project to launch an online investment platform for the RES by the citizens: ZEZinvest.

## Mentors offered knowledge about - HOW TO



- Implement innovative financing schemes e.g. energy performance contracting and third-party financing of energy efficiency
- Mentors shared practical experience on implementing sustainable energy and climate action projects and support others in overcoming different barriers
- Showcase sustainable energy and climate action projects financed by energy performance contracting and third-party financing
- Development of a robust energy savings monitoring and verification plan to suit this change
- Development of financial analysis to assess the viability of an EPC solution
- Development of the tender specifications for selection of an ESCO company
- Development of a robust energy savings monitoring and verification plan

## Mentees wished to learn - HOW TO

- Increase capacity building on energy efficiency into municipalities.
- Finalise three different projects but with the same parameters with one contract.
- Make the project more interesting for the investor.
- Remodel the project after the assignment.
- Understand technical and financial aspects of EPC and mixed funding scheme.
- Develop financial analysis to assess the viability of a mixed funding scheme of EPC and structural funds (advantages, challenges, possible problems).
- Develop the tender specifications for the selected financing scheme.
- Technical quality control during project preparation and implementation.
- Some of the buildings considered or eligible for EPC have applications for subsidies to implement energy efficient lighting. How to incorporate these subsidies into EPC contracts if the applications are approved?
- Building Envelope efficiency measures have normally very long payback times and are not attractive for ESCOs.
- Development of financial analysis to assess the viability of an EPC solution.
- The building is subject to changes of uses, like number of people working and/or visiting daily.



# Road to success

If you work for a local or regional public authority and wish to implement a public building project, you may wish to know the success criteria reported by others.



## What is a success criteria which is needed the most to make public buildings projects work?

For the financing of public buildings, mentees encounter various difficulties. Looking more precisely at the most challenging aspects, alongside communication and dissemination issues, the cities also reported that the annual municipal budgets were far from sufficient to meet their objectives in terms of public building renovation.



## When we take a closer look at the success criteria...

TOP 3 issues per category

- 81%** reported that various aspects of communication were hard to handle
- 70%** of the mentees considered financing conditions and own pre-financing as challenging
- 69%** of the mentees reported difficulties regarding staff availability and the technical conditions as challenging

## However, when we look question by question...

TOP3 issues per question

- 92%** reported that city's sustainable energy related projects and initiatives are not adequately disseminated to prospective investors & actors
- 70%** reported that the available percentage of the total annual city budget for sustainable energy projects was not sufficient
- 79%** reported that there was an issue with having the necessary training schemes available for city employees to enhance project development capacity with regards to sustainable energy projects. Around the same percentage indicated that they lack staff dedicated to investigating available funding options, especially innovative ones



## Take away advice from AEGEA Greece

1. Schools are the least attractive candidates for an EPC due to their limited occupancy hours.
2. Hospitals are perfect candidates due to high energy consumption but on the other hand they present a difficulty for retrofitting without disturbances of their day-to-day function.

## Take away advice from Valladolid

1. Make sure you take renovation as a whole and approach it from an integrated perspective to maximise its potential.
2. Start early the collaboration among the stakeholders participating in the renovation.
3. Training programmes are important for ideal local skill development.
4. Promotion of crowdsourcing initiatives, microfinance and community projects is key.
5. Establish relationships amongst the entities to share risk and costs.
6. Externalise investment costs and risks through innovative contracting.
7. Make incentives for citizens and local governments so they will be willing to exploit the potentials of smart solutions.
8. In your procurement practice, change the evaluation of scoring and value energy performance.
9. As a municipality, be an intelligent customer and work with the construction sector in a collaborative manner
10. Count on potential barriers e.g. calculate with potential high investment and upfront costs, long pay-back periods; prepare to deal with changes in heat and electricity prices; as well as the short depreciation period for some technologies.

## Take away advice from Upper Austria ESV



1. EPC can take many forms: It can be adapted to the legal, economic and social contexts of each region and project.
2. Quality is king: EPC is a long-term partnership - good project preparation is crucial for the success of the project. EPC often supports solutions with higher-level technical quality than would be otherwise been achieved since the ESCO contributes its expertise to the project.
3. It is all about trust and knowledge: There can be significant knowledge gaps on technical and economic aspects of EPC. Especially in the first stages of EPC market development, it is necessary to invest much time in explaining the EPC concept.

## Take away advices from Almada

1. Know that the main barriers of implementing internal and voluntary schemes such as the Carbon Climate fund in Almada are the significant changes required in mindset and compared to business-as-usual procedures. If you go for these changes you will need have cross departmental cooperation.
2. Legal/financial hurdles can be overcome by strong leadership and political willingness.
3. Bring decision makers to the process from the beginning
4. Establish strong cooperation with the core team and also involve financial and legal expert colleagues from the beginning.
5. Take advantage of projects already in development to explore and test the scheme.

## Take away advice from Zagreb

1. Examine what the possibilities are for the implementation of the project using the crowdfunding in your countries, priority is given to legislation and taxes.
2. Determine the type of project funding and examine whether the market is ready for it (organising meetings, send surveys to your community).
3. Check with all project stakeholders if there is an agreement to use crowdfunding as a tool.
4. Consider what other, complementary sources of funding are needed to implement the project (especially if you implement the project on a larger scale).

“ The deep renovation of the historical municipal building in Celje was the most inspiring lesson of the learning programme. The procurement which led to the implementation of EPC has grouped a couple of buildings together into one project. Few of these buildings were likely to be very profitable for the ESCO companies, however the company also had to perform deep renovation of the old historical building in the city centre which might not result in any profit. It was very nice to hear about this from the contractor himself talking about the implementation of the project and expected results. It was pointed out that well prepared energy audits are the key to success. ”

**Marcin Napierała**  
Bydgoszcz, Poland

“ Payback periods are very long-term, so only few ESCOs are able to cooperate. ESCOs should be involved from the beginning of the investment process, but this is not always possible due to public procurement procedures. A good point about ESCOs is that private investors tend to achieve more energy savings than public employees because they are more attentive – they save their own money. ”

**Agnieszka Koc**  
Siemiatycze, Poland

## FEEDBACK: What did the peers say?

“ The main difficulties about the replicable aspect of the process were related to the different legal environment. But for this problem we can easily find some partners to help us in France. ”

**Sandrine Deternay**  
Albertville, France

“ The financing scheme of Almada is a suitable scheme for part of the municipal actions. First of all, every department has to incorporate sustainability into its work as a core business. For those extraordinary projects that cannot be financed by the department budgets of projects that need short-term investments to gain long-term benefits, the revolving fund can offer opportunities to accelerate the energy transition within the organisation and reward/motivate colleagues for their sustainable initiatives. ”

**Hans van der Logt,**  
Heerlen, The Netherlands

“ EPC can be mixed with ERDF funds, crowdfunding, national and European (EIB) funds. ”

**Iolanda Sousa**  
Loures, Portugal

# Link with other materials

## Handbook on public buildings:

[https://h2020prospect.eu/images/Module\\_Handbooks/Module-on-Public-Buildings.pdf](https://h2020prospect.eu/images/Module_Handbooks/Module-on-Public-Buildings.pdf)

## MED EPC Guidelines:

<https://stepping.interreg-med.eu/news-events/news/detail/actualites/med-epc-guidelines/>

## Good practices:

<https://h2020prospect.eu/library/goodpractices>



# Annex 1 - Supply: What could mentors offer?

**Valladolid:** Building renovation project <http://www.remourban.eu/>. The REMOURBAN project aimed not only at reducing the energy demand of the buildings in the FASA District through passive Energy Conservation Measures (ECMs), but also intervened with active ECMs that would introduce renewable energy sources in the district, reducing its dependence on traditional fossil fuels. The ambitious proposal consisted of two parts: the renovation of the District Heating system and the implementation of Building Integrated Photovoltaics for electricity self-consumption.

**AGEGEAN Greece:** public building retrofit under mixed funding scheme in Greek Island High levels of energy savings (50%), improved environmental performance and boost of the energy service market in Greece. The project uses the application of a mixed funding scheme, EPC with structural funds, in the design and awarding of energy efficiency interventions through bundling of public buildings, in order to reach high targets in energy consumption savings (50%), improve environmental performance and boost the energy service market in Greece. Bundling is an important element that helps create economies of scale and boost the EPC market, addressing intrinsic challenges facing islands (dispersed market, varying conditions with regards to energy costs, energy consumption, climatic factors, building categories). In addition to the above, the use of structural funds for the funding of retrofitting measures with longer payback periods creates an attractive investment environment. The interventions consist of: Energy Consumption Evaluation and Feasibility Study; Retrofitting Proposals (Insulation, Passive Solar Design, Renewable Energies, Heating, Ventilation and Air-conditioning „ etc.); Investment Plans; Tendering. The EPC investment plans were elaborated in the frame of the Interreg-MED STEPPING programme.

**Litomerice,** Revolving fund. Project objective: Achieve 20% energy savings in public buildings in 2030. Project description: Mechanism to invest saved operational cost (due to energy savings) in the new projects and how to motivate building users.

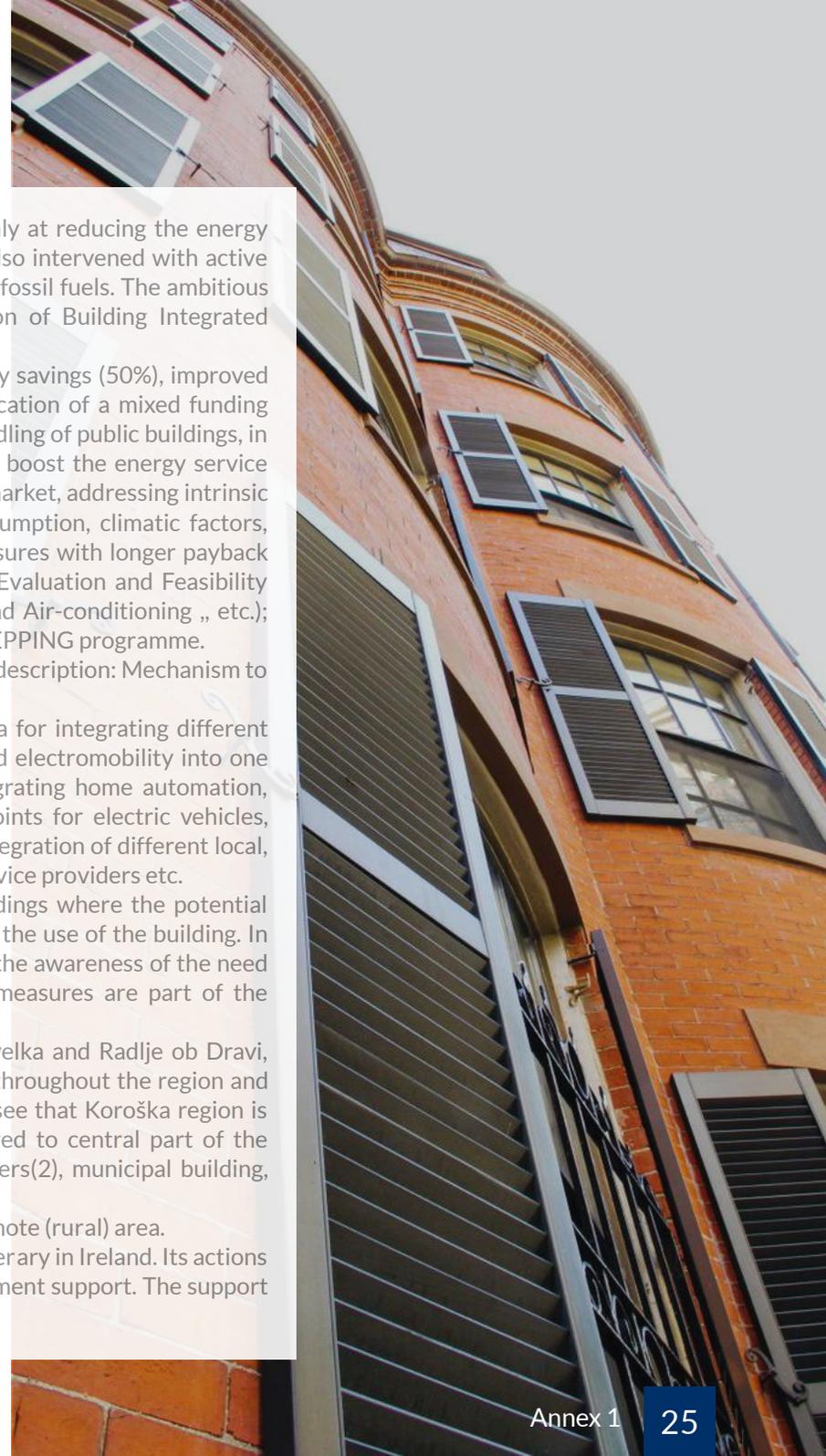
**SmartEnCity.** The international lighthouse project SmartEnCity (started in 2017) is the first pilot in Estonia for integrating different technologies like energy renovation, urban transport, district heating/cooling, environmental monitoring and electromobility into one smart-city service. The project is fully renovating 17 old soviet-era buildings in the centre of Tartu, integrating home automation, building based solar panel micro-production, smart street-lighting, environmental monitoring, charging points for electric vehicles, energy storage using recycled batteries and a platform for data collection. Innovation also comes from the integration of different local, national and international stakeholders: Municipality, consultancy, technical experts, project management, service providers etc.

**Celje:** Energy renovation of eight public buildings in the municipality. The set of buildings consists of buildings where the potential energy savings are the highest, according to the amount of investment. Important selection criteria was also the use of the building. In most cases they are used by educational institutions, which have particularly profound effects on furthering the awareness of the need to save energy. With this we have in mind the youngest generation, where the planned organisational measures are part of the educational process.

**Korošk** Energy renovation of 8 public buildings. Four Municipalities in Koroška region: Mislinja, Muta, Podvelka and Radlje ob Dravi, prepared jointtender for deep energy renovation of seven (7) public buildings. Selected buildings are spreadthroughout the region and have a very important role in social life and public services for localpopulation. On the map below you can see that Koroška region is located on remote area in northernpart of Slovenia. The region is considered as under-developedcompared to central part of the country.Respective municipalities own all seven publicbuildings, which are health centers (2), cultural centers(2), municipal building, primary school gym and fire station.

**Velen:** Energy renovation of eight public buildings. Renovation of swimming pool hall and primary school in remote (rural) area.

**Tipperary:** Sustainable Tipp is the implementation of the Sustainable Energy action plan for the county of Tipperary in Ireland. Its actions are across private, public and community buildings in the county. ELENA has funded the project with development support. The support was given as a public service for energy efficiency.



## Annex 2 - Benchmark Survey Results

The PROSPECT Benchmark survey facilitated mentee-cities to evaluate their potential to employ a financing scheme under their local conditions and infrastructure (staff availability, time needed, financial conditions, etc.).

For each participant city-performance graphs were prepared from the answers included in the PROSPECT Benchmark survey, that best reflect the mentee-cities' current situation, in relation to the average performance across all cities participating in the survey.

The graphs were then presented and discussed during the transferability session of each learning group.

The results of one participant involved in the module "Public Buildings" are presented in the next pages of the report.

# Annex 2 - Benchmark Survey Results

## Staff availability – Technical conditions

Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?



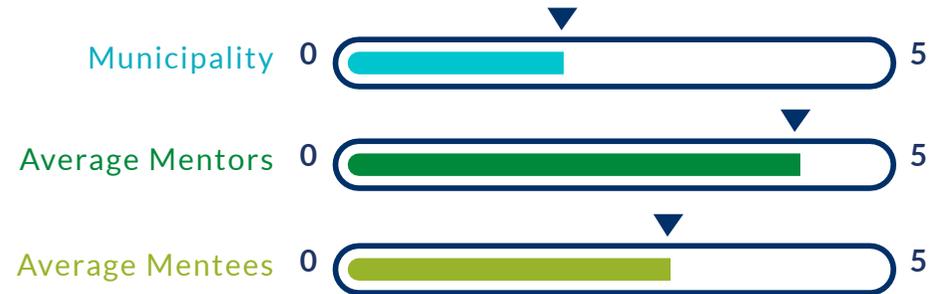
Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)



Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?



Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?



Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.

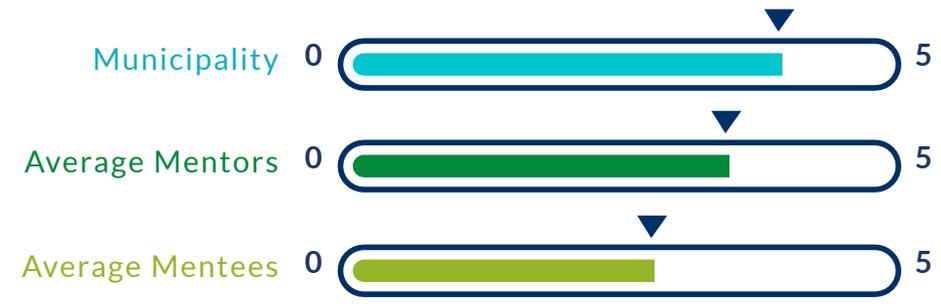
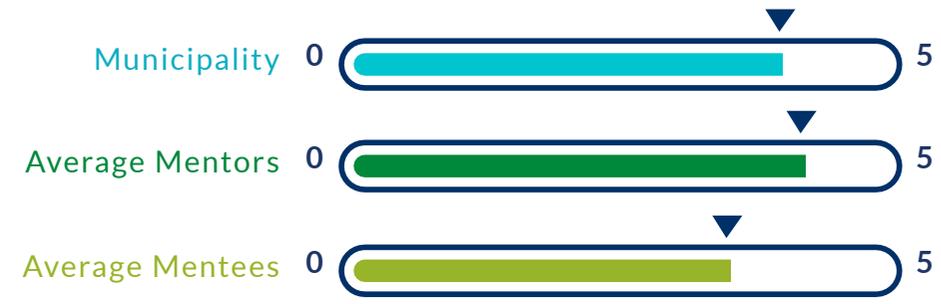


# Annex 2 - Benchmark Survey Results

## Legislative/regulatory framework - time needed for implementation

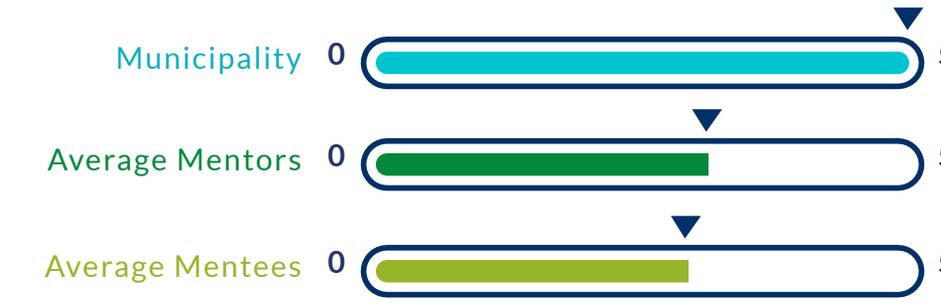
Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?

Is the process to gain a construction/renovation permit for sustainable energy related projects fast and efficient?



Do public procurement (PP) procedures facilitate sustainable energy investments adequately?

Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?



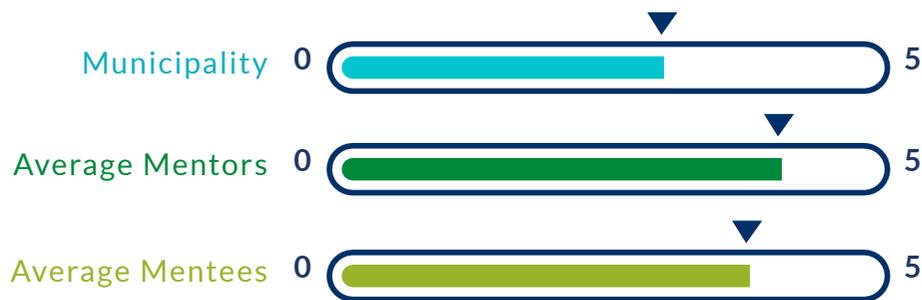
# Annex 2 - Benchmark Survey Results

## Governance/Management related efforts

What is your city experience regarding sustainable energy (SE) city-level projects? Has your city implemented a Sustainable Energy & Climate Action Plan (SECAP) or equivalent plan?



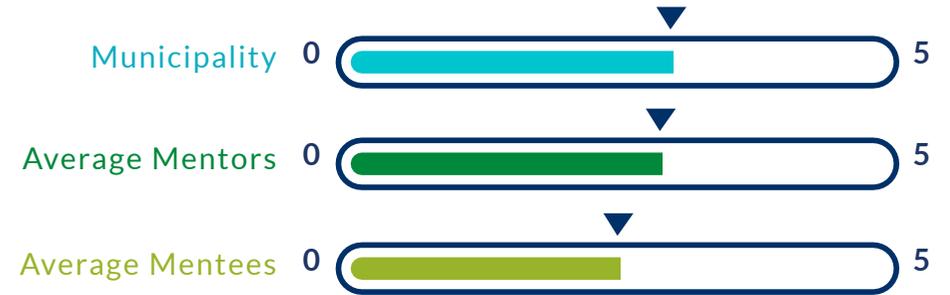
Does the city cooperate/ communicate with other public actors (e.g. partnerships with the central government, regional authorities, public transport companies etc.) for sustainable energy related projects?



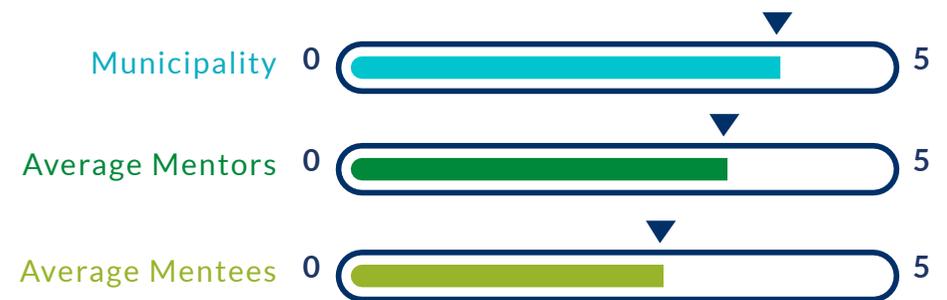
Are operational standards and/ or quality assurance (QA) methods currently used? (to ensure good project quality and replicable results)



Is a project evaluation process (either at the national or the local level) established and applied to sustainable energy projects?



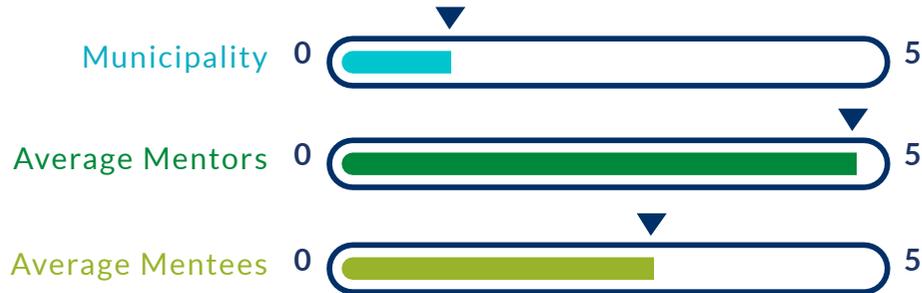
Is there a standardized monitoring and verification (M&V) procedure applied to monitor and verify project effects?



# Annex 2 - Benchmark Survey Results

## Financial conditions/ Own pre-financing required

Are subsidies, tax benefits or other incentives available for private project investors and lenders? Are all types of city-level sustainable energy investments eligible for support?



Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.



Is citizens' finance (such as crowd-funding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects?



What percentage of the total annual city budget is available for sustainable energy projects? Please provide the absolute amount of available budget within a certain timeframe, as well as the proportion to the total city budget.



Are available international/ national/ regional funds and other financial support schemes for municipalities available? Are those sufficiently utilized by the municipality in the context of sustainable energy projects?



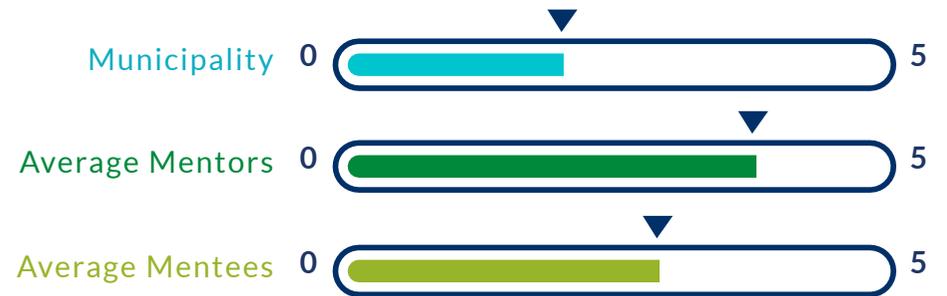
# Annex 2 - Benchmark Survey Results

## Communication

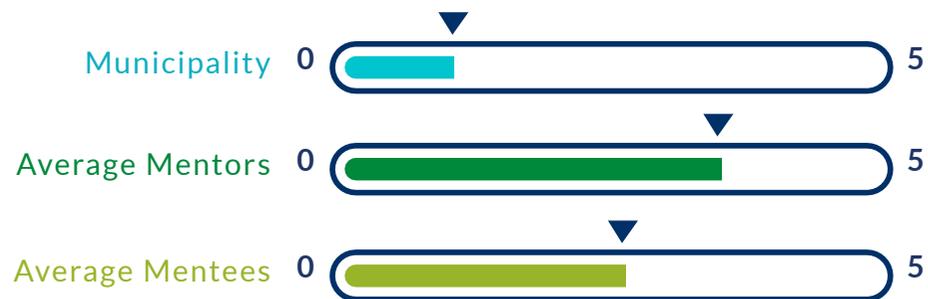
Are city's sustainable energy related projects and initiatives adequately disseminated to prospect investors & actors? Dissemination events could be online (e.g. newsletters or a website) or offline (e.g. monthly magazine, a quarterly physical meeting)



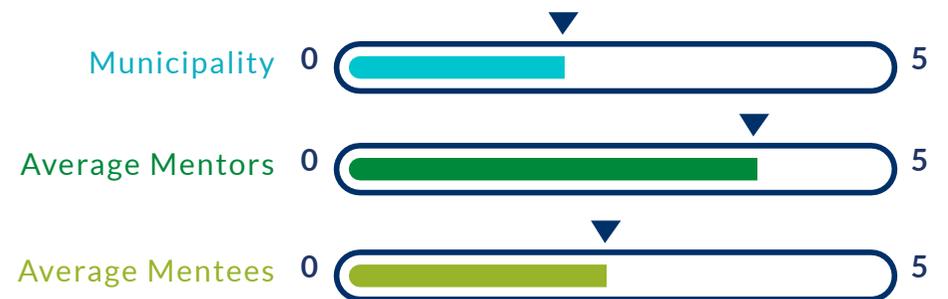
Does the city cooperate/ communicate with other cities for sustainable energy projects?



How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?



How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?





# Public Buildings



## Private Buildings

Covers the buildings owned, managed, or controlled by private individuals or corporations. These refer primarily to the buildings in the tertiary sector (services), such as private companies, banks, commercial and retail activities, etc. and residential buildings, including social housing.



The PROSPECT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 752126.



# Introduction

Private buildings can be private housing to residential or social housing. Therefore, it is not possible to make general conclusions. Local and regional authorities perceive this area as difficult and have not much experience. Still, it is a popular area and regions, cities, municipalities, and energy agencies have the willingness to share and learn. They consider this area important even if it is challenging.

Example of questions:

- Bundling of private building projects for a better
- Chance for financing,
- How to manage the properties occupied by low
- Income residents,
- Tools for financing residential retrofits (e.g. what type of financial structure is advised for setting up a revolving fund,
- Examples of contracts and tendering procedures for multiple single-family houses.

# Valladolid, Spain

## Funding from EU and private sources

In the case of Valladolid the EU funded REMOURBAN project not only aimed at reducing the energy demand of the buildings in the FASA District through passive Energy Conservation Measures (ECMs), but also intervened with active ECMs that would introduce renewable energy sources in the district, reducing its dependence on traditional fossil fuels. The ambitious proposal consisted of two parts: the renovation of the District Heating (DH) system and the implementation of Building Integrated Photovoltaics for electricity self-consumption. There was a new type of contracting and collaboration which makes this case interesting from a financing perspective.

### What did our mentees think about the funding from EU and private sources?

#### Impression

A renovation action that has been understood as a whole and approached from an integrated perspective to maximise its potential.

#### Strengths

Important to create relationships amongst different entities to share risk and costs. Investment costs and risks can be externalised via innovative contracting. There are incentives for citizens and local governments to be willing to exploit potentials for smart solutions; tendering for bids that deliver solutions to urban challenges (rather than specific items); and change to the evaluation of scoring (performance is valued).

#### Weakness

Lack of knowledge in financial options to tackle the works to be carried out. Lack of best practices on energy efficiency and renewable energy technologies. Lack of easy identification of savings coming from the e-mobility sector; Financial issues are particularly critical in relation to their ability to act as barriers if not dealt with effectively.

For example: High investment and upfront costs; Lack of long-term guarantee for heat and electricity prices; Lack of financial support to finance early stages; Long payback periods; Fluctuations and sometimes cheaper fossil energy prices; Short depreciation period for some technologies; Potential negative opinion of residents who are against energy efficiency solutions and lack of understanding of benefits need to be dealt with.

In private buildings, innovative financing aims as much as possible to find alternatives to financing and complement private personal loans. Innovative financing schemes range from service cost models (Assen municipality) to mixed funding schemes (Valladolid, Lyon) including third party financing (e.g. loans from financial institutions, private investors; soft loans for homeowners of residential buildings and the use of financial & fiscal incentives, guarantee funds as well as energy efficiency obligations).

The funding from EU and private sources refers to funding from the EU or private sector and investors that are not financial institutions.

### Lyon, France

The Metropole of Lyon has adopted a strategy of mixed financing with a combination of third-party financing (e.g. loans from financial institutions, private investors, soft loans for homeowners of residential buildings in combination with financial and fiscal incentives), energy performance contracts, a guarantee fund as well as Energy Efficiency Obligations and citizens finance.

In the case of Ecoreno'v, the energy refurbishment programme for condominiums and private houses, the local authority looked for external financing, like ANAH (National Housing Agency), ADEME (National Agency for the Environment and Energy Management), ecocités and TEPCV (French national subsidies) but also the European ELENA technical assistance programme. It also issued a specific call targeting banks for them to offer a soft loan, which however turned out to be less successful.

Refers to a combination of different financing schemes (e.g. third-party financing, loans).

#### What did our mentees think about mixed financing schemes?

##### Impression

Having a strong political commitment and sustainable energy action plan as framework is key to success.

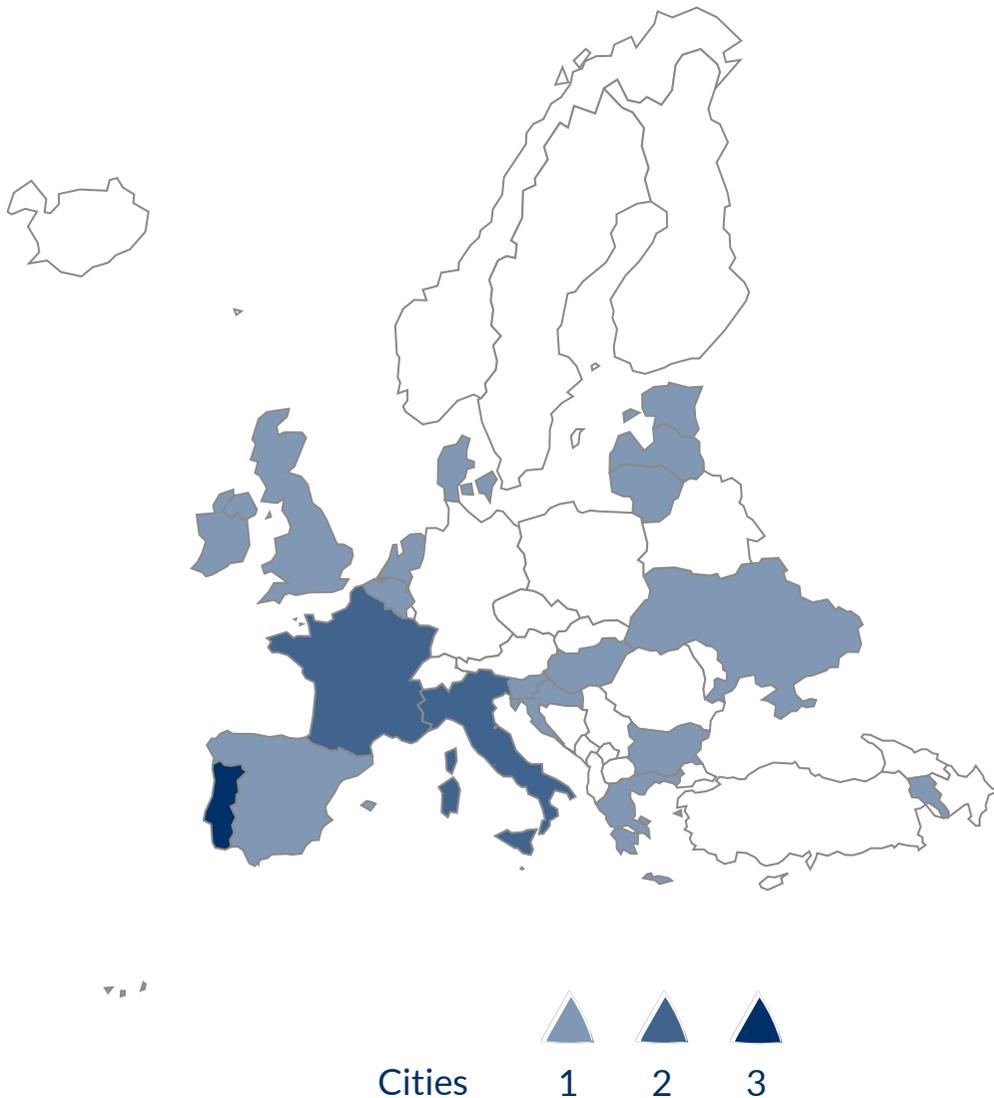
##### Strengths

Building dedicated small teams in the local authority and in the local energy agency which launched the ecoreno'v programme helped the deployment.

##### Weakness

When cooperating with the association, the efficiency depends on the presence of volunteers.

# Where did the Mentors & Mentees of the module "Private Buildings" come from?



## Mentors:

- Bulgaria: Energy Agency of Plovdiv
- Estonia: Municipality of Tartu
- France: Local Energy Agency of Lyon
- Latvia: Funding for Future B.V.
- Spain: Cartif Technology Center

## Mentees:

- Armenia: Municipality of Yerevan
- Belgium: Bruxelles Environment
- Croatia: Grad Zagreb
- Denmark: ProjectZero
- France: Ecotransfaire
- Greece: Municipality Of Elliniko Argyroupoli
- Hungary: Municipality of Petfurdo
- Ireland: Municipality of Tipperary
- Italy: Energy Agency of Teramo Province; Energy Center of the Politecnico di Torino
- Lithuania: Vilnius City Administration
- Netherlands: City of Utrecht
- Portugal: Lisboa E-Nova; MatosinhosHabit-MH; Municipality of Mafra
- Slovenia: Municipality of Kranj
- UK: Municipality of Ipswich
- Ukraine: Municipality of Tetiyiv

### **PROJECTS: What type of projects have already been implemented?**

The type of projects ranges from energy refurbishment for condominiums and private houses, to the installation of solar panels on public roofs, to citizens' investment in renewable energies on roofs.

### **PROJECT IDEAS: What type of project ideas have been gathered? What were the learning objectives?**

The project ideas range from the energy upgrade of social buildings, incentives to install solar panels on private buildings, the financing of a citizen cooperative, the large-scale renovation of private houses.

The REMOURBAN project aimed not only at reducing the energy demand of the buildings in the FASA District through passive Energy Conservation Measures (ECMs), but also intervened with active ECMs that would introduce renewable energy sources in the district, reducing its dependence on traditional fossil fuels. The ambitious proposal consisted of two parts:

The renovation of the district heating system and the implementation of BIPV for electricity selfconsumption. The retrofiting of the district heating system was led by the renovation of the thermal energy production plant. The existing production plant consisted of two natural gas boilers and the objective was to replace them so that the heat demand from the district would be mainly covered by biomass, with occasional support from natural gas. This intervention included the installation of two new Herz biomass boilers. One of the existing natural gas boilers was kept in the system to provide support during demand peak periods. In addition, new twin-head pumps were installed for the natural gas boiler and for the biomass boilers, as well as three distribution water pumps installed in the distribution system as a turbo-group in order to supply hot water from the production plant to the substations in the district. The intervention in the boiler room was completed with three-way valves for the biomass boilers that avoid condensation and ensure a return temperature above 65°C, a 1,000L buffer tank and a double wall chimney for each of the biomass boilers, while the existing expansion system and the natural gas boiler's chimney were kept in the system.

Of course, in order for the district heating system to behave efficiently as a whole, the 20 substations of the district were renovated, as was the distribution network, which was updated with pre-insulated pipes to minimise heat losses.

The objective of the project in terms of renewable energy sources contribution in the thermal energy system was to provide 90% of the demanded thermal energy with biomass and the remaining 10% with natural gas. The non-burned products that result from the process of combustion of biomass chips are collected by a cyclone system located after the boiler and before the chimney, preventing the emission to the environment.

The works for the new production plant were successfully finished and it started supplying heating and domestic hot water to the dwellings in October 2018. Veolia, the ESCO (Energy Services Company) in charge of the management of the facilities, has been monitoring them in real time 24 hours a day every day during this past year in order to assess the results.

The project was financed as following: EC funds (50%), municipal grants (25%), owners co-financing (25%) via ESCO contract and soft loan.

## Mentors offered knowledge about - HOW TO



- Develop business models
- Negotiation with public authorities
- Build partnerships with citizens' association and its dedicated investment company



## Mentees wished to learn - HOW TO

- Establish partnerships with private banks.
- Reduce staff costs.
- Clarify communication with citizens.
- Share experiences and best practices on soft loans for homeowners.
- Insight into which financial instruments can be applied to realise various energy transition projects.
- Understand how these instruments work, what the preconditions are and how to apply them.
- Learn in depth about different financial instruments and their applicability at the city scale.
- Leverage local policies (e.g. solar PV in Lisbon, or energy buildings large scale retrofit) using several financial instruments.
- Well-known financing models implemented by the city in co-financing the energy reconstruction of family houses.
- Create a revolving fund. It is interesting to know mentors' attitude on creating and working with this mechanism in public buildings.
- Technical quality control during project preparation and implementation.

# Road to success

If you work for a local or regional public authority and wish to implement a private building project, you may wish to know the success criteria reported by others.



## What is a success criteria which is needed the most to make private buildings projects work?

All the cities face difficulties across the categories, communication being on average the most challenging aspect, with financial conditions presenting the most difficulty. It seems that 90% of the them faced difficulties in the project evaluation process as well as in the use of citizen finance, which is still little used.



## When we take a closer look at the success criteria...

TOP 3 issues per category

- 85% reported issues with communication
- 76% faced difficulties in governance and the management related efforts
- 70% reported challenges in terms of staff availability and technical efforts

## However, when we look question by question...

TOP3 issues per question

- 90% reported issues with the project evaluation process (either at the national or the local level) established and applied to sustainable energy projects
- 90% make little use of citizens' finance (such as crowdfunding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects
- 90% reported that city's sustainable energy related projects and initiatives are not adequately disseminated to prospect investors & actors

## Take away advice from Lyon

1. Build trust among the private and public stakeholders through communication.
2. Ensure security, as the roofs in private buildings have specific regulations regarding fire and other technical issues.
3. Be cautious in the finding and selecting roofs.
4. Have an organised association with enough volunteers.

## Take away advice from Valladolid

Pay strong attention to the needs to ensure that all stakeholders are appropriately involved throughout the whole value chain, while their expected benefits are well represented and evaluated in advance.

## FEEDBACK: What did the peers say?

EcoRenov project, as the first step to support owners, has introduced an energy information centre, which is applicable to our project. Furthermore, they apply the rule that they have a special contractor for each measure recommended by the agency, which has been well demonstrated in their practice. This part is also a good example for replication to our model. There is valuable information on employee platform pricing so that they can determine the required start-up resources as well as basic resources for platform operation.

**Melita Borić**

Zagreb, Croatia, (mentee)

A one stop shop approach is key to stimulating house owners or condominiums to take action in sustainable renovation. Upscaling of renovation activities increases efficiency for construction companies and thus reduces price per house/building. The whole process from providing information to actual implementation of the sustainable renovation measures takes time.

**Yvonne Hofman**

Utrecht, The Netherlands (mentee)

The learning process carried out under PROSPECT was very inspiring for the development of future financial schemes and other innovative solutions for energy renovation in the city of Lisbon. During the study visit in Lyon, I highlight the lessons learned with the ECORenov project, which is a platform to support the refurbishment of private residential buildings. In this project it was relevant to understand the framework developed by ALEC and Greater LYON to engage the owners demonstrating the benefits obtained from energy buildings renovation through the development of previous studies and simulations.

**Vera Gregório**

Lisbon, Portugal (mentee)

# Link with other materials

## **Handbook on private buildings:**

[https://h2020prospect.eu/images/Module\\_Handbooks/Module-on-Private-Buildings.pdf](https://h2020prospect.eu/images/Module_Handbooks/Module-on-Private-Buildings.pdf)

## **ASCM Model:**

<https://h2020prospect.eu/library/goodpractices/98-assen-model-ascm>

## **Sustainable Tipp:**

<https://www.h2020prospect.eu/about/news-events/114-sustainable-tipp-a-demonstration-project-from-tipperary-energy-agency>



# Annex 1 - Supply: What could mentors offer?

**Assen, Netherlands:** Assen, Netherlands: Assen municipality developed a financial model. The Assen Service Costs model (ASCM) is an innovative form of financing that allows owner-occupied houses to be renovated towards zero on-the-meter without using personal loans. The model is based on 'object based-funding' instead of personal funding. This allows to renovate an apartment complex as a whole, instead of renovating a single unit. The renovation will be funded through the homeowners association, while a guarantee fund is provided by the authorities (in our case the regional authorities: Province of Drenthe). This guarantee fund allows banks to provide a loan under current regulations, as the homeowners association itself does not hold any collateral. Homeowners pay a regular fee to the homeowners association. As the association pays for the renovation of the complex, the fee paid by homeowners to the association will increase. This increase in so called 'service costs', however, is balanced by a decrease in energy costs. The selected consortium of builders who do the renovation of the apartment complex will guarantee an agreed-upon energy performance of the building for a similar period of the time as the repayment of the loan will take. They are not only responsible for the renovation itself, but also for maintenance and management of the building. The property owner thus exchanges the energy costs for service costs. Thus, residents live in a more comfortable and energy efficient house, while their costs remain similar, or even decrease.

**Lyon: Ecoreno'v:** Energy refurbishment for condominiums and private houses. Energy retrofit 2,000 dwellings per year. Implementation of a specific framework led by Greater Lyon together with Local Energy Agency of Lyon (ALEC). Advice and subsidies are offered by the Greater Lyon to private homeowners. There are specific subsidies rules with conditions related to insulation, ventilation and heating production. Greater Lyon has made a political commitment to invest €30 million in six years (2014-2020) into energy refurbishment of the housing sector. The local authority also looked up for external financing, like ANAH (National Housing Agency), ADEME (National Agency for the Environment and Energy Management), ecocités and TEPCV (French national subsidies) but also and successfully applied the ELENA technical assistance programme. In 2014, Greater Lyon already had a strong sustainable energy action plan, as recognised by the European Energy Award. ALEC Lyon, in its role as energy advisor for private homeowners, has been pushing for energy refurbishments of condominiums. The national energy agency ADEME created an opportunity for this by publishing a call for interest for cities and regions who wanted to launch energy renovation programmes targeting the private housing sector. The municipal elections led to a political agreement between the socialist chairman and his allies from the Green Party, who committed to invest €30 million in the housing refurbishment as a key action of the climate action plan. Then dedicated small teams were built in the local authority and in the local energy agency which launched the 'ecoreno'v programme', one of the most successful programmes in France in this field.

**Lyon: Toits en transition (Roofs in transition)** is a citizen led association aiming at developing citizens' investments in renewable energies in the Greater Lyon area. ALEC Lyon is hosting this association and has been involved in its development for last three years. ALEC Lyon has been helping the association by creating the business model, searching for buildings corresponding to the specifications and discussing with municipalities. It built 10 solar panel facilities on public roofs, mainly primary schools, each of them consisting of a 9 kWp installation. Technology was limited to crystalline photovoltaic solar panels without technological innovation. 10 installations needed various technical studies before installation. A risk structure was used to pay for those studies (around €5,000). Innovation is in the way of involving citizens in the project, and in the way that they are the key stakeholders of the project. Mixed funding schemes: Third party financing (e.g. loans from financial institutions, private investors; Soft loans for homeowners of residential buildings + combination with financial & fiscal (dis)incentives, guarantee funds, Energy Efficiency Obligations (White Certificates), citizens finance (cooperatives/crowdfunding).

**Valladolid:** The REMOURBAN project aimed not only at reducing the energy demand of the buildings in the FASA District through passive Energy Conservation Measures (ECMs), but also intervened with active ECMs that would introduce renewable energy sources in the district, reducing its dependence on traditional fossil fuels. The ambitious proposal consisted of two parts: The renovation of the district heating system and the implementation of BIPV for electricity self-consumption

## Annex 2 - Benchmark Survey Results

The PROSPECT Benchmark survey facilitated mentee-cities to evaluate their potential to employ a financing scheme under their local conditions and infrastructure (staff availability, time needed, financial conditions, etc.).

For each participant city-performance graphs were prepared from the answers included in the PROSPECT Benchmark survey, that best reflect the mentee-cities' current situation, in relation to the average performance across all cities participating in the survey.

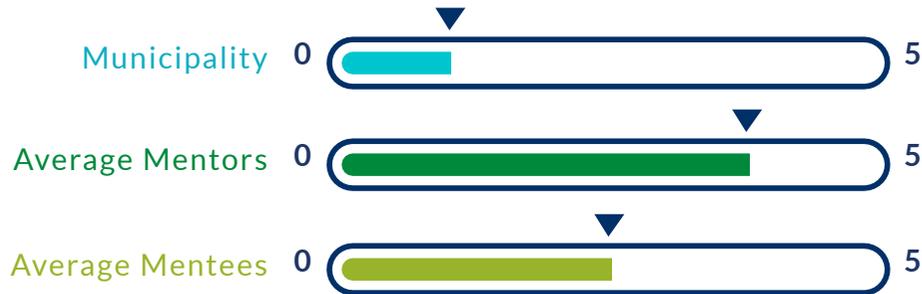
The graphs were then presented and discussed during the transferability session of each learning group.

The results of one participant involved in the module "Private Buildings" are presented in the next pages of the report.

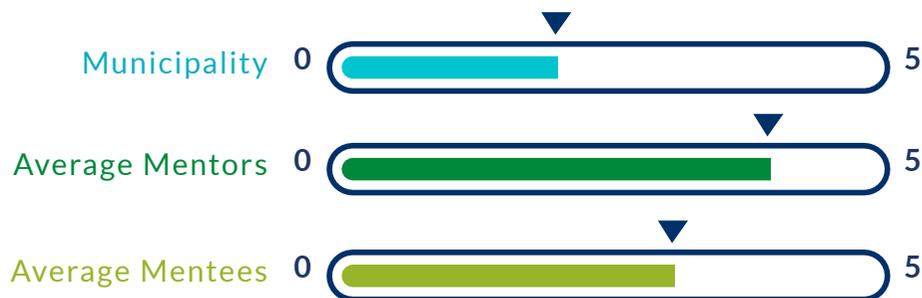
# Annex 2 - Benchmark Survey Results

## Staff availability – Technical conditions

Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?



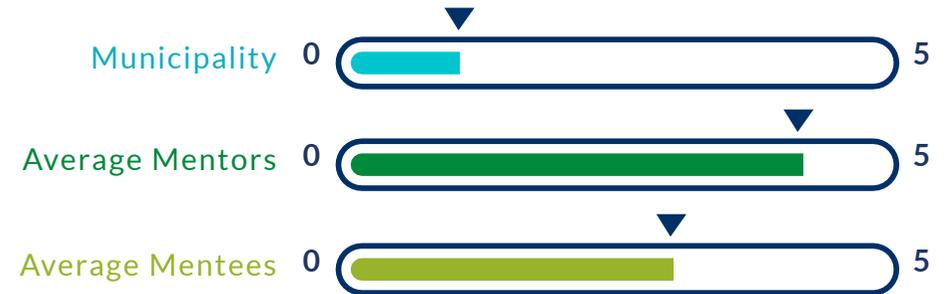
Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)



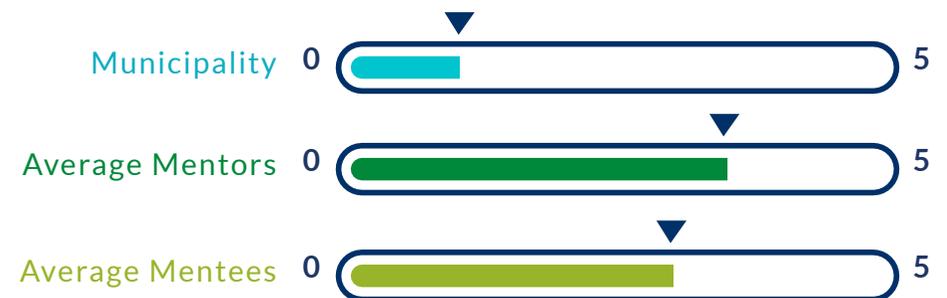
Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?



Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?



Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.



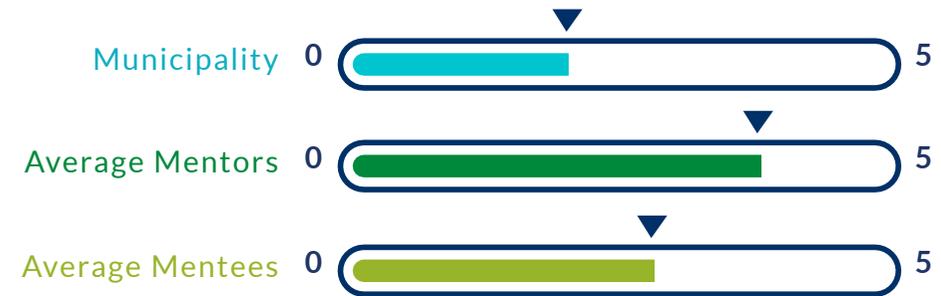
# Annex 2 - Benchmark Survey Results

## Legislative/regulatory framework - time needed for implementation

Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?



Is the process to gain a construction/renovation permit for sustainable energy related projects fast and efficient?



Do public procurement (PP) procedures facilitate sustainable energy investments adequately?



Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?



# Annex 2 - Benchmark Survey Results

## Governance/Management related efforts

What is your city experience regarding sustainable energy (SE) city-level projects? Has your city implemented a Sustainable Energy & Climate Action Plan (SECAP) or equivalent plan?



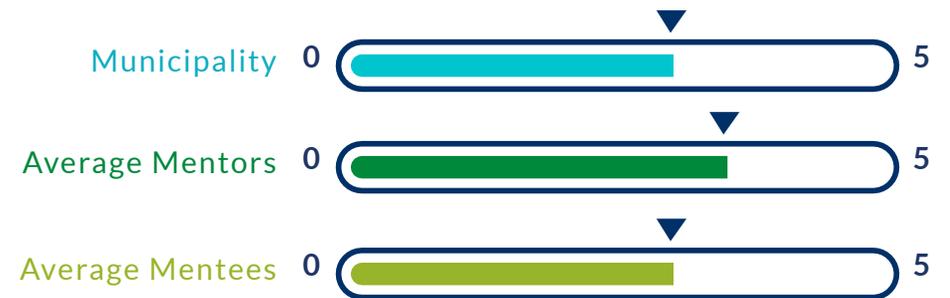
Is a project evaluation process (either at the national or the local level) established and applied to sustainable energy projects?



Does the city cooperate/ communicate with other public actors (e.g. partnerships with the central government, regional authorities, public transport companies etc.) for sustainable energy related projects?



Is there a standardized monitoring and verification (M&V) procedure applied to monitor and verify project effects?



Are operational standards and/ or quality assurance (QA) methods currently used? (to ensure good project quality and replicable results)



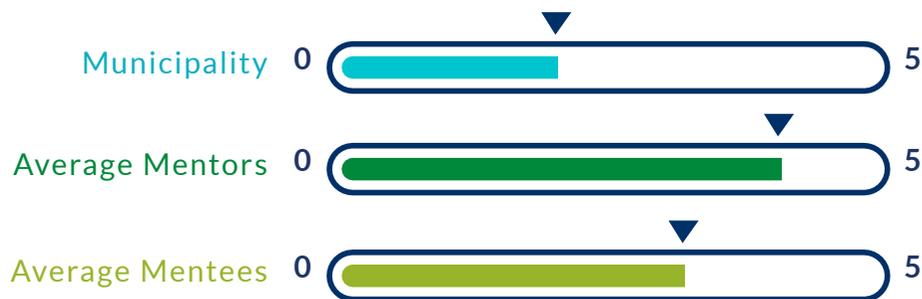
# Annex 2 - Benchmark Survey Results

## Financial conditions/ Own pre-financing required

Are subsidies, tax benefits or other incentives available for private project investors and lenders? Are all types of city-level sustainable energy investments eligible for support?



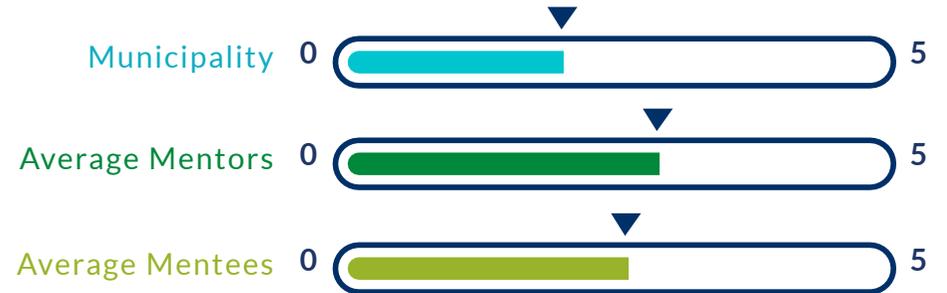
Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.



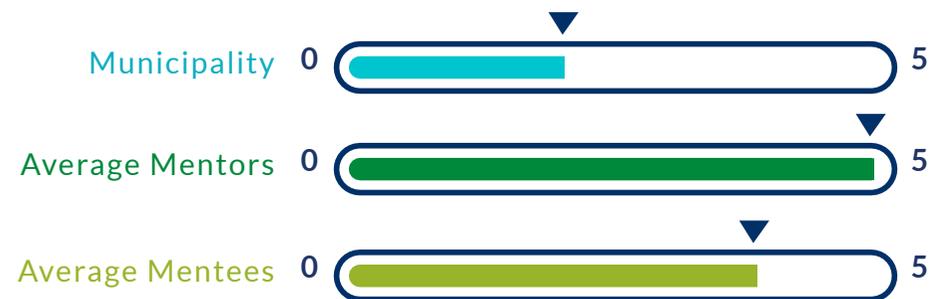
Is citizens' finance (such as crowd-funding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects?



What percentage of the total annual city budget is available for sustainable energy projects? Please provide the absolute amount of available budget within a certain timeframe, as well as the proportion to the total city budget.



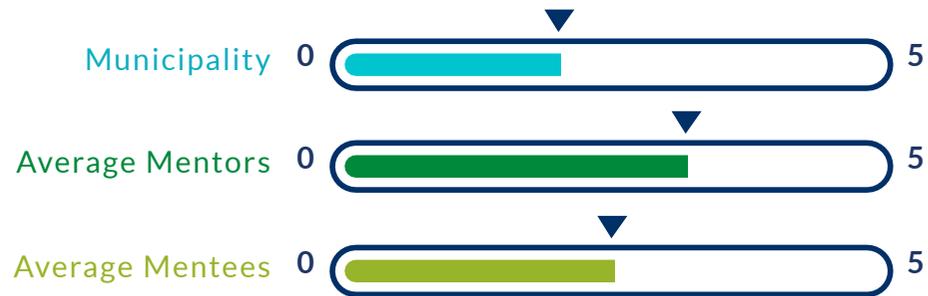
Are available international/ national/ regional funds and other financial support schemes for municipalities available? Are those sufficiently utilized by the municipality in the context of sustainable energy projects?



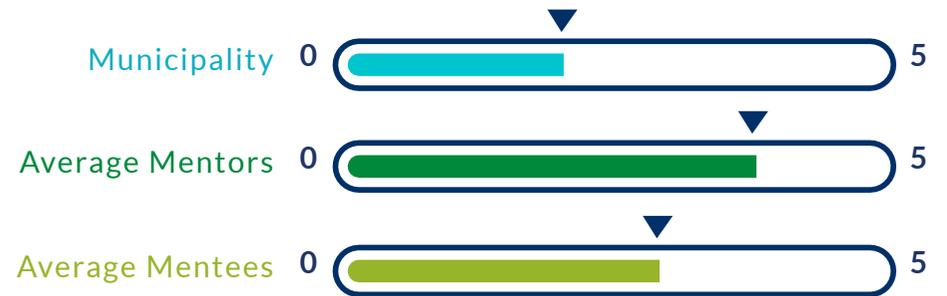
# Annex 2 - Benchmark Survey Results

## Communication

Are city's sustainable energy related projects and initiatives adequately disseminated to prospect investors & actors? Dissemination events could be online (e.g. newsletters or a website) or offline (e.g. monthly magazine, a quarterly physical meeting)



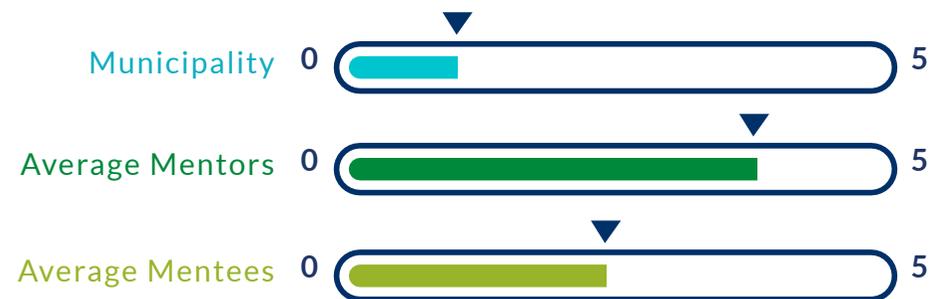
Does the city cooperate/ communicate with other cities for sustainable energy projects?



How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?

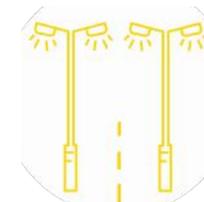


How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?





# Private Buildings



# Public Lighting

Covers the provision, refurbishment,  
and management of public lighting by  
public authorities



The PROSPECT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 752126.



# Introduction

The public lighting area is popular and perceived as manageable by local and regional authorities. At least, not many barriers have been mentioned. Most local and regional authorities have experience in this module. This signals a good chance for replication and it seems to be a straightforward investment. Several questions from the mentees are related to choosing technologies, making decisions and involving the management on the projects. During the learning program some additional questions emerged, as electricity prices are very diverse in the different countries where the municipalities are located, and therefore expected savings are not the same level which can have a significant impact on e.g. Energy Service Company (ESCO) contracts and related rates. This shows that even if this area is perceived to be easy, there are many questions and doubts which needs to be supported via peer to peer exchanges.

Example of questions:

- Learning a new model of financing energy efficiency projects
- Finding methods for technical and financial certification, also about the possibility of the investment to attract capital from banks and investment funds
- Most common types of Energy Performance Contracts (EPC) are contracts that can be applied depending on the different scenarios and related level of success
- Understanding the business model: Interpretation\elaboration of financial feasibility study: Monitoring paybacks\investments; Elaboration of the terms of reference of the tender; Contract negotiation.
- How to prepare procurement call (procurement criteria), lead the procedure and negotiations
- How to a make a local/regional energy agency become a non-profit ESCO? What would be the key success factors?

## What did our mentees think about EPC?

### Impression

ESCO is neither a loan nor a grant, it is a private, profit-oriented company that finances and implements energy saving measures. Interesting financing instrument for municipalities that have no budget.

### Strengths

In many municipalities' energy saving potentials through EPC projects reach 30-70%. On average, an investment in EPC projects pays for itself within 10 years. An ESCO provides the necessary know-how for EPC projects and takes the financial risk. Usually EPC projects implemented through ESCOs neither burden the municipal budget nor require a credit line. The public administration does not have to allocate funds, while the economic operator amortizes the investment for several years, which generally allows them to largely respect the return margins of the invested capital.

### Weakness

ESCOs are not feasible in all European countries due to various reasons: Lack of suitable companies, lack of legal bases, unprofitable due to low costs for energy and maintenance. In addition, there is a lack of knowledge of municipal representatives about financing possibilities through EPC projects. If there is variation in the hours of use of the public lighting network, profits may become expenses.

# Energy Performance Contracting (EPC)

In most cases, the projects presented have been examples of Energy Performance Contracting (EPC) or ELENA. Some also used public private partnerships (PPP) or combination of different funding and financial sources.

EPC is a contractual arrangement between a client (for example a municipality) and a service provider, a so-called 'Energy Service Company' (ESCO). Typically, the ESCO finances and implements energy efficiency investments.

## What did our mentees think about ELENA?

### Impression

Interesting structure which helps public authorities in contracting financing schemes e.g. for energy saving projects.

### Strengths

Professional help to public authorities, which do not always have the knowledge/experience nor the resources for analysing, negotiating, contracting this type of loans, financing.

### Weakness

Not easy to access for small towns which often don't have projects above €30 million.

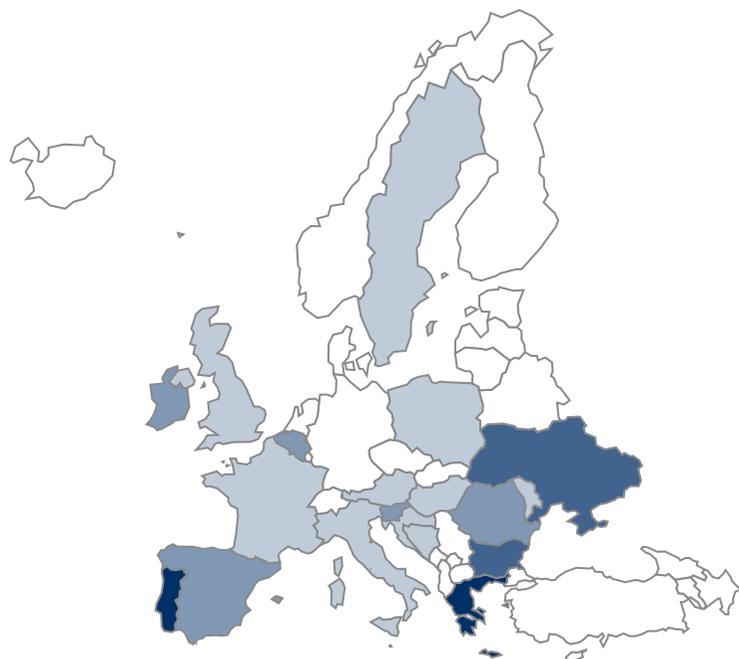
## ELENA (European Local Energy Assistance)

The ELENA Facility is implemented by the European Investment Bank (EIB) in the framework of an agreement with the European Commission (EC). ELENA was established in 2009 under the Intelligent Energy-Europe (IEE) II Programme and is currently financed by EU funds from the Horizon 2020 Framework Programme for Research and Innovation.

ELENA could be used as a means to assist member states in working towards their energy efficiency objectives under the Energy Union strategy. The projects supported under ELENA can also assist cities and regions to increase the quality of living of European citizens by helping to reduce energy consumption.

Link: [https://www.eib.org/attachments/documents/elena\\_faq\\_en.pdf](https://www.eib.org/attachments/documents/elena_faq_en.pdf)

# Where did the Mentors & Mentees of the module "Public Lighting" come from?



## Mentors:

- Austria: ESV - OÖ Energiesparverband
- Bulgaria: Energy Efficiency Fund
- Croatia: REA - Regional Energy Agency North
- Ireland: 3 Counties Energy Agency
- Portugal: Municipality of Caldas da Rainha, "OesteSustentável; Porto Energy Agency
- Slovenia: EnergaP - Energy Agency of Podravje; KSENA - Energy Agency of Savinjska, Šleska and Koroška Region; City of Maribor
- Spain: Province of Girona; Municipality of Sant-Cugat

## Mentees:

- Belgium: Municipality of Antwerp; Municipality of Koekelberg
- Bosnia & Herzegovina: Canton Sarajevo
- Bulgaria: Black Sea Energy Cluster ; Municipality of Nesebar; Municipality of Burgas; Municipality of Dobrich
- France: Syndicat Intercommunal des Energies de la Loire
- Greece: Municipality of Agios Dimitrios; Municipality of Egaleo; Aegean Energy Agency; Pieriki Anaptixiaki-Local Development Agency for Municipality of Katerini; Municipality of Trikala; Municipality of Alimos; Municipality of Irakleio Attica; Municipality of Nea Ionia; Municipality of Thiva; Municipality of Tripoli; Municipality of Vari Voula Vouliagmeni
- Hungary: Hajdu-Bihar county Hungary
- Ireland: Western Development Commission
- Italy: Municipality of Rome
- Moldova: Municipality of Taraclia
- Poland: Municipality of Jaslo
- Portugal: Câmara Municipal de Loures; Municipality of Mogadouro; Municipality of Torres Vedas; Coimbra Region; "OesteSustentável; Municipality of Vila Nova de Polares; Municipality of Amarante; Municipality of Beja; Municipality of Guimarães;
- Romania: Municipality of Mizil; AE3R Ploiesti-Prahova; ALEA - Alba Local Energy Agency; Municipality of Vaslui
- Spain: Municipality of Avila; Barcelona Province
- Sweden: Municipality of Jönköping
- UK: London Borough of Sutton
- Ukraine: Municipality of Khmelnytskyi; Municipality of Nizhyn; Municipality of Kharkiv; Municipality of Kramatorsk; Municipality of Kremenchuk; City of Kamianets-Podilsk

### **PROJECTS: What type of projects have already been implemented?**

The projects already implemented range from the replacement of the streetlights with LED to the energy efficient upgrade of public building lighting.

### **PROJECT IDEAS: What type of project ideas have been gathered? What were the learning objectives?**

The project ideas range from refurbishing public lighting systems, to smarter control and monitoring tools, to energy efficient lighting systems (LED).

The municipality of Gunskirchen recognised that their street lighting system required significant refurbishment work and that the technology currently in use would soon be affected by the phasing out of lamps. Furthermore, it was acknowledged that refurbishing the system could offer a large energy saving potential.

The decision was taken to refurbish 80 % of the street lighting system to energy-efficient LED technology using EPC. The main criterion for this project was to reduce electricity consumption and maintenance costs without compromising the quality of the public lighting services. One of the first steps was to undertake a thorough analysis of the lighting points. The operational hours were also analysed and adapted according to actual needs. In some sections, they could be reduced. In others, due to security reasons, it was necessary to increase operational hours (e.g. village centre). The objective of the municipality was to find a good solution for every street. For the implementation, the municipality hired a planner who carried out a tendering procedure. Five ESCOs were invited to bid and all submitted for the call.

In the context of this project, the municipality conducted significant refurbishment work on the infrastructure that could not be financed by the electricity saving measures. As a result, the municipality was required to contribute a deposit. In addition, the reduction in maintenance costs was not guaranteed in the EPC contract, which reduced the guaranteed savings and the percentage of the project that could be financed through the EPC contract. However, this did not compromise the economic viability of the project and the municipalities nevertheless benefits from the savings in maintenance costs due to the new lighting system. One recommendation of the municipality is to really perform a thorough analysis of the lighting system before renovation. The municipality is happy with the new lighting system and the response from the citizens is very good.

#### **Facts**

- Investment costs: 796,400 Euro (total investment); 125,300 Euro (financed by the EPC project)
- Electricity cost savings: 12,500 Euro/year
- Maintenance cost savings: 28,000 Euro/year (not guaranteed in the EPC contract)
- Reduction electricity consumption: 78,300 kWh/year
- CO2 reduction: 36 tons/year
- EPC contract duration: 10 years

## Mentors offered knowledge about - HOW TO



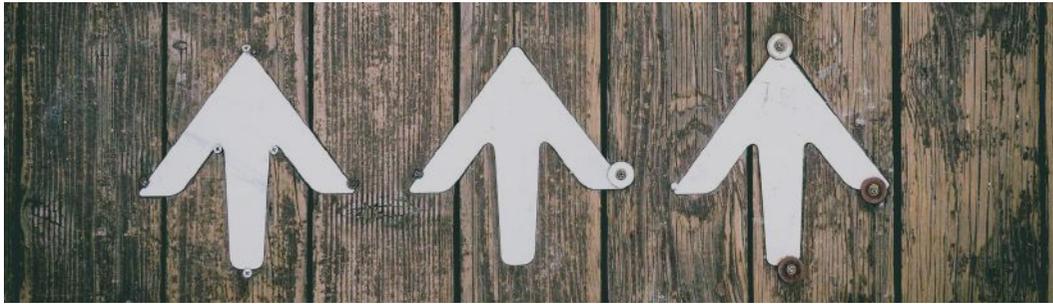
- Provide professional guidance on developing or accessing innovative sources of funding (EPC).
- Help with strategic energy planning and project identification, identification of energy needs and potential, investments identification and financial planning in the public and private sector.

## Mentees wished to learn - HOW TO

- Understand the innovative financing schemes relevant under public lighting.
- Recognise the barriers, incentives, advantages, and disadvantages of the innovative financing schemes and especially EPC.
- Examine which sustainable energy and climate action projects can be financed by innovative schemes and mainly by EPC.
- Investigate how EPC can be applied to public lighting projects when ESCOs are not an option.
- Examine how renewable energy solutions can be integrated in public lighting projects.
- Analyse how maintenance cost can be measured and reduced.
- Analyse the success factors and lessons learnt from successful projects financed by innovative schemes.
- Identify the different steps of how an EPC scheme can be developed and/or accessed for a project.
- Understand the contract procedures and the documentation needed to apply EPC as a financing scheme.
- Analyse the monitoring and verification processes of measures when EPC is applied.

# Road to success

If you work for a local or regional public authority and wish to implement a public lighting project, you may wish to know the success criteria reported by others.



## What is a success criteria which is needed the most to make public lighting projects work?

For the financing of public lighting projects, all aspects are challenging to the mentees that participated in the learning cycles. Particularly in terms of communication, cities are facing difficulties. This gets partly confirmed when looking at specific questions even though the greatest challenge is reported for the practice of citizens' finance.



## When we take a closer look at the success criteria...

TOP 3 issues per category

- 75% had issues in terms of communication
- 63% reported issues regarding financial conditions and own pre-financing requirements
- 67% reported difficulties regarding staff availability and technical conditions

## However, when we look question by question...

TOP3 issues per question

- 95% reported that citizens' finance (such as crowdfunding, cooperatives, contribution to local investment funds, saving accounts and donations) barely applied to sustainable energy related projects
- 86% reported that the city's sustainable energy related projects and initiatives are not adequately disseminated to potential investors & actors
- 86% reported that the personnel training schemes available for city employees to enhance project development capacity with regards to sustainable energy projects are issues

## Take away advice from Upper Austria



1. EPC can take many forms: It can be adapted to the legal, economic and social contexts of each region and project.
2. Quality is king: EPC is a long-term partnership - good project preparation is crucial for the success of the project. Clearly define your lighting needs, prioritise quality products and pay attention to the warranty periods for lamps and luminaires.
3. Facilitation works: The presence of a regional facilitation service as offered by the OÖ Energiesparverband (ESV) has shown to be a crucial factor in the positive development of the EPC market and the success of the Energy Contracting Programme.

## Take away advice from Maribor

Good technical project preparation is key. It is crucial to have a meaningful and accurate inventory of the existing street lighting system as well as a good-quality, well-standardised audit to determine reliable numbers on saving potentials. The partners and the advised cities realised that they had underestimated the resources needed for technical and engineering aspects.

## Take away advice from EUDITI Energy & Environmental Design LTD, Greece

Regarding the success of the scheme, a trustful cooperation between the municipality and the ESCO must be established. The design (including technical study, suitability of the equipment, warranties etc.) must be performed according to specific actions and needs to be clearly communicated and approved by the municipality. Benefits must be clear for both sides (municipality and ESCO) based on an economic analysis of the scheme, which must be as realistic as possible.

## FEEDBACK: What did the peers say?

It was highly inspirational to learn from our mentor. The main lessons learned were that everything is possible if there is will from the agency's and politicians' side, and we need to be prepared to answer all questions and concerns raised by municipalities and local/regional governments. In order to run a good project, we need a strong basis, i.e. we need to have at least one to three years of energy data about one building. We also need to meet politicians several times to convince them.

**Valeria Szabo**

Agency from Hungary Hajdu- Bihar county (mentee)

To start the implementation of the project, a detailed study of the legislative framework is necessary, to determine the objects for financing and organise a team of professionals.

**Vadym Gridasov**

Kramatorsk City Council, Ukraine (mentee)

ESCO financing scheme is new for Romania, but it's a good alternative in case of the failure of a more money-saving option (like financing from European funds) In the development of new investment programmes, public and semi-public sectors are sometimes averse to working with new models or parties unknown to them, even where bringing the parties together would lead to the best long-term outcomes for the related programme.

To address this problem, it is important that senior and middle managers are exposed to such instruments via education tools very early on as a way to develop the perceived legitimacy and efficiency for the implementation of energy efficiency investment programmes for their sector or municipality.

**Mandalin Ionut Popa**

Vaslui, Romania (mentee)

Move away from current contracts and ways of thinking (it is not about the equipment the public partner wants, but rather about service/performance characteristics they want). Think about a pilot project but keep in mind that EPC contract are very costly and time consuming and are thus best suited for large projects.

Look at the audits again and see if enough information is provided, as well as if all the current costs were considered (think of hidden costs).

**Iolanda Sousa**

Vaslui, Romania (mentee)

The advice and motto 'explain, explain and explain' will be taken into account and also 'EPC is for smart decision makers' will be a motivation for our team.

**Mandalin Ionut Popa**

Vaslui, Romania (mentee)

The funding schemes presented were an optimistic depiction of what could be achieved when political will exists and the technical staff is excellently prepared to organise the steps of implementation. Staff need to have technical experience in technologies to be used, financial capacity to be able to draft and support a feasibility study and marketing/public relations experience for promoting the schemes to local authorities. The scheme also involves the operations (apart from construction and installation) which could prove to be quite risky. Moreover, the users have to be convinced and trained in the new technologies' operation requirements.

**Konstantinos Zapounidis**

Katerini, Greece (mentee)

## Link with other materials

### Public lighting handbook:

[https://h2020prospect.eu/images/Module\\_Handbooks/Module-on-Public-Lighting.pdf](https://h2020prospect.eu/images/Module_Handbooks/Module-on-Public-Lighting.pdf)

### Good practices:

<https://h2020prospect.eu/library/goodpractices>



# Annex 1 - Supply: What could mentors offer?

**The Region of Upper Austria:** In 1998, Upper Austria launched a dedicated programme to overcome barriers of EPC market development. Since then, over 250 projects have been funded, triggering total investments of around 65 million Euro. The key to the programme's success is the combination of a strong supporting facilitation service (information & advice services offered by the regional energy agency, OÖ Energiesparverband, and a financial incentive offered by the regional government. Overall, this has led to a functional and well-developed EPC market in Upper Austria with many EPC projects implemented each year.

**Maribor:** (1) Refurbishment of street lighting in two municipalities in Slovenia. Two smaller municipalities refurbished their street lighting using EPC. Contract periods are 14 and 15 years. They implemented the projects in 2017 and the monitoring of the results is ongoing; (2) Establishing markets for the uptake of guaranteed energy services in the form of energy performance contracts. Establishing markets for the uptake of guaranteed energy services in the form of energy performance contracts (EPC) in nine European regions by using street lighting refurbishment as a learning and testing ground, fostered by the provision of regional EPC facilitation services. Implementing 36 EPC projects in the field of lighting refurbishment by the city partners of the project and other municipalities associated with the project (real-life procurement). Achieving direct total savings of 32,100 MWh through these projects: By using energy efficient technology, energy savings of at least 50% compared to 'standard' technology solutions will be achieved. Inducing 18 SMEs into becoming ESCOs: With the support of regional EPC facilitation services, two new ESCOs in each region will be established.

**Sofia:** The Energy Efficiency Fund in Bulgaria (FEEVI). FEEVI was set up on revolving principle (funds are continuously re-invested) and is governed by the Energy Efficiency Act. It is structured as a public-private partnership (PPP) with the Ministry of Energy as main principal. The PPP mechanism combines the public/social interests with the private/commercial objectives. The fund provides loans and guarantees both directly to final beneficiaries (public and private entities) and also finances projects on the ESCO (EPC) principle.

**Sozopol:** Streetlight in the city of Sozopol Delivery and installation of LED, dimming lighting. Optimisation of the lighting system through project planning, control and monitoring system. Payback of 10 years; energy saving of 1693 MWh per year or €150,319.81000 levs plus additional €66,467.94 levs savings from operation and maintenance.

**Girona,** Bundling sustainable energy investments in Girona's municipalities. The BEenerGi programme is launching a total amount of €35.25 million in sustainable energy investments for street lighting investments and public buildings in Girona (Dec 2018), when the original objective was €15.88 million, thus accelerating public energy investment. 70 tendering processes are being entrusted to the programme in an innovative new bundled tendering model with local SME and ESCO, in which more than 50 people benefited from free training courses in all the aspects of this new financial scheme.

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The graphs were then presented and discussed during the transferability session of each learning group.

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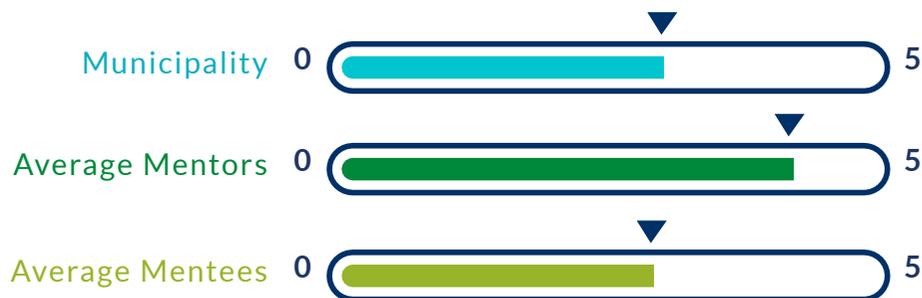
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## Staff availability – Technical conditions

Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?



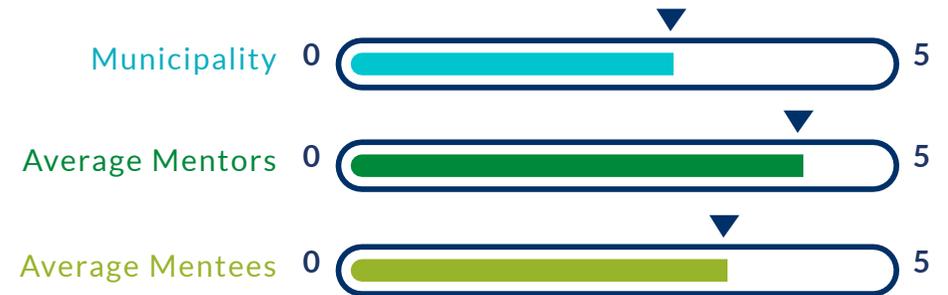
Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)



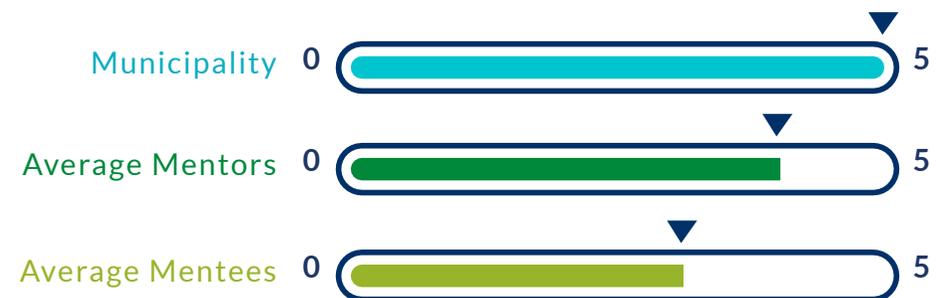
Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?



Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?



Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.



# Annex 2 - Benchmark Survey Results

## Legislative/regulatory framework - time needed for implementation

Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?



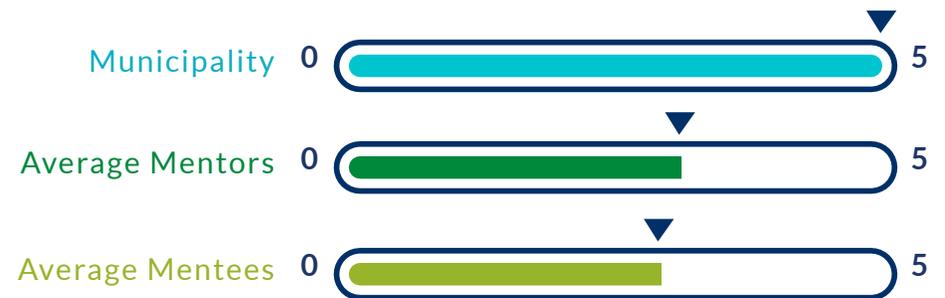
Is the process to gain a construction/renovation permit for sustainable energy related projects fast and efficient?



Do public procurement (PP) procedures facilitate sustainable energy investments adequately?



Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?



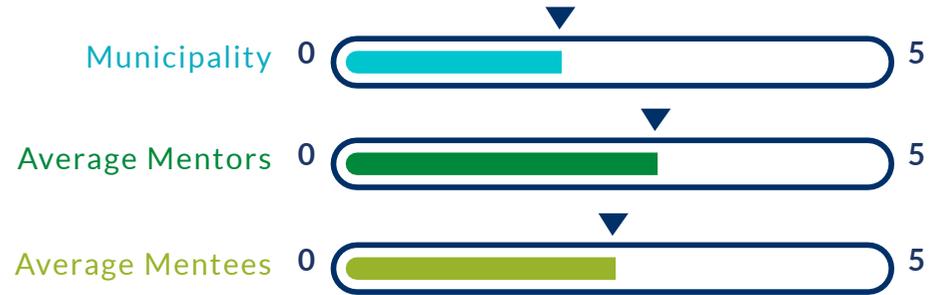
# Annex 2 - Benchmark Survey Results

## Governance/Management related efforts

What is your city experience regarding sustainable energy (SE) city-level projects? Has your city implemented a Sustainable Energy & Climate Action Plan (SECAP) or equivalent plan?



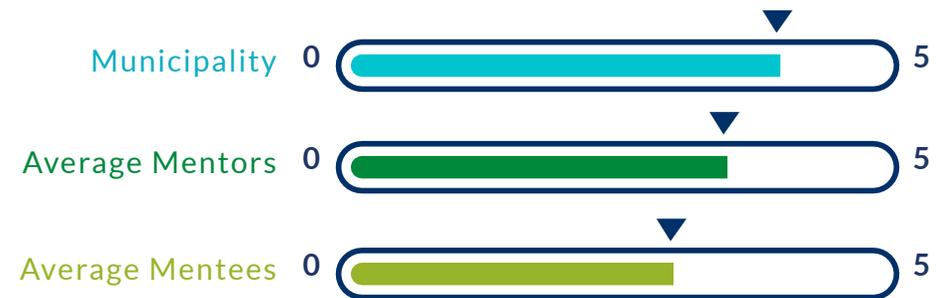
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Does the city cooperate/ communicate with other public actors (e.g. partnerships with the central government, regional authorities, public transport companies etc.) for sustainable energy related projects?



Is there a standardized monitoring and verification (M&V) procedure applied to monitor and verify project effects?



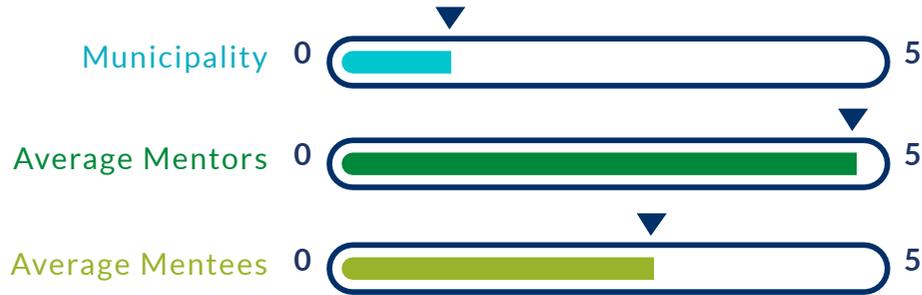
Are operational standards and/ or quality assurance (QA) methods currently used? (to ensure good project quality and replicable results)



# Annex 2 - Benchmark Survey Results

## Financial conditions/ Own pre-financing required

Are subsidies, tax benefits or other incentives available for private project investors and lenders? Are all types of city-level sustainable energy investments eligible for support?



Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.



Is citizens' finance (such as crowd-funding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects?



What percentage of the total annual city budget is available for sustainable energy projects? Please provide the absolute amount of available budget within a certain timeframe, as well as the proportion to the total city budget.



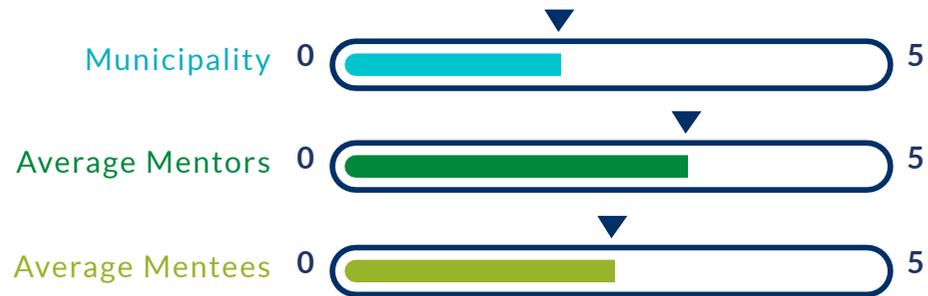
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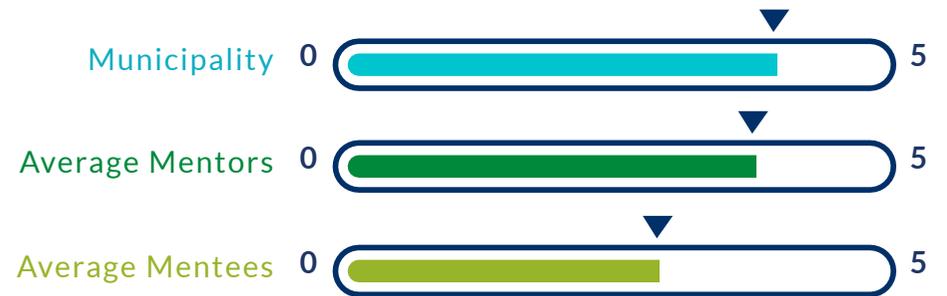
# Annex 2 - Benchmark Survey Results

## Communication

Are city's sustainable energy related projects and initiatives adequately disseminated to prospect investors & actors? Dissemination events could be online (e.g. newsletters or a website) or offline (e.g. monthly magazine, a quarterly physical meeting)



Does the city cooperate/ communicate with other cities for sustainable energy projects?

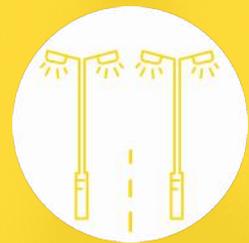


How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?

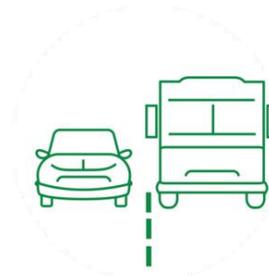


How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?





# Public Lighting



## Transport

Covers the provision and management of mass transit systems by public authorities



The PROSPECT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 752126.

# Introduction

Transport, or 'mobility', is an area where innovation is not only challenging in terms of finance but also in the use of new technologies. The nature of the investment requires up-to-date information on latest technologies, price and constant analysis and assessment from public authorities. An investment today often determines the quality of the services and the chosen business models for 10-20 years or even longer. There is often a dilemma of investing early and being a pioneer in using a new technology (e.g. e-buses) at a smaller scale or going for a critical mass. There is often a question about how specific they should get in the call for tender when they procure technologies. Many cities and regions wished to learn about the best ways of financing their public transport.

Example of questions:

- Learning a new model of financing a project.
- Learning about financing transport projects' new technologies.
- How to implement and finance projects foreseen in the Sustainable Urban Mobility Action Plan and Adaptation to Climate Change Plan.
- Learning about innovative solutions for integrated mobility, engaging private investors in non-carbon mobility, attracting funding for infrastructural works.

# EU funding to financing, sustainable business model (Spain: Municipality of Valladolid)

In the case of Valladolid, an EU funded H2020 project was giving an opportunity to combine different funding and financial initiatives and build a sustainable business model. There are several projects described but the common theme is that they went from EU funding to a combination of different sources and developed new types of business models (e.g. with data management).

## What did our mentees think about funding from EU and private sources?

### Impression

Funding from the EU, national, regional and local funds was essential. The private financing would come into play as complementary. There are also different options for financing these projects, from direct budget allocation to grants from national and/or European funds and involving public and/or private operators (taxi, public transport operator). It is important to 1) analyse the project objectives, 2) check risks and opportunities, 3) define the project and resources.

### Strengths

Financing opens up opportunity to cover your green innovative project, or parts of it which normally couldn't be funded (from regular subsidies), such as developing a network of contacts and training people about financing. Funds are very different; local funds are often suitable for small projects. National and EU funds are often restricted due to the imposed terms and conditions and are well regulated. These infrastructure solutions are better than an initiative that is wholly public or wholly private, faster project completions and reduced delays on infrastructure projects, return on investment (ROI) might be greater, dividing of risk on two sides (greater service quality), having experts in specific field.

### Weakness

Funds are not always available. The setting up, implementation, operation of European funds and combined financing can be administratively difficult, for example, it may be needed to apply significant effort in training staff on how to manage the necessary steps. It can increase government costs and limit the competitiveness required for cost-effective partnering and the goals of public sectors might be non-profit while private sector is mostly profit.

## Funding from EU and private sources

Innovation in financing transport is often linked to more traditional funds, subsidies, or some existing income (such as congestion charges).

Funding from EU and private sources refers to funding from EU and later used or combined with other sources (national, local funds but also private sector, investors).

## Congestion charge and reinvesting in mobility projects (Croydon)

Croydon: School streets – road access restriction and charging schemes

In case of Croydon, the original concept of congestion charge (no creditors) was combined with using the funds gained for reinvestment into mobility projects. It is not entirely a revolving fund but the closest to its concept.

### What did our mentees think about this financing scheme?

#### Impression

Initial capital was needed and that was complemented with the revenues from congestion charges.

#### Strengths

This was carefully planned and prepared, with a strong risk assessment. It is a well thought through project, reinvesting the revenue from the congestion charge, and therefore the annual revenues are high. It is a financially viable and replicable scheme.

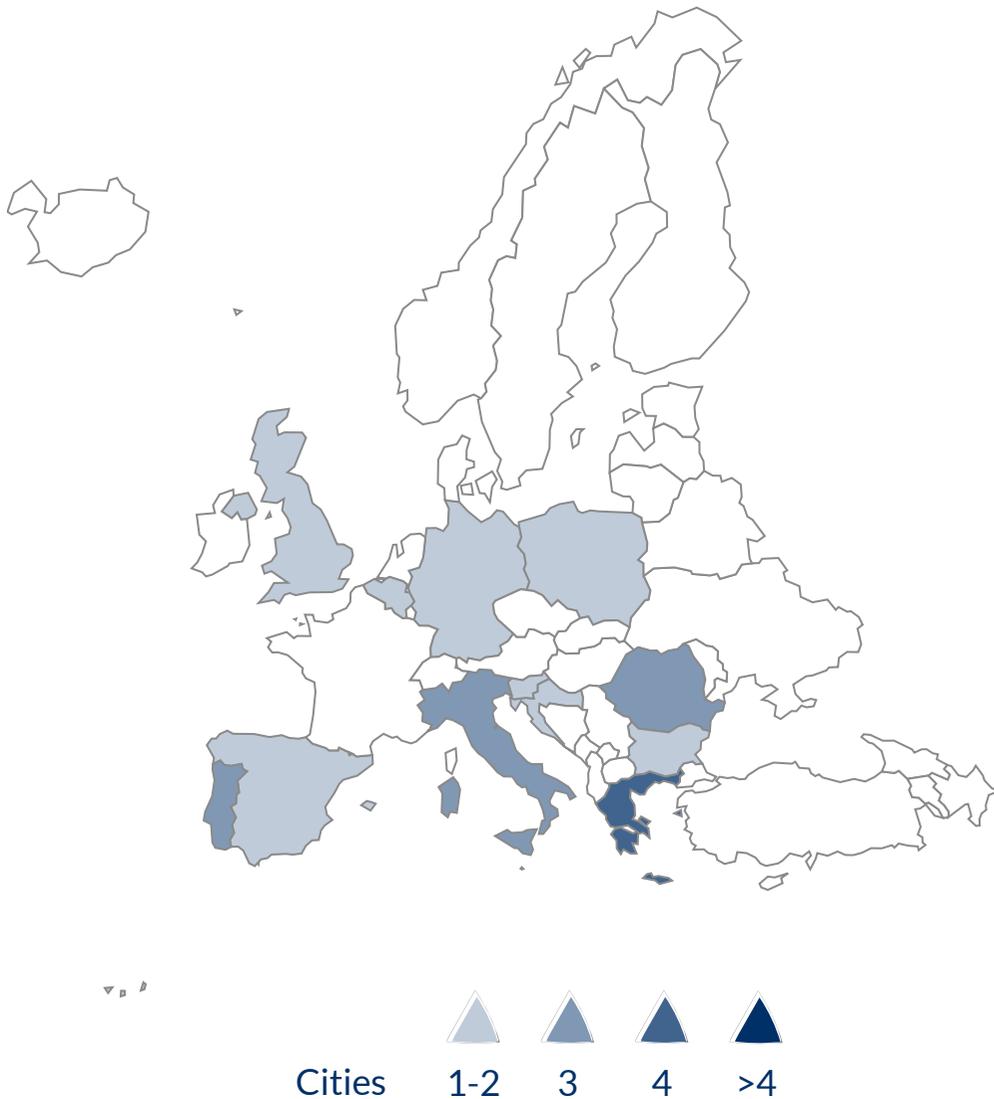
#### Weakness

It was probably critical and not easy not to allow many exceptions from the rule (e.g. residents, visitors).

## Revolving funds

A Fund established to finance a continuing cycle of investments through initial amounts received from its shareholders, creditors or donors and later on through amounts received from reimbursements of provided funding or loans to projects. These recovered funds become available for further reinvestment in other projects under a similar scope (e.g. revolving funds for sustainable energy will use the loans' recovered funds to finance new sustainable energy projects).

# Where did the Mentors & Mentees of the module "Transport" come from?



## Mentors:

- Spain: Municipality of Valladolid
- UK: London Borough of Croydon

## Mentees:

- Belgium: Municipality of Charleroi
- Bulgaria: Municipality of Dobrich
- Croatia: Municipality of Koprivnica
- Germany: Municipality of Essen
- Greece: Municipality of Farkadona; Municipality of Igoumenitsa; Municipality of Messini; Region of Peloponnese
- Italy: Municipality of San Giuseppe Vesuvian; Municipality of Mantova
- Poland: Municipality of Jaslo
- Portugal: Coimbra Region; Municipality of Caldas de Rainha
- Romania: Municipality of Bacau; Municipality of Vaslui
- Slovenia: KSENA - Energy Agency of Savinjska, Šleska and Koroška Region

## Projects / Good practices

### PROJECTS: What type of projects have already been implemented?

The type of projects ranges from holistic smart city projects with sustainable mobility actions; collaboration with taxi and other private companies (e.g. hotels, supermarkets) and e-mobility actions, including electric vehicle (EV) charging, electric buses procurement and maintenance; use of big data for mobility and logistics market; development of public transport policies and services with involvement of citizens; and traffic access restrictions (school street) combined with congestion charge and reuse of income for mobility projects.

### PROJECT IDEAS: What type of project ideas have been gathered? What were the learning objectives?

The project ideas range from traffic reduction, promotion of public transport, planning and implementation of e-mobility (e.g. electric buses) and smart road crossings, to road safety and an intermodal, integrated ticketing system.

## REMOURBAN

### REgeneration MOdel for accelerating the smart URBAN transformation

#### 7.07M€ energy sustainability investment in Valladolid through EU funding H2020

Valladolid deployed 12 sustainable mobility actions through the Remourban project. Good practices and lesson learnt mainly focused on encouraging the private and public sector to use electric vehicles. Through the project, the city council has launched economic incentives aimed at auto-taxi, last mile delivery and private companies, as well as hotels, supermarkets, malls and gas stations.

The public charging infrastructure had been improved through an agreement with IBERDROLA company. Additional e-mobility actions have been carried out in Valladolid: for example, five new electric buses crossing the city in the Low Emissions Zone, charging with two big infrastructures based on pantograph.

#### Key success factors:

- Incentives for fostering e-mobility in private sector (based on data)
- Public transport (e-buses) with opportunity charging via pantographs
- Citizen engagement through our Electric Vehicle Office as main point of contact
- Business model for services sector (hotels, shopping centres, ..)
- All mobility actions under the umbrella of a wider strategy

#### More details:

<https://h2020prospect.eu/library/goodpractices/130-varemourban-valladolid>

## Mentors offered knowledge about - HOW TO



- Tender transport and e-mobility projects from a technical and financial perspective
- Search for financing sources and new innovative financing schemes
- Identify main stakeholders in the implementation of mobility projects and negotiation with them to create a win-to-win team
- Manage and carry out transversal projects in a municipality trying to avoid silos

## Mentees wished to learn - HOW TO

- Finance electric buses, electric taxis
- Develop business models for 1) EV charging infrastructure 2) integrate public and private car/bike sharing
- Monitor savings
- Finance school street projects (restricted entry, congestion fine)
- Finance with innovative methods: how people are involved, how many, what are the roles, general costs to run a project inhouse and how the administrative office expenditures are distributed across projects
- Finance best a controlled parking system
- Contract a private company to operate the already purchased buses
- Find funding sources for installing smart apps to boost the use of public transport
- Calculate the needs for costs to manage projects with innovative financing
- Build good financing models for clean logistics e.g. last mile delivery



# Road to success

If you work for a local or regional public authority and wish to implement a transport/mobility project, you may wish to know the success criteria reported by others.



## What is a success criteria which is needed the most to make transport projects work?

In general, communication was reported as most challenging, followed by legislative, regulatory framework and time needed for implementation, and then financial conditions came third. All the other categories such as staff availability and government/management related efforts were also reported under optimal level.



## When we take a closer look at the success criteria...

TOP 3 issues per category

- 89%** reported that financial conditions/own pre-financing required was an issue
- 79%** reported that legislative/regulatory framework/time needed for implementation was an issue
- 71%** reported that both government/management related efforts and communication was an issue

## However, when we look question by question...

TOP3 issues per question

- 100%** reported citizen's finance was an issue (financial conditions)
- 94%** reported that access to training was an issue (staff availability)
- 94%** reported that having the necessary percentage of the total annual city budget for sustainable projects was an issue (financial conditions)

## A few highlights of issues from the learning plans:

1. Lack of expertise (external capacity is needed or trainings). Some reported good staff availability but several mentioned issues with internal capacity for planning and managing such projects.
2. No pre-financing available.
3. Budget allocated for the implementation of the Sustainable Energy and Climate Action Plan (SECAP) is not sufficient.

## Take away advice from Croydon



1. Ensure having buy-in from politicians and stakeholders from the beginning as well as a strong business case and evidence base justifying why the scheme is necessary and being undertaken.
2. Consider implementing a scheme (experimental) for 6-12 months and combine it with a consultation. If after six months positive, you go ahead; if there is some negative feedback, you amend the plans.

## Take away advice from Valladolid

1. Start easy, start small... but act!
2. Encourage work across your municipality/region: create a good environment amongst departments and avoid silo effects. Some of the smart city projects impacting the mobility field usually impact other departments, such as urbanism, environment, and participation departments. Get involved them from first stages.
3. Define efforts and financial resources for communication purposes.
4. Working in networks, replicating initiatives, and sharing experiences has been key so we can recommend it!
5. Learn from others, it helps a lot!
6. Identify barriers and actions/solutions to manage them: Valladolid had identified two main barriers: Lack of funds and unused available funds, and lack of knowledge/management internal to the municipalities, and came up with an action and solutions such as capacity building, training sessions and experts to improve the capacity of the municipality to manage and find funds, attract investors and use innovative financial schemes.
7. Have a fund manager, one expert or a team dedicated to smart city/climate/green project development to centralise control and management of available funds for smart cities projects and systematise fund raising.
8. Use a platform, a database at national level gathering multi-sectorial smart city projects to facilitate the interaction between municipalities, disseminate best practices, benchmark and facilitate project replication.

Public and private partnership in Valladolid was mostly presented through the project REMOURBAN, but also through examples of other projects. It is very interesting that many project activities were developed in cooperation between the City of Valladolid, public companies and private ones. For example, monitoring and tracking of public EVs with a platform developed by the private company GMV, an EV charging station map developed by the company IBERDOLA, EV municipal car sharing system purchased in cooperation with Renault and also a developed car sharing management application. A logistics and distribution hub (Centrolid) for delivering of goods in the city is using traffic simulations and information developed through the municipality's Transforming Transport project. There were even more projects and every one of them is different with different experiences in the development, financing and implementation fields. Mentors and lecturers did a great job in describing benefits and disadvantages of every project, regarding financing and implementation and answered to all of the questions that we had. Also, study tours provided us with a real overview of projects described in presentations. In my opinion, public and private partnership is a great way to reduce some of risks and to transfer knowledge between the municipality and private company employees since private companies have experts in specific fields and could share their specific knowledge.

**Perko Zvonimir**

Koprivnica, Croatia (mentee)

## FEEDBACK: What did the peers say?

The whole programme was designed in a way that allowed us to get acquainted with a lot of new innovative solutions in the field of urban mobility. Traffic control centres, hybrid buses and a combination of parking and bicycle sharing are just some of the projects that will give us new ideas in the future development of our city.

**Emir Hota**

Sarajevo, Bosnia Herzegovina (mentee)

I learnt from my visit in Valladolid that it took time for the Innovation Agency to participate and get used to applying for EU funds. It was interesting how the traffic is monitored by the police and how it is possible with the data to model the mobility in the city. I liked the way the Innovation Agency is working with a research centre and with the private sector.

**Helene Moureau**

Charleroi, Belgium (mentee)

Despite Messini and Croydon being very different places with different demographics, it was reassuring to know that we share similar transport problems and funding issues.

**Ben Kennedy**

London, United Kingdom (mentor)

# Link with other materials

## Handbook on transport:

[https://h2020prospect.eu/images/Module\\_Handbooks/Module-on-Transport.pdf](https://h2020prospect.eu/images/Module_Handbooks/Module-on-Transport.pdf)

## Webinar on transport:

<https://h2020prospect.eu/about/news-events/149-prospect-transport-webinar-slides-and-recording-now-available>

## Good practices:

<https://h2020prospect.eu/library/goodpractices>



# Annex 1 - Supply: What could mentors offer?

**Remourban:** H2020 project with a high impact in the deployment of sustainable mobility actions in Valladolid. The city council launched economic incentives aiming at auto-taxis, last mile delivery and private companies, as well as hotels, supermarkets, malls and gas station in the city of Valladolid, and improvement of the public charging infrastructure through an agreement with the company IBERDROLA. Other electromobility actions have been carried out, such as five new electric buses crossing the city in the Low Emissions Zone, charging with two big chargers based on pantograph.

**TRANSFORMING TRANSPORT** demonstrates transformations that big data will bring to the mobility and logistics market. It addresses seven pilot domains of major importance for the mobility and logistics sector in Europe: Smart Highways, Sustainable Vehicle Fleets, Proactive Rail Infrastructure, Ports as Intelligent Logistics Hubs, Efficient Air Transport, Multi-modal Urban Mobility, and Dynamic Supply Chains.

**S2CITY initiative** aims at the improvement of citizen and tourist services through ICT. The initiative is also about the creation of unique access to public services through the citizens' and tourists' card and/or mobile device, while rewarding those citizens who contribute to build a more sustainable and smarter city applying gamification techniques. It also applies big data technologies.

**URBAN GreenUP** aims at the development, application and replication of Renaturing Urban Plans in a number of European and non-European partner cities to mitigate the effects of climate change, improve air quality and water management, as well as to increase the sustainability of our cities through innovative nature-based solutions.

**PE4Trans** addresses the issue of potential for improvement of public transport policies by including citizens in the process of design and implementation of sustainable transport strategies and plans with a view to changing peoples' mobility habits and routines, incorporating findings of behavioural sciences.

**CENCYL +** aims to consolidate the CENCYL cities network as a cooperation organisation and cross-border management model to meet the main challenges and opportunities of sustainable development and climate change in urban space. The project promotes jointly the resources and assets of cities, and improves urban management through the exchange of experiences.

**Croydon School Street and Traffic Access Restrictions:** The city council initiated the project to improve road safety and reduce congestion in the vicinity of the school gates. School streets are designated as Pedestrian and Cycle Zones, except permitted residents during school opening and closing times. Other vehicles get a fine. It is enforced by traffic cameras with automatic number plate technology.



## Annex 2 - Benchmark Survey Results

The PROSPECT Benchmark survey facilitated mentee-cities to evaluate their potential to employ a financing scheme under their local conditions and infrastructure (staff availability, time needed, financial conditions, etc.).

For each participant city-performance graphs were prepared from the answers included in the PROSPECT Benchmark survey, that best reflect the mentee-cities' current situation, in relation to the average performance across all cities participating in the survey.

The graphs were then presented and discussed during the transferability session of each learning group.

The results of one participant involved in the module "Transport" are presented in the next pages of the report.

# Annex 2 - Benchmark Survey Results

## Staff availability – Technical conditions

Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?



Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)



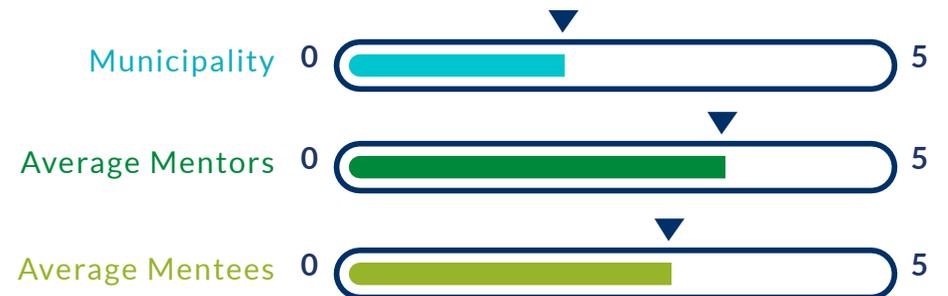
Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?



Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?



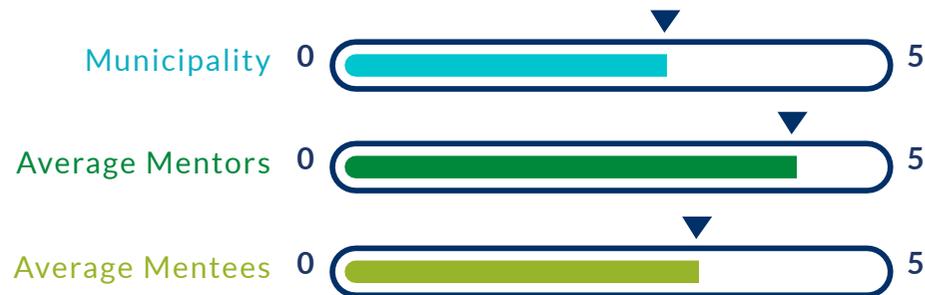
Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.



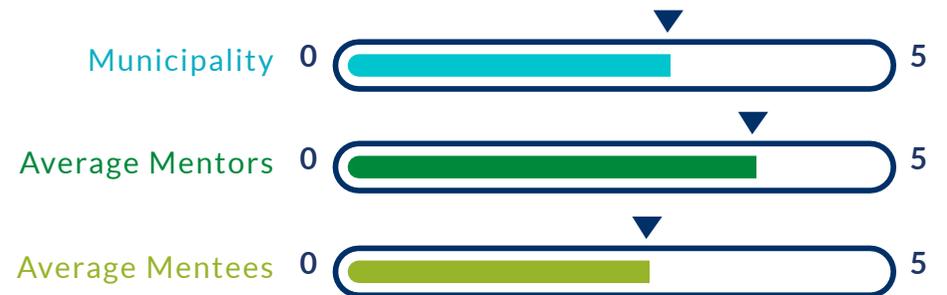
# Annex 2 - Benchmark Survey Results

## Legislative/regulatory framework - time needed for implementation

Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?



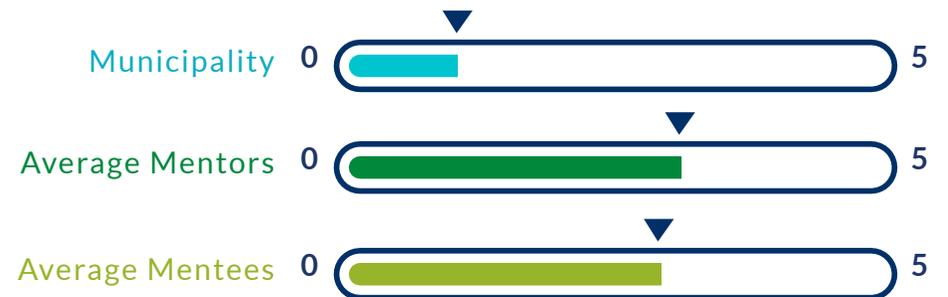
Is the process to gain a construction/renovation permit for sustainable energy related projects fast and efficient?



Do public procurement (PP) procedures facilitate sustainable energy investments adequately?



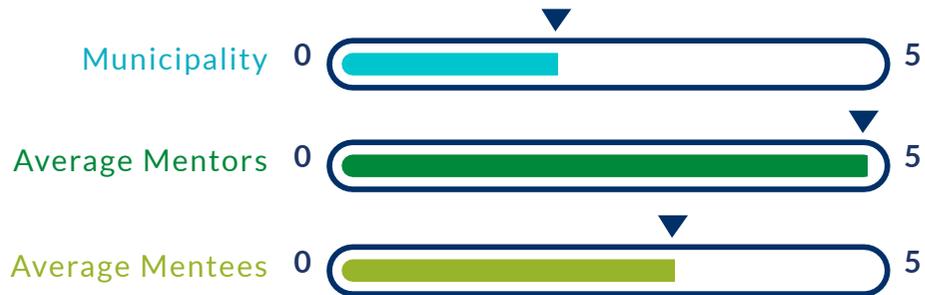
Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?



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Is a project evaluation process (either at the national or the local level) established and applied to sustainable energy projects?



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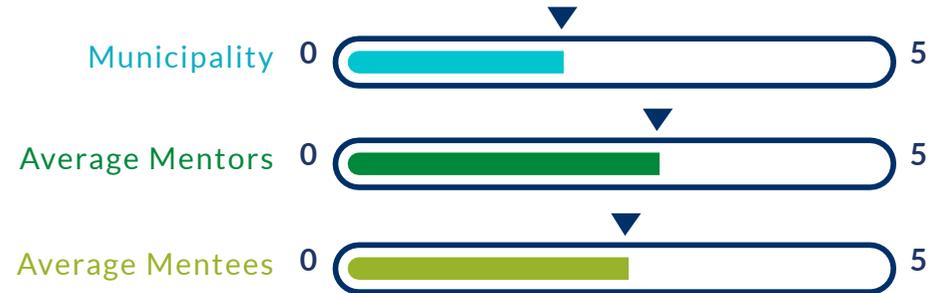
Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.



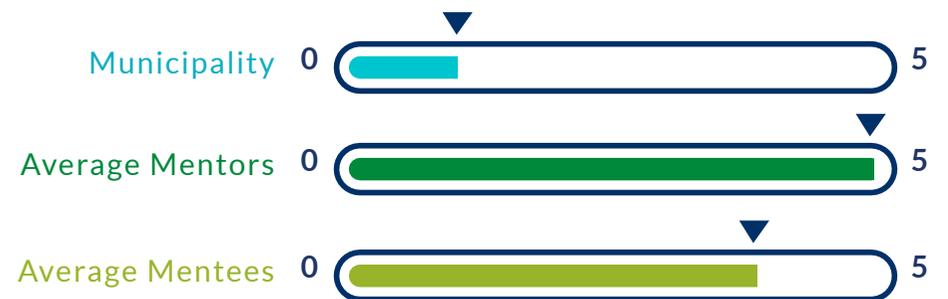
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Are available international/ national/ regional funds and other financial support schemes for municipalities available? Are those sufficiently utilized by the municipality in the context of sustainable energy projects?



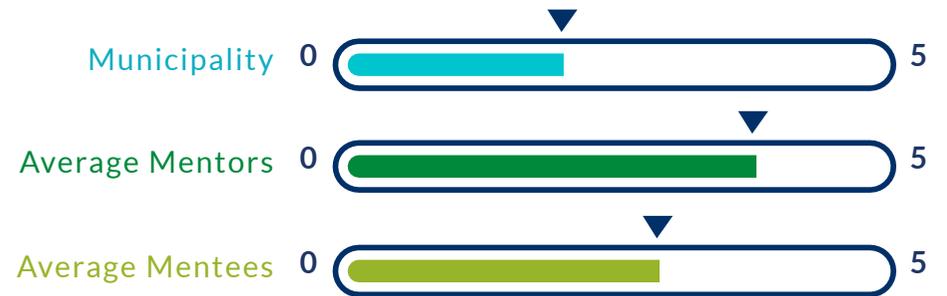
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## Communication

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Does the city cooperate/ communicate with other cities for sustainable energy projects?

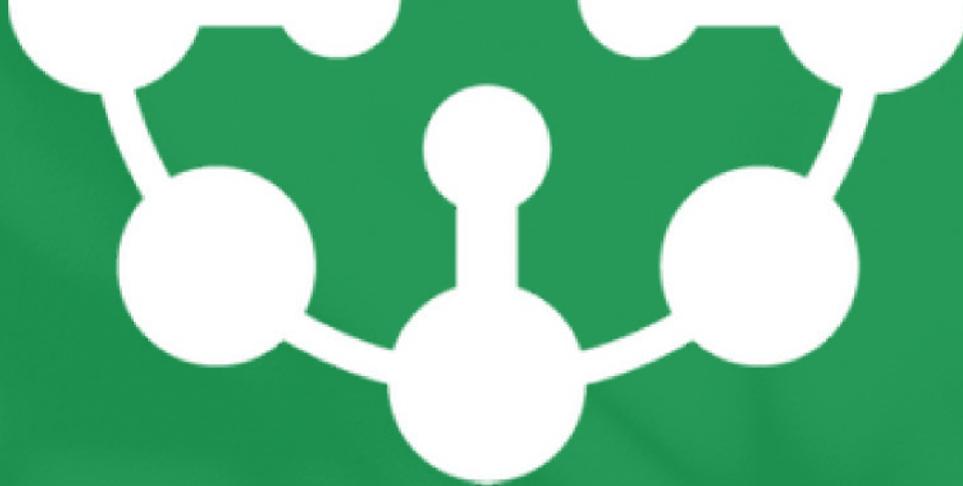


How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?



How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?





# Transport



## Cross sectoral

Covers all those interventions falling under two or more thematic areas; climate change adaptation; local electricity production (e.g. wind power, hydroelectric power, photovoltaic solar panels); and local heat/cold production (e.g. combined heat and power and district heating plant). Consequently, investments in cross-sectoral activities may carry higher complexity than in other areas.



The PROSPECT project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 752126.



# Introduction

Cross-sectoral investments are complex, covering a broad variety. Local and regional authorities perceive these types of projects to be very difficult and reported no experience. As a consequence, supply to offer experience from already implemented projects is rather limited while there is a strong need for learning. Some themes which came up were: 1) increasing green areas/corridors and climate change adaptation; 2) measures to combine mitigation and adaptation (as well as energy-water-food nexus); 3) biomass heating systems; 4) energy poverty; 5) financing of intelligent water metering.

Example of questions:

- Support for financial appraisal, green/climate bonds, partnerships with investors.
- Learn more about funding schemes for climate and energy related projects.
- How to evaluate the long-term impact of green bonds?
- What is the reporting framework in place?
- What is the role of public authorities in the development of the green bond market?
- How to issue a green bond in the market?
- What are they key principles?
- How to get low-rates and decrease running costs?
- How the municipality can handle citizens participation in solar production and auto-consumption projects (crowdfunding, bank cooperative).
- How to develop a funding mechanism involving the community/neighbourhoods in renewable energy production projects.

# Karditsa, Greece

In the case of Karditsa, in 2010 Greece saw its first energy cooperative created for the exploitation of forest biomass and agro-biomass. It contributes both to finding and implementing practical solutions that can lead to energy self-sufficiency at the local level, and to the restructuring of the primary sector which is in crisis or unable to choose a conclusive strategic direction.

## What did our mentees think about energy cooperative & citizens finance?

### Impression

Development company of Karditsa (ESEK) is a collective effort created for the purpose of exploitation of forest biomass and agricultural biomass. It contributes to finding and implementing practical solutions that can lead to energy self-sufficiency of Karditsa, and to the restructuring of the primary sector. The financing scheme is quite pioneering in its central idea as well as successfully implemented, as is proven by its first very positive results. Considering the difficult financial conditions and the bureaucracy in Greece, the scheme has the capacity to solve the main problem of the small-medium enterprises in Greece, which is their financing reliability. The main tool for this purpose is the collateral and responsibility-flows mechanism, in which ESEK plays an important role, along with the other cooperated institutions.

### Strengths

Civic cooperative, permitting the participation of all residents; allows the use of innovation and knowledge; the support of the local ecosystem; The promotion of the entrepreneurial spirit; The engagement of the most important local actors, which is the enterprises, the development agency and the banks; The strong connection with the area, its needs, features, conditions and people and the positive impact in the local society; The feeling of responsibility, which is disseminated among the local enterprises, because they feel like stakeholders in the scheme; The fact that in many cases it is the only alternative way to give financial life to the local productive economic sectors; The monitoring by the local development agency, which gives to the scheme not only the financial character, but a development character as well.

### Weakness

Initial difficulties for construction due to the various entities involved in financing; The complexity of the scheme relations, as it looks by the responsibility flows and distribution chart; The difficulty to find out and establish a permanent funding source, due to the fact that it is about a mechanism which is external to the conventional financing system; The ostensible fragility of the beneficiaries' reliability due to the fact that the eligibility criteria are based more on development factors than on typical ones.

## Energy cooperative & Citizens finance

Crowdfunding involves an open call, mostly through the internet, for the provision of financial resources either in the form of a donation or in exchange for some form of reward and/or voting rights. This can happen in combination with energy cooperatives, which are business models based on shared ownership and democratic decision-making procedures.

## Green bonds

In the cross-sectorial area innovation in financing is often related to green bonds or cooperatives.

Local government (or their agencies) can issue green bonds to fund their sustainable energy and climate projects. A green bond can operate as a normal bond, which is a debt that will be paid back, depending on the characteristics of the bond, with interest. These can be made attractive via tax exemptions.

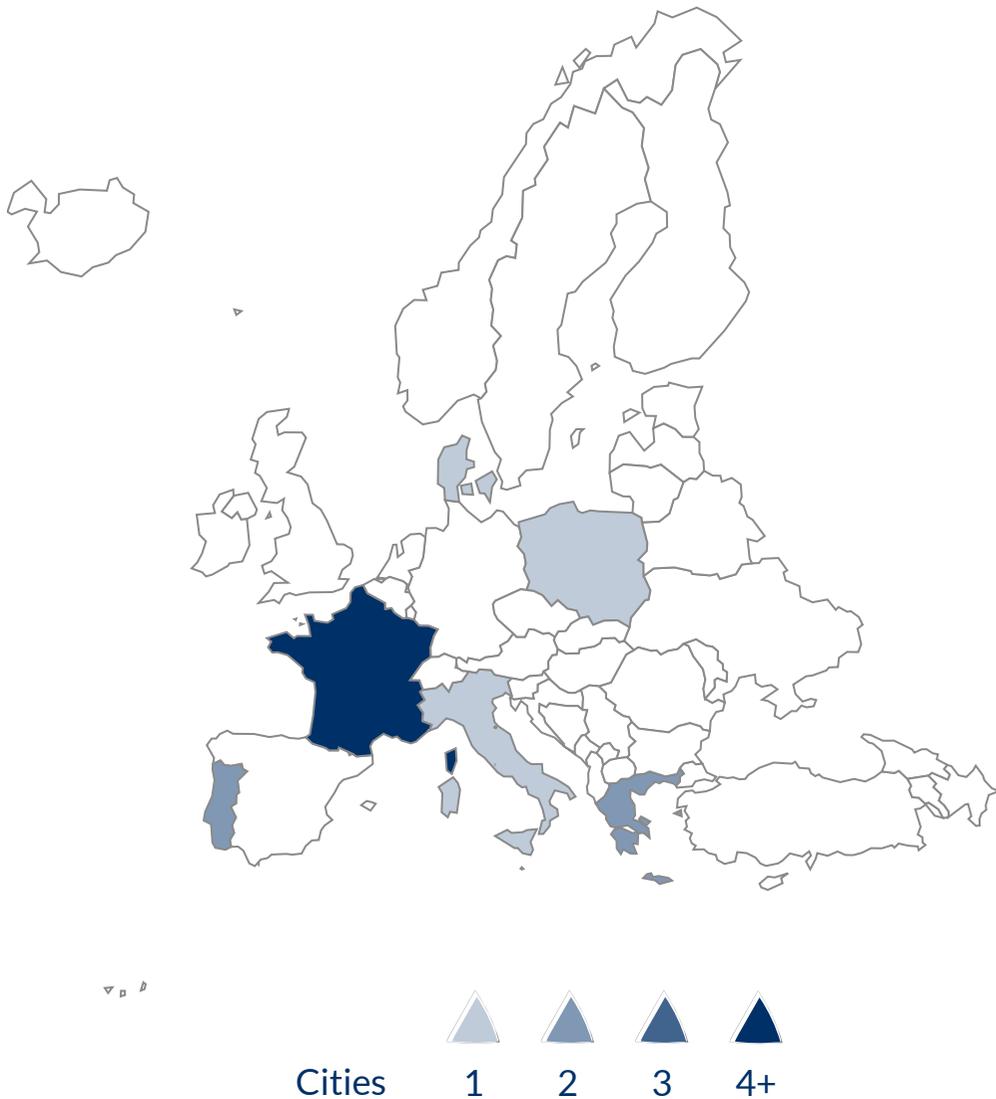
## Paris, France

In the case of Paris, the city chose the implementation of the green bond in 2015 and two years later a sustainability bond.

These bonds are for projects which are in line with the city's climate plan and bring environmental and social benefits.



# Where did the Mentors & Mentees of this module "Cross Sectoral" come from?



## Mentors:

- Greece: Development Agency of Karditsa
- France: City of Paris; City of Albertville

## Mentees:

- Denmark: Samso Energy Academy
- France: Municipality of Château-Thierry; Metz Metropole; ALEC-MVE
- Greece: Municipality of Farkadona
- Italy: Municipality of Acquappesa
- Poland: Municipality of Sztum
- Portugal: Municipality of Baiao; Municipality of Viseu

### **PROJECTS: What type of projects have already been implemented?**

The type of projects ranges from green bonds in Paris to a guarantee fund in Greece.

### **PROJECT IDEAS: What type of project ideas have been gathered? What were the learning objectives?**

The project ideas range from wind farms, to photovoltaic plants, biomass plants, heat recovery from thermal baths, and community scale energy projects.

The stakeholders involved on the project were three cooperative banks (Karditsa, Chania and Epirus), Development Agency of Karditsa, Local BDS (Business Development Support) Centres. The partner's aim was to contribute to the development of a trust-based partnership model for social finance.

The cooperative banks will provide patient capital in the form of loans tailored to the specific needs of social enterprises. The Greek Social Enterprise Guarantee Fund (SEE GR) will provide guarantees to the banks. Suitable social enterprise support organisations provide start-up, business development and social impact management support services, and accompany the loan extended with the guarantee of the Greek Social Enterprise Guarantee Fund.

A Social Entrepreneurship Competence Centre aligns the activities of the various partners through common rules, ensures quality services through networking, training and advice, and ensures quality management through monitoring compliance with agreed rules and standards. Three cooperative banks with the Development Agency of Karditsa already established a not-for-profit organisation which coordinates the 'trust-based network'. There is a group of seven Business Development Support Centres (BDSc), covering several areas of Greece, which are part of the network. A training process is integrated for selected personnel of these BDSc as well as a pilot (test) period of the operation of this new financial tool.

#### **Key success factors:**

- The "incubation" of the initiative
- The credibility of the support organizations and of the involved persons
- The success of similar initiatives (like Cooperative Bank)
- The awareness of population on the need to use Renewable Energy Sources (RES)
- The availability of financial tools

#### **More details:**

<https://h2020prospect.eu/library/goodpractices/110-esek-1>

## Mentors offered knowledge about - HOW TO



- Set up green bonds
- Define the role of an energy manager
- Finance projects that complete their plans (Sustainable Urban Mobility Plan and Sustainable Energy and Climate Action Plan)
- Attract investors and diversify the investment portfolio

## Mentees wished to learn - HOW TO

- Replicate an energy cooperative's financing scheme (Karditsa's case: see wind farm/a biomass plant/heat recovery from thermal baths).
- Find the fairest way to share investments and profits in a collective/multi-family photovoltaic (PV) solar panel installation for generation of own power.
- Share profits from common PV installation.
- Handle citizen participation in PV production and auto-consumption projects (crowdfunding, bank cooperative etc.).
- Develop a funding mechanism involving the community/neighbourhoods in renewable energy production projects, including auto-consumption.
- Understand the background and functioning of the scheme developed by Paris (e.g. green bond and green fund) and other financing instruments and tools used by the city of Paris, learn about key success factors enabling conditions for the use of green bonds (critical/minimum size of the investment, estimation of the transaction costs) and questions to answer before the start, e.g. how to attract investors; how to diversify the investment portfolio?



# Road to success

If you work for a local or regional public authority and wish to implement a cross cutting project, you may wish to know the success criteria reported by others.



## What is a success criteria which is needed the most for make cross-sectorial projects work?

For cross-sectorial financing, staff availability, governance and financial conditions were manageable, while the regulatory frameworks as well as communication were the most challenging aspects. The biggest lack is in personal training schemes and the availability of within the annual municipal budget.



## When we take a closer look at the success criteria...

TOP 3 issues per category

- 65%** reported issues with communication
- 63%** of the mentees faced difficulties in terms of staff availability and technical conditions
- 60%** reported that the financial conditions and the own-prefinancing required was an issue

## However, when we look question by question...

TOP3 issues per question

- 60%** reported that the availability of personnel training schemes for city employees to enhance project development capacity with regard to sustainable energy projects was an issue.
- 60%** reported that the percentage of the total annual city budget available for sustainable energy projects was not sufficient.
- 77%** reported that there was an issue with the efficiency to gain a construction/renovation permit for sustainable energy related projects.



## Take away advice from Karditsa

1. Check if city strategy or strategic, regional operational plans include any motivation for the use of renewable energy sources or especially for biomass use.
2. Explore if the local banks offer special services or products in favour of the use of renewable energy.
3. Communicate with local authorities and ask for information about their policy and/or their will to organise or support local investments in the field of renewable energy and especially of biomass.
4. Communicate with local civil society organisations (if any) and discuss the possibility to plan and implement a campaign for the use of renewable energy as well as to enhance the citizens participation in relative actions.
5. Look for open partnerships and open calls of programmes financed or co-financed by the EU.
6. Establish a communication channel with the local action group who is planning and implementing EU Funds (e.g. LEADER)
7. Check if EU or other high-level strategies (e.g. LEADER) include plans related to biomass use.

## FEEDBACK: What did the peers say?

“ Our ANKA S.A. agency developed an ambitious project including the local population. Going on to energy transition, it is particularly important to involve the local population in local projects for better acceptance. The European Union, through a clean energy package, recently created a new framework called ‘renewable energy community’. The main goal of this new framework is to decentralise the energy production to the local consumer. As it was pursued by Karditsa, the ANKA S.A. agency the citizen cooperative transformed in 2018 into a renewable energy community. It was a real opportunity to learn about this experience. ”

**Tamara Djordjevic**  
Château-Thierry, France (mentee)

“ I underestimated the importance of evaluation and reporting in the job of an energy manager. This permits justifying costs and demonstrates benefits. It is a very effective way to convince and make the service grow. ”

**Joao Dinis**  
Cascais, Portugal (mentee)

“ The programme made it easy to understand how to build sustainability and energy efficiency projects through citizen involvement. Its grassroots ideology, including local governance, cooperatives and citizen involvement, was well demonstrated in the biomass project. With the cooperative ESEK, a path towards energy independence at local level is demonstrated. Regarding the study visit, it is said that it was quite adequate to the best knowledge of the project (as well as its framing in local politics). The mentor also showed the way of life of the city. In general, it is considered a well implemented program. As a suggestion for improvement, an exclusive step towards addressing European legislation on the subject is important. ”

**Daniel Coehlo**  
Viseu, Portugal (mentee)

## Link with other materials

### **Cross-sectoral handbook:**

[https://h2020prospect.eu/images/Module\\_Handbooks/Module-on-Cross-Sectoral.pdf](https://h2020prospect.eu/images/Module_Handbooks/Module-on-Cross-Sectoral.pdf)

### **Good practices:**

<https://h2020prospect.eu/library/goodpractices>



## Annex 1 - Supply: What could mentors offer?

**Paris:** The funds are used to finance projects with environmental and social benefits, fully in line with the city's climate plan objectives. Given the success of this initial experiment, the City of Paris now plans to maximise the use of green loans to encourage financial market players to offer innovative banking tools and to foster investment that supports the energy and ecological transition. In 2015, the city issued its first green bond of €300 million, which complied with the four core components of the 'Green Bond Principles'. The city launched a Sustainability Bond of €320 million on 9 November 2017.

**Karditsa:** The Energy Cooperative of Karditsa (ESEK) is the first collective effort at country level for the exploitation of forest biomass and agro-biomass. Its foundation in 2010, contributes both to finding and implementing practical solutions that can lead to energy self-sufficiency at the local level, and to the restructuring of the primary sector which is in crisis or unable to choose a conclusive strategic direction. ESEK is a civic cooperative, permitting the participation of all residents of Karditsa's prefecture (or originating from it) and sharing a common vision of an energy independent prefecture. It has more than 400 members. It is supported by local authorities: The Chamber of Commerce, Regional Authority, municipalities, Development Agency, Cooperative bank. The aim of ESEK is power production using biomass. Though there is a prerequisite to succeed in this aim: the organisation of biomass supply chain. So, the General Assembly of the cooperative decided (as investment phase 1) the construction of the biomass processing unit. It produces standardised products from biomass (like pellets) directed to the market. The processed quantities will gradually increase, depending on the organisation and the development of the supply chain to the level required by the power plant (10-12 thousand tonnes of appropriate biomass annually).



## Annex 2 - Benchmark Survey Results

The PROSPECT Benchmark survey facilitated mentee-cities to evaluate their potential to employ a financing scheme under their local conditions and infrastructure (staff availability, time needed, financial conditions, etc.).

For each participant city-performance graphs were prepared from the answers included in the PROSPECT Benchmark survey, that best reflect the mentee-cities' current situation, in relation to the average performance across all cities participating in the survey.

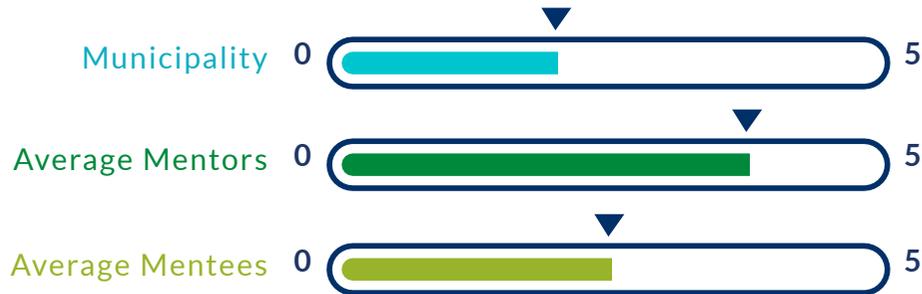
The graphs were then presented and discussed during the transferability session of each learning group.

The results of one participant involved in the module "Cross Sectoral" are presented in the next pages of the report.

# Annex 2 - Benchmark Survey Results

## Staff availability – Technical conditions

Is there a municipality service/personnel dedicated to investigating available funding options, esp. innovative ones?



Is existing personnel able to support administration, co-ordination and monitoring of projects? (general municipality administrative ability)



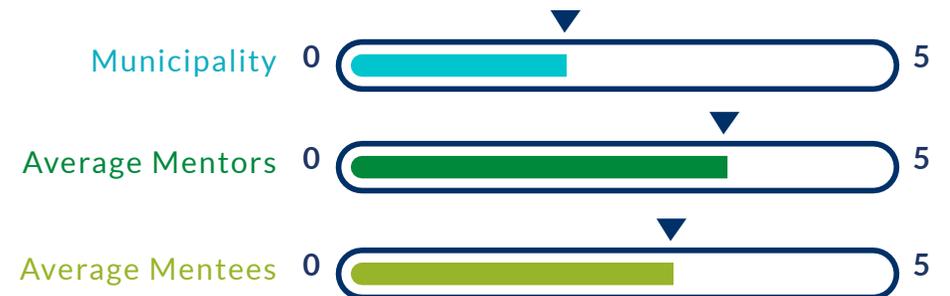
Are there personnel training schemes available for city employees to enhance its project development capacity with regards to sustainable energy projects?



Is there dedicated personnel (in house or outsourced) in place to facilitate/ support project identification/ prioritization and selection of sustainable energy related projects?



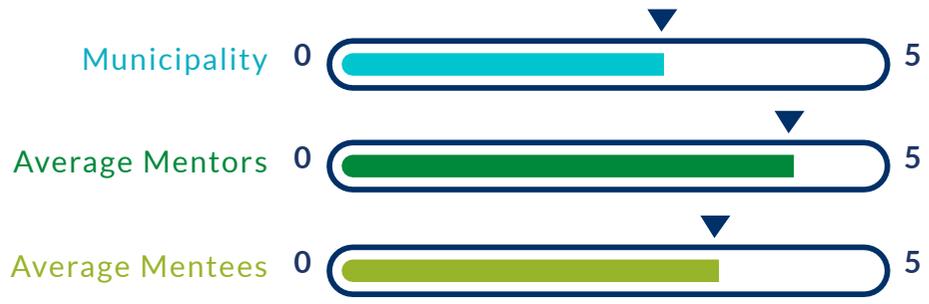
Can the municipality employ or train permanent/ temporary staff (if required), to support project underwriting and administration? Barriers other than possible lack of funds are to be considered for this question.



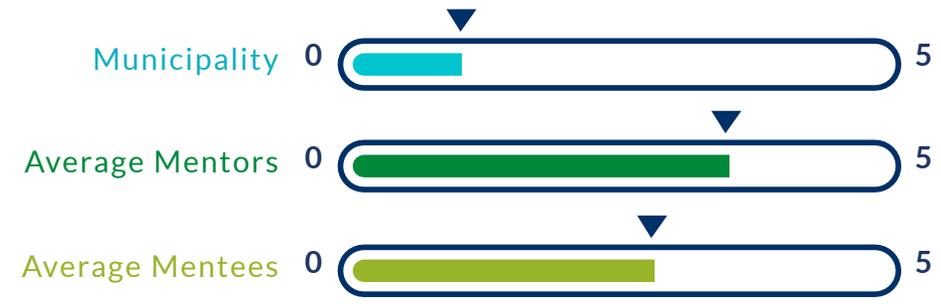
# Annex 2 - Benchmark Survey Results

## Legislative/regulatory framework - time needed for implementation

Are there legal or regulatory constraints preventing the utilization of private financing for city-level investments?



Is the process to gain a construction/renovation permit for sustainable energy related projects fast and efficient?



Do public procurement (PP) procedures facilitate sustainable energy investments adequately?



Do ownership issues (or public and private assets) hinder the implementation of sustainable energy related projects?



# Annex 2 - Benchmark Survey Results

## Governance/Management related efforts

What is your city experience regarding sustainable energy (SE) city-level projects? Has your city implemented a Sustainable Energy & Climate Action Plan (SECAP) or equivalent plan?



Does the city cooperate/ communicate with other public actors (e.g. partnerships with the central government, regional authorities, public transport companies etc.) for sustainable energy related projects?



Are operational standards and/ or quality assurance (QA) methods currently used? (to ensure good project quality and replicable results)



Is a project evaluation process (either at the national or the local level) established and applied to sustainable energy projects?



Is there a standardized monitoring and verification (M&V) procedure applied to monitor and verify project effects?



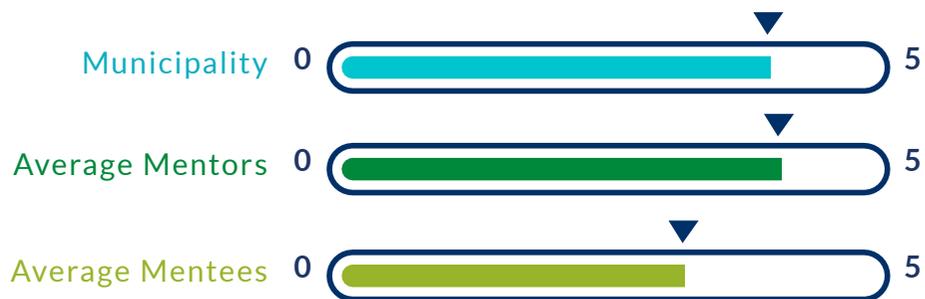
# Annex 2 - Benchmark Survey Results

## Financial conditions/ Own pre-financing required

Are subsidies, tax benefits or other incentives available for private project investors and lenders? Are all types of city-level sustainable energy investments eligible for support?



Has the available budget for sustainable energy related projects been sufficiently exploited thus far? Please also provide any reasons why (or why not) in a short paragraph.



Is citizens' finance (such as crowd-funding, cooperatives, contribution to local investment funds, saving accounts and donations) applied to sustainable energy related projects?



What percentage of the total annual city budget is available for sustainable energy projects? Please provide the absolute amount of available budget within a certain timeframe, as well as the proportion to the total city budget.



Are available international/ national/ regional funds and other financial support schemes for municipalities available? Are those sufficiently utilized by the municipality in the context of sustainable energy projects?



# Annex 2 - Benchmark Survey Results

## Communication

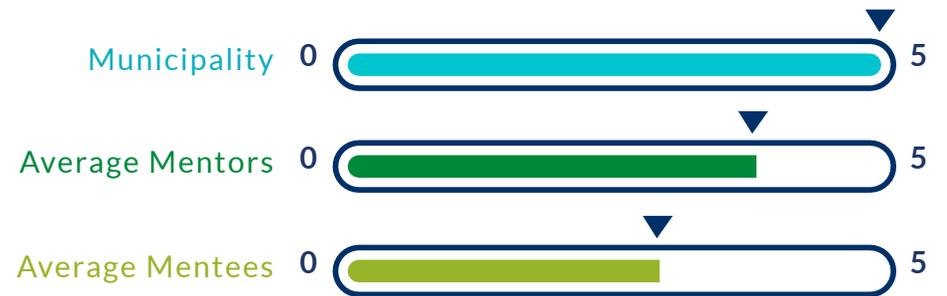
Are city's sustainable energy related projects and initiatives adequately disseminated to prospect investors & actors? Dissemination events could be online (e.g. newsletters or a website) or offline (e.g. monthly magazine, a quarterly physical meeting)



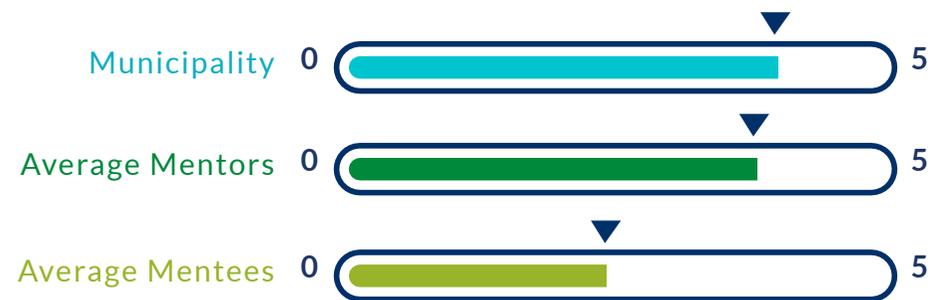
How established is the city's cooperation & communication with traditional private actors (e.g. private financial institutions, private utility companies) for sustainable energy projects?



Does the city cooperate/ communicate with other cities for sustainable energy projects?



How established is the city's cooperation & communication with non-traditional private actors (e.g. high-tech enterprises, ESCOs, entrepreneurs) for sustainable energy projects?





# Cross sectoral

# Links

The **replication plan** focuses on the replication of the learning programme by local/regional authorities and their agencies.

## Benchmark for integrated learning

This report proposes a City Capacity Assessment Framework focusing on city planning, financing, and implementation capacity for Sustainable Energy and Climate Action Plan projects. The framework measures a city's ability to attract investments, identify and utilise diverse funding sources and setup, implement and monitor investment projects.

## Sustainability strategy for peer-to-peer learning programme

The aim is to ensure the viability of the learning programme after the project's end through a detailed and realistic sustainability plan, which will define a coherent strategy and an effective action plan for the further exploitation of the project's main outcomes. It is designed to propose actions aimed at continuing the programme beyond the duration of the EU grant and ensure the exploitation of the project's results especially by the members of the consortium.

# TERMINOLOGY

## Energy efficiency actions

**Sustainable energy and climate actions:** These refer to actions that fall under the five thematic modules of the PROSPECT learning programme; namely public buildings, private buildings, transport, public lighting and cross-sectoral.

**Public buildings:** This covers buildings and facilities owned, managed, or controlled by public authorities. Facilities refer to energy consuming entities that are not buildings, such as wastewater treatment plants.

**Private buildings:** This covers buildings owned, managed, or controlled by private individuals or corporations. This refers primarily to the tertiary sector (services), such as private companies, banks, commercial and retail, hospitals, etc. and residential buildings, including social housing.

**Transport:** This covers the provision of and management of mass transit systems by public authorities, as well as private transport.

**Public lighting:** This covers the provision of public lighting (e.g. street lighting and traffic lights) owned or operated by public authorities. Non-municipal public lighting is under private buildings.

**Cross-sectoral:** This covers all those interventions falling under two or more thematic modules; climate change adaptation; local electricity production (e.g. wind power, hydroelectric power, photovoltaic solar panels); and local heat/cold production (e.g. combined heat and power and district heating plant).

# TERMINOLOGY

## Innovative financing schemes

**Citizens finance (crowdfunding and cooperatives):** Crowdfunding involves an open call, mostly through the internet, for the provision of financial resources either in the form of donation or in exchange for some form of reward and/or voting rights. This can happen in combination with energy cooperatives, which are business models based on shared ownership and democratic decision-making procedures.

**Energy Performance Contracting (EPC):** EPC is a method to implement energy efficiency projects, by which an ESCO (Energy Services Company) acts as a unique contractor and complete all of the steps of a project, from audit through installation up to operations and maintenance. The ESCO delivers a performance guarantee on the energy savings and takes responsibility for the end result. The EPC contract is the contractual agreement by which the output-drive results are agreed upon.

**Green bonds:** Local government (or their agencies) can issue green bonds to fund their sustainable energy and climate actions. A green bond can operate as a normal bond, which is a debt that will be paid back, depending on the characteristics of the bond, with interest. These can be made attractive via tax-exemptions.

**Guarantee funds:** These are loan guarantees provided to lenders which serve as buffers against first losses of non-payment by the borrowers.

**Soft loans:** Soft loan schemes are loans below market rates and with longer payback periods derived from public funding to facilitate investments.

**Revolving funds:** A Fund established to finance a continuing cycle of investments through initial amounts received from its shareholders, creditors or donors and later on through amounts received from reimbursements of provided funding or loans to projects. These recovered funds become available for further reinvestment in other projects under similar scope e.g. revolving funds for sustainable energy will use the loans recovered funds to finance new sustainable energy projects.

**Third party financing:** This refers solely to debt financing. The project financing comes from a third party, usually a financial institution or other investor, or the ESCO, which is not the user or customer.

# TERMINOLOGY

## Project & Investment Cycles

**Bankable projects:** Project or proposal that has sufficient collateral, future cash flow, and high probability of success, to be accepted for funding by a financial institution or investor.

**Investment cycle:** This refers to the stages of pre-financing or servicing/operations from the financial institution's perspective.

**Pre-financing:** This includes origination (e.g. own funds, technical assistance, EU facilities e.g. PDA, ELENA), underwriting (determining value and risk, requiring final project information, accurate costs and savings, procurement and contracting approach), and the investment decision.

**Post-financing** includes (servicing and operations): Investment administration (legal documentation), draw down of funds (the external financing entity's final inspection) and ongoing servicing for the life of the investment (following the agreement).

**Project cycle:** This refers to the stages of development, implementation, and monitoring of a sustainable energy and climate action project financed by an innovative financing scheme.

# TERMINOLOGY

## Learning Programme

**Mentor:** An individual representing a local or regional authority who has had direct experience on or has a specific expertise in financing a sustainable energy and climate action through an innovative scheme and is willing to share insights with a mentee.

**Mentee city/region/agency:** An individual representing a local or regional authority who would want to learn from an experienced or expert peer on financing a sustainable energy and climate action using an innovative scheme and is interested to apply what they learned in their own context.

**Peer mentoring:** A one-to-one relationship between a mentor and a mentee characterized by open ended counselling and joint problem solving.

**Matched pair:** A pair of mentor and mentee who participate in the peer learning programme through peer mentoring.

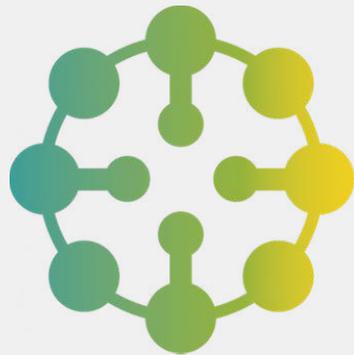
**Peer mentoring visit:** An activity wherein the mentor visit the mentee to understand the learning context and carry out mentoring activities.

**Peer group:** A group of more than two peers (maximum of seven) with similar learning needs and objectives who can participate in the learning programme via study visits with the support of a mentor and a facilitator.

**Study visit:** An activity that involves a peer group observing first-hand how a mentor city or region has implemented its sustainable energy or climate action project using an innovative financing scheme and getting insights and recommendations directly from the implementers.

**Online peer learning:** A learning activity that involves virtual discussions wherein the matched pair or peer group can discuss their issues and challenges and work on how they can achieve their learning objectives.

**Facilitator:** An individual who supports the interaction among the matched pair or peer group by establishing the purpose of the programme, steering the discussions, and collecting feedback on the peer learning process. All partners in the PROSPECT consortium act as facilitators.



# PROSPECT



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