# Inventory of sustainable energy measures and verification of achieved impacts

April 2025

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The PROSPECT+ project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023271

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| PROSPECT+ | Project & Deliverable Profile |
|---|---|
| Project Acronym and Full Name: | PROSPECT+ Capacity building for cities and regions - from learning to action! |
| Grant Agreement No.: | 101023271 |
| Programmes: | H2020-EU.3.3. - SOCIETAL CHALLENGES - Secure, clean and efficient energy<br>H2020-EU.3.3.7. - Market uptake of energy innovation - building on Intelligent Energy Europe<br>H2020-EU.3.3.1. - Reducing energy consumption and carbon footprint by smart and sustainable use |
| Topic: | LC-SC3-EC-5-2020 - Supporting public authorities in driving the energy transition |
| Funding Type: | CSA - Coordination and support action |
| Project URL | https://h2020prospect.eu/ |
| EU Project Officer | Cristina Mestre Martinez |
| Project Coordinator | Institute for European Energy and Climate Policy (IEECP) |
| Deliverable: | D4.5 Inventory of sustainable energy measures and verification of achieved impacts |
| Work Package: | WP4 Launching and monitoring PROSPECT+ capacity building programme |
| Deliverable Due Date: | Project month 42 (February 2025) |
| Actual Date of Submission: | May 28th, 2025 |
| Dissemination Level: | Public |
| Lead Beneficiary: | IEECP |
| Responsible Author: | Giulia Viero, IEECP |
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| Internal Reviewers: | Danai Sofia Exintaveloni and Sophia Theodoropoulou, UPRC & Giulia Pizzini, IEECP |

# Preface

PROSPECT+, building on the previous H2020 project PROSPECT, will enable capacity building in regional and local authorities in order to finance and implement effective and efficient sustainable energy plans, including their proper monitoring and verification and also ensuring that such plans are using synergies from other local plans. The learning programme will advance through 5 learning modules covering public buildings, private buildings, public lighting, transport, and cross-sectoral topics. PROSPECT+ will focus on improving decision-making of cities in project selection for financing and assessment to ensure that their projects are finance ready. The ambition is to ensure that over 200 EU cities in at least 20 EU MS will improve their capacities when it comes to implementing projects from sustainable energy and climate plans (SECAPs) and similar sustainable plans.

# WHO WE ARE

| | Participant Name | Short Name | Country | Logo |
|---|---|---|---|---|
| 1 | Institute for European Energy and Climate Policy Stichting | IEECP | NL | |
| 2 | European Federation of Agencies and Regions for Energy and the Environment | FEDARENE | BE | |
| 3 | EUROCITIES ASBL | EUROCITIES | BE | |
| 4 | Energy Cities/Energie-cites Association | ENC | FR | |
| 5 | University of Piraeus Research Center | UPRC | GR | |
| 6 | OÖ Energiesparverband | ESV | AT | |
| 7 | Energy agency of Podravje – Institution for sustainable energy use | ENERGAP | SI | |
| 8 | Tipperary Energy Agency | TEA | IE | |
| 9 | Ayuntamiento de Valladolid | INNOLID | ES | |
| 10 | Association of Energy Managers of Towns and Regions of the Czech Republic | SEMMO | CZ | |
| 11 | Adelphi research gemeinnützige GmbH | adelphi | DE | |

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# 1 Executive Summary

Cities, while significant contributors to pollution and climate change, also hold the potential to reduce emissions and set replicable standards for green investment across various sectors. This paper presents the verification methodology and tools developed within the H2020 PROSPECT+ project, to assess the impacts achieved in supporting over 218 local and regional authorities among European cities and regions in the implementation of local energy and climate strategies through innovative financing mechanisms, thereby reducing their reliance on public subsidies.

In nearly four years, PROSPECT+ implemented a successful peer to peer learning programme among European local and regional authorities, as detailed in **Chapter 1**. The project's main goal was to facilitate the exchange of knowledge and experience on innovative financing schemes to implement climate and sustainable actions able to increase energy savings and reduce GHG emissions. **Chapter 2** presents the verification methodology developed within the PROSPECT+ project's EU-wide capacity building programme, which comprises five steps, from establishing Key Performance Indicators to using desk-based calculations to address data gaps. The approach verifies the initial project assumptions ex-post, demonstrating the impact of PROSPECT+ to the European Commission. It details the efforts to design and implement an approach to monitor and verify participants' projects progress and PROSPECT+ project performance indicators from the implementation of the energy efficiency measures, through innovative financing schemes - to meet the objectives of their Sustainable Energy and Climate Action Plans (SECAPs) or other relevant plans. Results are shown in **Chapter 3** in terms of i) estimated annual energy savings (MWh/A) and monetary savings from the installation of sustainable energy measures (million EUR), ii) yearly CO2 reduction (tCO2/a), and ii) RES production (MWh/a). **Chapter 4** presents the SECAP measures influenced by the programme, whereas **Chapter 5** discusses how the PROSPECT+ project benefits from the verification approach and its tools, including EUSurvey forms and monitoring tables, highlighting their associated benefits, while also addressing limitations, data gaps and triangulation, concluding with potential improvements in future iterations.

The PROSPECT+ programme continues to play a pivotal role in empowering cities and regions to fulfil their potential as key drivers of the clean energy transition, by having direct and indirect influence on 1120 actions from SECAP or other local plans – based on data gathered from 53 learning groups successfully completing the programme. In total, the programme has engaged 290 participants among public authorities and energy agencies etc., 218 of which have successfully completed the full programme. The findings derived from the project's verification methodology have proven particularly valuable. These have supported the broader objectives of PROSPECT+ in multiple ways – ranging from showcasing innovative clean energy transition initiatives, to enabling consistent and reliable monitoring of SECAP measures, and other locally-led sustainable energy projects. Looking ahead, several improvement opportunities have been identified for the PROSPECT+ capacity-building programme.

# 2 The Capacity Building Programme and its key elements

The designed Capacity Building Programme (CBP) aims to address the question: "*How can local and regional authorities learn from each other?*". To do so, the programme currently implements a peer-to-peer learning approach, where participants are organised into groups with one mentor, one or more mentee(s) and a facilitator.


- The **mentor** has experience with financing sustainable energy and climate actions through an innovative scheme and is willing to share insights,
- The **mentee** from local and regional authorities (LRA) enrols in the CBP to learn from an experienced or expert peer and delve into how they could apply the knowledge gained in their own context, and
- The **facilitator** supports the mentor in planning activities and following-up with mentees, ensuring that all groups follow the CBP structure, and that all materials are effectively utilised and, when relevant, completed within the learning cycle, ensuring consistency and constant high quality of the programme across the different groups.

Specifically, participants can be matched at the EU groups, having mentees and mentors from different countries working together on one specific theme, or local groups, in which the mentees and the mentor are in the same country (or region) and/ or speak the same language and have common backgrounds and plans. Mentors in the PROSPECT+ CBP are energy agencies or other expertise organisations having in-depth knowledge and experience on one or more of the following five thematic learning modules: **Public Buildings, Private Buildings, Transport, Public Lighting,** and **Cross Sectoral** (a combination of two or more of the previously mentioned modules).

The table on the left illustrates the different steps of the PROSPECT+ CBP, which unfolds in **four learning cycles** (LC) (each of 4 – 8 months duration). In each LC, participants can follow up to six Steps, in which both online and physical meetings take place. These are described as follows: at least **3 online meetings** are envisioned (Steps 1, 2, and 4), **1 physical meeting** of 2 days (Step 3). As a bonus step, 30 mentees are selected and invited for a **bi-annual Masterclass**, which is an in-person workshop in Brussels for the most advanced mentees.

Last, but not least, each learning group works on a common online document, the **Action Plan**, which includes detailed explanations of all Steps, additional resources, tools and guidelines to complete their learning journey. Data provided by mentees' groups in their respective Action Plans is the foundation of the figures presented in Chapter 3, substantiated with information from the verification process and triangulated with other literature sources. A more detailed overview of the PROSPECT+ CBP methodology is available in the PROSPECT+ published report "*Report on experiences and showcases of successfully implemented groups*" led by IEECP.

# 3 Methodology

The verification of mentees' progress with their sustainable energy measures aims at measuring the actual effect of the CBP in terms of the following Key Performance Indicators (KPIs):

- Final energy savings triggered by the project in GWh/year
- Renewable energy generation triggered by the project (in GWh/year)
- Reduction of greenhouse gases (GHG) emissions (in tCO2-eq/year)
- Investments in sustainable energy (energy efficiency and renewable energy- RES) triggered by the project (cumulative, in million Euro).

The overall verification methodology can be encapsulated within the following question: *Which impacts have been brought about by the PROSPECT+ capacity-building activities targeting participants to develop and implement energy efficiency measures in various thematic areas?* To verify this and the above KPIs, the methodology includes the following elements:

Desk study of project materials: all relevant project documents (e.g. Action Plan), including project descriptions, reports, publications, etc. and other information will be provided to the evaluator.

An **electronic survey (*EUSurvey*)** for participants: the collected information is used to verify the initial targets set forth in the proposal phase of the project and to illustrate the PROSPECT+ project performance indicators to the European Commission, as well as how future programmes can better define their anticipated project impacts, using literature and market-based assumptions.

Establishment of an **Excel dataset** on energy efficiency measures spanning all LCs. The latter allows for the impacts to be regularly monitored based on the project performance indicators.

## The PROSPECT+ verification process step-by-step

The methodology is designed for standardised tracking of participants' individual and cumulative projects progress after each LC. From LC1 to LC3, mentees were asked to report any updates twice (every 6 months) after the end of their LC, plus a third time in January 2025, before the project end. For LC 4 mentees, the verification round occurred only once due to the approaching end of the project in February 2025. Figure 1 provides a snapshot of the project activities timeline, including the verification rounds at the end of each LC (indicated by the yellow icon resembling a checklist). More details are given below (point 4. *Start the verification round*).

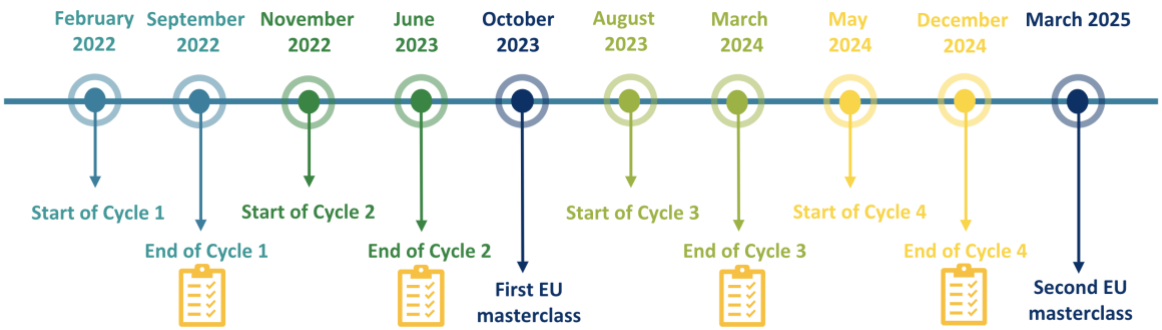


**Figure 1. Verification process timeline across the PROSPECT+ project duration.**

The breakdown of the verification process is sixfold. Figure 2 provides an overview of all the steps, followed by a detailed explanation of each step, with examples and templates as well as measurement mechanisms employed during PROSPECT+, ultimately to verify the impacts of participants' sustainable energy measures or policies during the project duration. Based on the data collected from mentees and/or calculated along the six steps, the PROSPECT+ achieved results are compared to the initial targets.


**Figure 2. Verification process implemented in PROSPECT+.**

Below, each of the six steps is explained.

1

**Define the project Key Performance Indicators** (KPIs). All indicators developed in the initial phase of the project are collected and included in an Excel worksheet. These figures will be used to evaluate the impacts at the project end in comparison to its initially foreseen ambition.

**Table 1. Overview of key entries in the verification Excel worksheet.**

| Mentees group | Innovative financing scheme | Estimated annual energy savings (MWh) and (million EUR) | Estimated yearly CO2 reduction (tCO2/a) | Estimated RES production (MWh/a) * | Project start date | Project end date | Total cost of measures (EUR) | Implemented measures |
|---|---|---|---|---|---|---|---|---|
| - | - | - | - | - | - | - | - | - |

* Both for annual energy savings and estimated RES production, mentees are asked to provide figures in megawatt-hour (MWh), which will be converted into gigawatt-hour (GWh) for the final aggregated sum of all mentees' projects' impact.

2

**Design the data collection inventory.** The Excel workbook has been used for the purpose of collecting, reviewing, monitoring and analysing information at the individual and overall project level, also through own measurements or calculations.

While the data in Table 1 illustrates the structure for collecting data forming part of the inventory of mentees' sustainable energy projects, the inventory was designed using the Excel workbook. Excel serves as a useful tool to create an organized inventory of mentees' projects, facilitating the collection, categorization, and analysis of each project information. It also allowed for a structured format to easily review missing or pending data such as project titles, energy as well as investment figures, and expected start/end dates. This systematic approach facilitated better tracking and comparison across sustainable energy projects across different LCs.

3

**Prepare and disseminate verification tools**. The verification follows a tailored approach, where each facilitator follows up with their group(s) directly. This approach was used based on the fact that tailored emails can significantly increase the chance of receiving a response from the mentee.

In this step, internal mentors/facilitators received a series of instructions and the template emails to send the EU Survey link to their mentees, which would be applicable to all verification rounds, albeit changes were made to

the templates. The latter were based on varying deadlines to submit mentees' responses each time as well as the planning of PROSEPCT+ activities (e.g. Masterclass).

Below a detailed description of the verification tools:

- The **key tool** used for the verification process is ***EUSurvey*** (https://ec.europa.eu/eusurvey/home/welcome). The online survey management platform is developed by the European Commission, and it was used within PROSPECT+ to create, distribute, and manage the survey form for the verification of mentees project progress. The survey was published for the first time in June 2023, as "Verification of mentees progress with EEMs", EEMs being energy efficiency measures, and it is available **in English** in Annex I - EUSurvey form 'Verification of mentees achieved impacts'. The *EUSurvey* tool was selected compared to other survey platforms as it offers support for multiple languages, which is notably supportive for conducting surveys across different Member States as in the case of PROSPECT+, where **local mentoring groups** are (being) implemented in Croatian, Czech, French, Italian, and Spanish. Further, *EUSurvey* is freely accessible to anyone, including public administrations, businesses, and individual citizens, making it a cost-effective solution for creating and managing surveys. Figure 3 shows an example from the *EUSurvey* form set of questions, already including the disaggregation of responses per LC, in numbers and percentages, with LC2 recording the highest response rate (40%).

**In which PROSPECT+ Learning Cycle (LC) did you participate?**

| | | Answers | Ratio |
|---|---|---|---|
| LC1, Feb-Sept 22 | | 13 | 32.50 % |
| LC2, Nov22-June23 | | 16 | 40.00 % |
| LC3, Sept23-March24 | | 10 | 25.00 % |
| LC4, May-Dec24 | | 1 | 2.50 % |

**Figure 3. Exemplary question from the PROSPECT+ *EUSurvey* verification form.**

- **Excel monitoring table**. This simple Excel table was used to keep track of which mentees had received the email, the date it was initially sent, and whether follow-up communication was necessary, the mentees' response rate, as well as any relevant comments from mentors and/or facilitators. For example, mentors could signal that a mentee had left the previous job position, and the survey was no longer applicable. The monitoring table provided a centralised way to manage the process, through a comprehensive view of all survey responses, making it easier to identify patterns or issues quickly, such as decreasing response rates.
- **Email templates**, which facilitators could tailor to their individual mentee(s) and/or group(s). Direct email communication between mentors/facilitators and their respective learning groups and mentees was used with PROSPECT+ participants to maximise the response rate to the *EUSurvey*. This methods has several benefits: i) personalising elements (e.g., mentoring group, mentees' project title) are more engaging than a generic email, ii) tailored emails can decrease the chance of being overlooked or deleted alongside other mass-emails, and iii) they can encourage mentees to respond - even if their project has not advanced or is yet to be implemented - as they convey professionalism and a particular interest by mentors in learning about the mentee's individual progress.

**Start the verification round**. For mentees participating in LC1 to LC3, *ex-post* verification of their projects' progress occured twice in the year right after mentees have completed their LC. One more verification round run from between January and February 2025. For LC4 mentees, the schedule foresaw one round only, before the end of the project in March 2025. Desk research and literature-based calculations, as outlined below in greater detail.

The timeline of the verification rounds is specified below:

- LC1 first round of data collection: from last week June 2023 to August 2023
- LC1 second round of data collection: from Dec 2023 to Jan 2024
- LC2 first round of data collection: from Dec 2023 to Jan 2024
- LC2 second round of data collection: from June 2024 to July 2024
- LC3 first round of data collection: from June 2024 to July 2024
- LC3 second round of data collection: from Dec 2024 to Jan 2025
- LC4 first round of data collection: from Dec 2024 to Jan 2025.
-

**Fill-in the inventory of achieved impacts from sustainable energy measures.** For each entry in Table 1, the data sources utilised are: 1) initial data filled-in by mentees in their Action Plan (during the LC), 2) updated data after the first verification round, and 3) updated data after the second verification round.

Data has been recorded in the Excel worksheet for the entire verification process duration, i.e. June 2023 to February 2025. LC4 ended recently and most municipalities/cities that took part in it did not have adequate time to start developing their projects – considering this, the impact of their projects was estimated based on their Action Plans and triangulated with secondary sources/literature as detailed in step 6 below.

**Use literature and desk-based calculations to fill-in data gaps.** Due to the nature of project-based funding such as Horizon 2020 and LIFE programmes, not all deliverables can be evaluated and verified during the project duration. This is the case for LC4, ending approximately two months before the project ends, for which a second verification round is excluded.

The potential sources that are used to calculate and triangulate the results from the EUSurvey verification process are presented below, for all KPIs as in Step 1.

## Calculated annual energy savings (GWh/a)

According to the latest Joint Research Center (JRC) report on Covenant of Mayors (CoM) energy figures[1], the estimated energy savings – declared by 911 signatories reporting a Baseline Emission Inventory (BEI) by 2030 – account for 3.8 MWh/year per capita. This figure will be multiplied by the average number of inhabitants per

1 Covenant of Mayors 2022 Energy figures (2023). Available at https://publications.jrc.ec.europa.eu/repository/handle/JRC132632

unique[2] LRAs participating in the CBP by the end of the PROPSECT+ project, obtaining the final annual energy savings to be compared with initial assumptions. Other resources and tools could be employed to triangulate the final cumulative calculations at the project end. For instance, the indicator for energy savings could be guided by the learnings from other EU-funded projects, such as EDI-NET[3], as well as the study carried out in the Smart Readiness Indicator for Buildings.[4] Additionally, the indicators can be verified using the De-risking Energy Efficiency Platform.[5] In particular, the platform provides a wide array of data for past energy efficiency projects in public buildings, one of PROSPECT+ thematic areas, as explained in Chapter 1. Notably, in some cases e.g. learning groups focusing on revolving funds as an innovative financing scheme, the annual energy savings and/or cost savings resulting from implemented energy efficiency measures have the potential to generate higher impacts as cost savings are returned directly to the (revolving) fund, thus ensuring leverage of the fund and boosting further investments in a clean energy transition.

## Calculated yearly CO2 reduction (tCO2/a)

In terms of GHG emissions reduction, data from the verification of mentees achieved impacts can be substantiated through different sources. For instance, the JRC 2022 assessment report[6] can be used as a reference point, which analysed the 2030 commitments of 412 action plans from EU-27 signatories having a BEI and at least one Monitoring emission Investor (MEI). Signatories are predicted to achieve an average reduction of 1.6 tonnes-CO2 per capita. Another method consists of utilising the per capita CO2 reduction based on the total emissions in BEI – per each country, in combination with the information submitted by mentees in their respective Action Plans. Thus, considering once again the total number of unique LRAs that will be engaged by the project end in February 2025, and the average number of inhabitants per city and/or region, the GHG emission reduction triggered at the end of PROSPECT+ can be calculated.

## Calculated energy investments costs (M€)

The total energy investment costs are calculated considering the JRC 6—year assessment report[7], which estimates the total energy costs for 3,421 signatories in Sustainable Energy Action Plans (SEAPs); these amount to 108,701 million Euros, where the average cost per SEAP was calculated to be approximately 32 million Euros.

2 Unique is a term in the project referred to one sole organization represented by one or more mentees. Since multiple mentees from the same organisation may participate in learning groups with a different focus/thematic area, our impacts calculations will avoid double counting of e.g. energy savings by considering solely unique organisations and not each mentee.

3 EDI-NET – The Energy Data Innovation Network; using smart meter data, campaigns and networking to increase the capacity of public authorities to implement sustainable energy policy. Available at https://cordis.europa.eu/project/id/695916/reporting

4 Smart Readiness Indicator (SRI) for buildings – BUILD UP (2023). Available at https://build-up.ec.europa.eu/en/resources-and-tools/links/smart-readiness-indicator-sri-buildings

5 De-risking Energy Efficiency Platform (DEEP) (2024). Available at https://deep.ec.europa.eu/

6 Covenant of Mayors: 2022 assessment (2022). Available at https://publications.jrc.ec.europa.eu/repository/handle/JRC130957

7 The Covenant of Mayors in Figures and Performance Indicators: 6-Year Assessment (2015). Available at https://publications.jrc.ec.europa.eu/repository/handle/JRC92694

## Calculated RES production and investment (GWh/y)

For the cost of investing in RES, the IRENA assessment from 2019[8] can be taken as a reference. It approximates that the cost of installing renewables (average between solar and wind power) is 1 million EUR for 1 MW of installed capacity. Figures from this report will be considered along with the RES production provided by mentees in their Action Plans during the LC or their updated figures via the EUSurvey form. Alternatively, information from the JRC 6—year assessment can be utilised in our verification of achieved impacts, by considering the total estimated local energy production reported by JRC, which accounts for approximately 132,746 GWh/year, resulting in 38.8 GWh/year per SEAP – and considering the final number unique LRAs engaged in the CBP and assumed to have a SEAP, SECAP or relevant local action plan.

8 Renewable Power Generation costs in 2019 (2019). Available at https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2020/Jun/IRENA_Power_Generation_Costs_2019.pdf

# 4 Inventory of energy efficiency measures

In PROSPECT+, the entire knowledge exchange programme was implemented with the objective of removing barriers to implementing sustainable energy projects with innovative financing instruments. As mentioned previously in this report, the PROSPECT+ learning programme was implemented in **4 LCs**, with each LC lasting up to **8 months**. A total number of **218 public authorities** (165 mentees, 19 external mentors plus 34 internal mentors), organised into **53 groups** and representing **27 countries**, joined the PROSPECT+ capacity building programme and successfully completed it. Considering dropouts as well, the total number of public authorities that had planned to join the PROSPECT+ programme is 290 (with 55 groups that started the programme however did not complete it). Out of the 53 learning groups created, most of them were study visits, compared to other learning methods proposed by the project, i.e. local mentoring and peer-mentoring:


The ultimate result of those projects are increased energy savings and investments in energy efficiency measures as well as higher renewable energy production to reduce CO2 emission, based on the learning requirements as well as on the mentees' necessities and/or priorities, as illustrated in Figure 4.


**Figure 4. Word Cloud overview of mentee's project descriptions in their Action Plans (topic, solutions and/or target groups)**

The section below (from Table 2 to Table 6) shows the inventory of all mentees' projects and measures, for a total of 53 roups participating and successfully finishing the programme. The groups are divided by the respective PROSPECT+ thematic area as shown in Figure 5 below. Additionally, rows highlighted in light green indicate those mentees who completed their respective LC with a more advanced project phase, compared to the initial Action Plan phase – showcasing the impact of PROSPECT+ on LRAs capacity building enhancement.


**Figure 5. PROSPECT+ five thematic areas**

**Table 2. Inventory of PROSPECT+ energy efficiency measures: Public buildings (PuB) learning groups.**

| # | Learning Cycle | City/Region, Country | Energy efficiency measure and/or Project title | Start project date | Phase in the Action Plan (during the LC) | Phase at PROSPECT+ end / estimated completion date |
|---|---|---|---|---|---|---|
| 1 | C1_PuB1 | Iasi, Romania | Energy consolidation and rehabilitation of "Grigore Ghica Vodă" Post-secondary Sanitary School | 2024 | Development | N/A |
| 2 | As above | Iasi, Romania | Moderate energy renovation multifamily residential buildings | 2024 | Development | N/A |
| 3 | As above | Mostar, Bosnia & Herzegovina | Installation of photovoltaic panels on the roofs of public buildings | 2022 | Development | Ongoing / 2027 |
| 4 | C1_PuB2 | Istocno Novo Sarajevo, Bosnia & Herzegovina | Reconstruction of thermal energy production plant | N/A | N/A | N/A |
| 5 | As above | Alba Iulia, Romania | Energy efficiency solutions through renewable sources for 6 public buildings of Alba Iulia Municipality | N/A | Development | Est. completion in 24 months |
| 6 | As above | Caldas da Rainha, Portugal | Sustainable Energy Savings in municipal buildings supporting Social Housing Energy Needs | Apr-23 | N/A | Completed / Dec-24 |
| 7 | C2_PuB1 | Warsaw, Poland | Warsaw Renovation Wave | Not yet determined | Development | Ongoing / 2030 |
| 8 | As above | Vinogradovca, Moldova | Creation of an EPC mechanism for the implementation of the EE and RES measures in public buildings | Jun-23 | Conceptualization phase | Ongoing |
| 9 | As above | Benedikt, Slovenia | Upgrading of lighting in public areas and Upgrading of lighting in public sport facility | 2021 | Monitoring | Completed / 2021 |
| 10 | C2_PuB2 | Lanchkkhuti, Georgia | Energy efficiency of the kindergarten and installation green roofs of public buildings in Guria region (West Georgia) | N/A | Planning, Development | N/A |
| 11 | As above | Talmaza, Moldova | Increasing the energy efficiency of public institutions (house of culture) | N/A | Planning | N/A |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | As above | Grabow, Poland | Improving the condition of the natural environment by raising social awareness and taking actions to improve air quality | Sep-23 | Development | Completed / Dec-24 |
| 13 | C2_PuB3 | Zlatibor, Serbia | Setting up a photovoltaic solar power panels on indoor swimming pool in Uzice | N/A | Project finishes with calculations related to energy consumption and savings (Planning) | N/A |
| 14 | As above | Telita, Moldova | Ensuring a resilient future for the next generations in the v. Telita, Republic of Moldova | 2023 | Planning | Ongoing / 2025 |
| 15 | As above | Tavnik, Serbia | IMPROVING THE ENERGY EFFICIENCY OF THE TRAVNIK NATIVE MUSEUM BUILDING | N/A | Developed, seeking funding | N/A |
| 16 | As above | Murcia, Spain | IMPROVEMENT OF THE PUBLIC LIGHTING NETWORK | 2024 | Planning, Development | N/A |
| 17 | C2_PuB5 | Plovdiv, Bulgaria | Renovation of public and private buildings in Plovdiv Region through the ELENA facility of EIB | Summer 2023 | Development | Ongoing / summer 2026 |
| 18 | C3_PuB1 | Skopje, North Macedonia | Installation of photovoltaic systems on municipal buildings | 2024 | Development | N/A |
| 19 | As above | Kocaeli, Turkey | Water's Second Mission: Reclaimed Water | 2023 | Development | N/A |
| 20 | As above | Amfipolis, Greece | Energy upgrading of buildings of the municipality of Amphipolis | 2023 | Development | N/A |
| 21 | As above | Khmelnytskyi, Ukraine | Complex thermomodernisation of the building of lyceum 18 (senior school) using ESCO-model | 2024 | Development | 2034 |
| 22 | As above | Koprivnica, Croatia | Financing solar PV installation on building financed through public-private partnership | 2021 | Development | Ongoing / 2025 |
| 23 | As above | Guria region, Georgia | Energy efficiency of the kindergartens and installation green roofs and solar panels on the public buildings in Guria region (West Georgia) | N/A | N/A | Planning |
| 24 | C3_PuB2 | West-Estonian archipelago, Estonia | Building renovation and optimization of heating systems | Dec-24 | Jan-27 | Development |

| | | | | | | |
|---|---|---|---|---|---|---|
| 25 | As above | Constanta, Romania | Increasing the energy efficiency of the Mihai Eminescu National College Constanta building | 2023 | 2026 | Development |
| 26 | As above | Serres, Greece | Energy Upgrade, Automation and Management of the Public Area Lighting Network (Street Lighting) of the Municipality of Serres" | September 2023 | N/A | Implementation |
| 27 | As above | Milano, Italy | Energy efficiency of the dormitory 'Casa Jannacci' - Climate Plan Action 3.2.1 | 2025 | 2028 | Implementation |
| 28 | As above | Tirana, Albania | “Capacity building and training for the application of EPCs for renovation of public buildings” | 2024 | N/A | Planning and negotiation |
| 29 | As above | Edremit, Turkey | Edremit Municipality Rooftop Solar Power Plant | 2024 | N/A | Development |
| 30 | As above | Razkrižje, Slovenia | Energy renovation of The House of Culture (Šafarsko 42C) | March 2021 | N/A | Development |
| 31 | C3_PuB3 | Bratislava, Slovakia | Retrofits for selected Bratislava buildings | 2024 | N/A | Development |
| 32 | C4_PuB1 | Las Palmas de Gran Canaria Spain | Foro Guiniguada refurbishment | Jun/25 | Oct/25 | Development |
| 33 | As above | Samsun Turkey | Natural Stone Element Product Facility | N/A | N/A | Development |
| 34 | C4_PuB2 | León Spain | Collective self-consumption of solar energy in the municipality of León | January 2025 | February 2026 | Development |
| 35 | As above | Leskovac Serbia | Cultural Center of the South Serbia "Villa Teokarević" with a botanical garden | 2024 | N/A | Preparations are underway for designation as an immovable cultural asset |
| 36 | As above | Poti Georgia | Equipping the swimming pool with solar panels | 2025 | 2026 | Development |
| 37 | As above | Trușeni Moldova | Refurbishment of the Kindergarten nr. 2 | Jun/25 | Aug/25 | Development |
| 38 | As above | León Spain | Collective self-consumption of solar energy in the municipality of León | Jan/25 | Feb/26 | Development |
| 39 | As above | Leskovac Serbia | Cultural Center of the South Serbia "Villa Teokarević" with a botanical garden | 2024 | N/A | Preparations are underway for designation as an immovable cultural asset |

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| 40 | As above | Poti Georgia | Equipping the swimming pool with solar panels | 2025 | 2026 | Development |
| 41 | As above | Trușeni Moldova | Refurbishment of the Kindergarten nr. 2 | Jun/25 | Aug/25 | Development |
| 42 | C4_Pub3 | Mostar Bosnia & Herzegovina | Insulation of collective housing buildings | 2025 | 2030 | Partnerships development |
| 43 | As above | Vukovar Croatia | Installation of solar collectors in public educational institutions | Jun/25 | Dec/25 | Co-funding calls identification, stakeholder engagement |
| 44 | As above | Pale Bosnia & Herzegovina | Reconstruction of public lighting in the Pale municipality | 2024 | 2040 | Implementation (2025-2040) |
| 45 | C4_Pub3 | Split Croatia | Installation of RES energy systems in schools and health centers of the Split-Dalmatia County - more precisely photovoltaic power plant systems | 2023 | Next few years | Funding identification, stakeholder engagement |
| 46 | As above | Doboj Bosnia & Herzegovina | Energy renovation of the Public Institution "Medical School" Doboj | 2025 | 2026 | Development |
| 47 | As above | Priboj Serbia | Production of wood chips for the needs of the district heating system in Priboj | Dec/24 | Aug/25 | Funding identification, stakeholder engagement |

**Table 3. Inventory of PROSPECT+ energy efficiency measures: Private buildings (PrB) learning groups**

| # | Learning Cycle | City/Region, Country | Energy efficiency measure and/or Project title | Start implementation date | Phase in the Action Plan (during the LC) | Phase at PROSPECT+ end / estimated completion date |
|---|---|---|---|---|---|---|
| 1 | C1_PuB-PrB1 | France / UK | Private building tertiary decree | May/23 | Development and implementation | Ongoing / Apr-26 |
| 2 | C3_PrB1 | Autonomous Province of Trento, Italy | “Your green condominium”/ Renovation of buildings and RES production | 2024 | 2028 | Preliminary stage and stakeholder engagement |

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| 3 | As above | City of Mechelen, Belgium | Condominiums renovation: getting the financial puzzle right/Renovation of the building envelope and technical installations for heating and hot water | N/A | N/A | Planning |
| 4 | C4_Prb2 | Budapest Hungary | One-Stop Shop for Multifamily houses In Józsefváros | Jan/25 | N/A | Consideration of barriers, legal requirements and financing capacity |
| 5 | As above | Maia Portugal | Maia Energy Poverty Action Program (MEPAP) | 2026 | 2026 | Consideration of barriers, legal requirements and financing capacity |
| 6 | As above | Mavrodendri, Western Macedonia, Greece | "Energy Poverty – Identifying and tackling the energy needs of Mavrodendri" – One stop shop (OSS) | Oct/22 | Oct/23 | Replication |
| 7 | C4_Prb3 | Ialoveni Moldova | Construction of a 1MW photovoltaic park in Ialoveni and full electrification of public transportation services | 2024 | 2026 | Development |
| 8 | C4_Prb1 | Valencia Spain | Financial assistance to homeowners | 2019 | N/A | Implementation (form and inform residential building communities on financial mechanisms) |
| 9 | As above | Palma, Spain | ARV Climate Circular Positive Communities | Sep/22 | Dec/26 | Development |

**Table 4. Inventory of PROSPECT+ energy efficiency measures: Public Lighting (PuL) learning groups.**

| # | Learning Cycle | City/Region, Country | Energy efficiency measure and/or Project title | Start project date | Phase in the Action Plan | Phase at PROSPECT+ end / estimated completion date |
|---|---|---|---|---|---|---|
| 1 | C1_PuL1 | San Lucido, Italy | Public Lighting System with LED Technology in San Lucido | Feb/17 | 4 actions completed. Final action in 2022 | Completed / Dec-22 |
| 2 | As above | Egaleo, Greece | Energy upgrade of municipal street lighting of the Municipality of Egaleo | Jan/23 | Preparation documentation | Completed / Dec-24 |

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| | | | | | for public procurement | |
| 3 | C1_PuL2 | Pale, Bosnia & Herzegovina | Renovation of Public Lighting in Municipality of Pale | Oct/22 | Development | Completed / Oct-23 |

**Table 5. Inventory of PROSPECT+ energy efficiency measures: Transport (Trans) learning groups.**

| # | Learning Cycle | City/Region, Country | Energy efficiency measure and/or Project title | Start implementation date | Phase in the Action Plan | Phase at PROSPECT+ end / estimated completion date |
|---|---|---|---|---|---|---|
| 1 | C1_Trans1 | Fyli, Greece | Electric bicycles installation (38 items and relevant charging points) | May/22 | Development, brainstorming on appropriate installation sites | 8 months after signing the contract with the project concessionaire |
| 2 | As above | Soria, Spain | Electrification of public vehicles and the public transport (bicyclas and charging points installation) | Month 6 | Development | N/A |
| 3 | As above | Soria, Spain | Electrification of public vehicles and the public transport (PV installation for public transport electrification) | TBC (month 1) | Planning, Development | TBC (month 12) |
| 4 | As above | Cantermir, Moldova | Ecological transport for the Cantemir Eco town | 2025 | Conceptualization phase | Ongoing / Jul-25 |
| 5 | C2_Trans1 | Nova Gorica, Slovenia | "GO&GO CSMC (crossborder sustainable mobility community action plan)" | 2024 | Development | N/A |
| 6 | As above | Elbasan, Albania | Capacity building to develop a new Sustainable Urban Mobility Plan through smart green energy solutions" | 2020 | SUMP process development | Action plans for 6 measures are identified |
| 7 | C3_Trans1 | Priboj, Serbia | Development of ecological and smart transport in the urban area of the municipality of Priboj | Dec/24 | Apr/26 | Development |
| 8 | As above | Užice, Serbia | Development of Sustainable Urban Mobility Plan (SUMP) for Užice City/SUMP will target | Dec/23 | Dec/25 | Development |
| 9 | As above | Iasi, Romania | OptiTrans Iasi: Optimization of Public Transport Management for Enhanced Mobility and Sustainability | Dec/24 | Dec/25 | Development |

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| 10 | As above | Alba Iulia, Romania | Development of new Sustainable Urban Logistics Plan (SUMP) for Alba Iulia Municipality | Sep/24 | 2025 | Development |
| 11 | C4_Trans1 | Villarrobledo, Spain | Proposal development project for hydrogen generation for self-consumption | Jan/25 | Jan/28 | Investigation of technical opportunities, regulatory compliance (sensor and management system) |
| 12 | As above | Avila, Spain | Implementation of a network of social electric vehicles in municipalities of the Provincial Council of Ávila | Jan/25 | Jan/27 | Planning |
| 13 | As above | Ontinyent, Spain | Car sharing in industrial area | N/A | N/A | Consideration of awareness campaigns |
| 14 | As above | Villena, Spain | Sustainable, safe and connected Villena | 2019 | 2027 | Evaluation of legal conditions, regulations, implementation tools |
| 15 | C4_Trans2 | Cádiz, Spain | Comprehensive Action Plan for the Recovery of Public Space (AIRE Plan) | 2024 | 2027 | Exploration of other funding avenues for phase 3 of project implementation, incl. regional, national or European funds |
| 16 | As above | Leon, Spain | Transition towards clean last mile logistics in the municipality of León | Jan/25 | Jun/25 | Consultations City Council - merchants' associations |
| 17 | As above | Zaragoza, Spain | Electric bike sharing system | 2025 | 2035 | Financial planning (reserve funds for 10 years of operation) |
| 18 | As above | Cádiz, Spain | Plan to Promote Electric Vehicle Mobility (MOVEPCádiz) and Plan to Support Electric Vehicle Recharging (PARVEPC) | 2023 | N/A | Better understanding of technical requirements for financial aid |
| 19 | As above | Logroño, Spain | Decarbonizing passenger and freight mobility in urban areas | 2022 | 2026 | Consideration of stakeholders participation and data acquisition to evaluate potential pathways |

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| 20 | As above | Cádiz, Spain | Blockhouse Menéndez Pelayo – María Auxiliadora | N/A | 2027 | Consideration of financing options and skilled personnel availability |
| 21 | C4_Trans3 | Komotini, Greece | Installation of EV Charging Stations in public spaces in Komotini Municipality | N/A | N/A | Consideration of community engagement and financial schemes |

**Table 6. Inventory of PROSPECT+ energy efficiency measures: Cross sectoral (Cross) learning groups.**

| # | Learning Cycle | City/Region, Country | Energy efficiency measure and/or Project title | Start project date | Phase in the Action Plan | Phase at PROSPECT+ end / estimated completion date |
|---|---|---|---|---|---|---|
| 1 | C1_Cross1 | Lisbon, Portugal | Energy Community in Telheiras neighbourhood | Nov-21 | Development | Completed / Mar-23 |
| 2 | As above | Matosinhos, Portugal | Implementation of energy communities in Social Housing in Matosinhos | Mar-23 | Development | Ongoing / Dec-25 |
| 3 | As above | Debrecen, Hungary | Assistance to municipalities and companies to implement their own community energy projects | Sep-22 | Development | Completed / Sep-24 |
| 4 | C1_Cross2 | Farkadona, Greece | Municipal Energy Community of Farkadona | Sep-23 | Planning, submission | Completed / Mar-24 |
| 5 | C2_Cross1 | Ghent, Belgium | Internal revolving energy fund | Not set yet | Development | Development |
| 6 | C2_Cross5_Local CZ group | South Bohemia, Czech Republic | Smart Accelerator + I in the South Bohemia Region | 01-Jan-23 | Development | Ongoing / Dec-26 |
| 7 | As above | České Budějovice, Czech Republic | Installation of PV power plants at selected buildings owned by the city of ČB | 2023 | 2024 | Completed / 2024 |
| 8 | As above | Chodov, Czech Republic | Chodov Energy Community | 2023 | Development | Ongoing / 2033 |

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| 9 | C2_Cross2 | Le Havre Seine Métropole, France | Implementation of solar installation of public buildings | 2023 | Development | Ongoing / 2027 |
| 10 | As above | Fyli, Greece | Disengagement of the Municipality from state subsidies dependence | revised completion due to lack of financial tools | Planning | Planning |
| 11 | As above | Vinogradovca, Moldova | Creation of an effective financial mechanism for the financing of the EE and RES measures (installation of solar collectors for the preparation of hot water (for example: 2 flat solar collectors with a storage tank or 120-30 vacuum tubes collector system) and small solar stations (3-5 kW) to compensate for the consumed electricity for private households) | Jun-23 | Conceptualization phase | Ongoing |
| 12 | C2_Cross3 | Vila Nova de Gaia, Porugal | Renewable Energy Community – Afurada Living Lab | Mar-23 | Development | Completed / Apr-24 |
| 13 | As above | Vila Nova de Gaia, Porugal | Energy Communities | N/A | Development | N/A |
| 14 | As above | Schaerbeek, Belgium | Encourage and facilitate the development of energy communities in the municipality of Schaerbeek | N/A | Exploration | N/A |
| 15 | As above | Manisa Province, Turkey | Increasing Green Energy Footprint for Manisa City | N/A | Development | N/A |
| 16 | As above | Krakow, Poland | Energy community consulting program | TBD | Consultation with stakeholders on 4 models of REC | TBD |
| 17 | As above | Farkadona, Greece | Municipal Energy Community | Jun-23 | Development | Ongoing / Jun-27 |
| 18 | As above | Farkadona, Greece | Public Buildings Energy Efficiency Upgrading Project | Jun-23 | Development and implementation | Ongoing / Jun-25 |
| 19 | C2_Cross4 | Zlatibor, Serbia | Building capacities for sustainable energy transition of Zlatibor Region | Not yet set | No specific project/investment in mind when participating | N/A |

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| 20 | C3_Cross1 | Antwerp, Belgium | Implementation of Actions Masterplan Energy transition “De Lilse Bergen | 2023 | Exploration | Exploration |
| 21 | C3_Cross2 | Municipality of Igoumenitsa, Greece | TARGET project | 2023 | N/A | Development |
| 22 | As above | Bayrampaşa Municipality, Turkey | Solar Energy Panel Installation and Energy Saving in Gyms | 2023 | 2025 | Development |
| 23 | As above | Sumy City, Ukraine | Increasing energy efficiency with component of alternative energy buildings of "Central city clinic hospital" Sumy City Council | 2023 | 2025 | Development |
| 24 | As above | Komotini, Greece | Energy upgrade of the 1st General Lyceum of Komotini and the 2nd Vocational School | 2023 | 2024 | Implementation |
| 25 | As above | Komotini, Greece | Energy upgrade of the municipal swimming pool | 2023 | 2026 | Development |
| 26 | C3_Cross3 | Etterbeek, Belgium | Municipality of Etterbeek – Carbon budget action plan (Low-carbon plan) | 2023 | 2030 | Preliminary |
| 27 | As above | Mostar, Bosnia and Herzegovina | Establishment of the first community of renewable energy in Mostar | 2023 | 2024 | Development |
| 28 | C3_Cross4 | Waterford, Ireland | Renovation of public and private buildings in Waterford | 2023 | N/A | Development |
| 29 | C3_Cross5 | Tricesimo, Italy | Set up of a territorial renewable energy community | Jul/24 | N/A | Exploration of legal model and financing options, stakeholder engagement |
| 30 | As above | Pradamano, Italy | Set-up of a renewable energy community (of and by citizens) | 2024 | N/A | Exploration of legal model and financing options, stakeholder engagement |
| 31 | As above | Pordenone, Italy | Set-up of a renewable energy community in the Centro Servizi consortile - ZI di Maniago | 2024 | 2024 | Exploration of legal model and financing options, stakeholder engagement |

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| 32 | C3_Cross6 | Union of Municipalitites of the Salentine Greece, Italy | Implementation of the SECAP actions | 2024 | N/A | Exploration of legal model and financing options, stakeholder engagement |
| 33 | As above | Terruggia, Italy | Integrated development of the Municipality of Terruggia and constitution of a renewable energy community | 2024 | N/A | Exploration of legal model and financing options, stakeholder engagement |
| 34 | As above | Massa Marittima, Italy | Set-up of a renewable energy community | 2023 | 2024 | Exploration of legal model and financing options, stakeholder engagement |
| 35 | As above | Autonomous Province of Trento, Italy | Set-up of a renewable energy community | 2022 | 2026 | Exploration of legal model and financing options, stakeholder engagement |
| 36 | C3_Cross7 | Meath, Ireland | Delivering climate action to the school sector in Ireland | 2023 | 2024 | Development |
| 37 | As above | Lulea, Sweden | Phase out fossil district heating in Luluea | 2022 | N/A | Planning |
| 38 | As above | Kuressaare, Estonia | Solar park 2023 | 2022 | N/A | Development |
| 39 | As above | Magnesia Province, Turkey | AgroPark Manisa | 2022 | N/A | Development |
| 40 | As above | Debrecen, Hungary | Building a biogas plant in Újszentmargita | 2022 | N/A | Development |
| 41 | C3_Cross8 | Grenoble, France | Setting up a “memory of avoidances”- | 2024 | N/A | Identification of calls opening for funding |
| 42 | As above | Montreuil, France | Understanding and deploying intracting in the ALEC MVE territory | 2024 | N/A | Identification of funding options |
| 43 | As above | Lyon, France | Develop and disseminate the intracting approach | 2024 | N/A | Preliminary stage |
| 44 | As above | Mairie de Rive-de-Gier, France | Development of an energy efficiency and sufficiency plan | 2024 | N/A | Development of pluriannual plan |
| 45 | As above | Never, France | Intracting equity capital: an internal tool for financing energy efficiency and the ecological transition | 2024 | N/A | Identification of funding options |

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| 46 | C4_Cross1 | Marseille, France | OTTER LIFE | Nov/24 | Nov/26 | Development |
| 47 | As above | Brussels, Belgium | Financial instrument to support the renovations of public building (local and regional authorities) in the Brussels-Capital Region | January 2024 for the advisory phase (second version of the project) | End 2025 for the advisory phase, 2026 and following for the project implementation | Development |
| 48 | C4_Cross2 | Borovany / Czech Republic | ENERKOM RŮŽE | Oct/24 | Dec/25 | Implementation, evaluation of financing options |
| 49 | As above | Jílové u Prahy Czech Republic | Energy Community for the Jílové Region | Oct/24 | Dec/25 | Supply - demand and storage capacity evaluation |
| 50 | As above | Bítov Czech Republic | Local Energy Concept (LEC), energy savings in buildings, energy management and community energy | 2023 | 2027 | Preparing grant application for LEC and further implementation |
| 51 | As above | Česká Kamenice Czech Republic | Use of renewable energy sources - installation of photovoltaic panels | Aug/25 | ct-25 | Advancing consultations with National Heritage Institute and photovoltaic suppliers (market instability) |
| 52 | As above | Hradec Králové Czech Republic | HK Energy Community | Jan/25 | Oct/25 | Determination of (economic) form, roles, relationships and obligations |
| 53 | As above | Český sever, Czech Republic | Community energy of the Šluknov Spur, building PV plants in the villages of Dolní Poustevna, Jiřetín pod Jedlovou, Rybniště, energy savings and sharing. | 2024 | 2026 | Construction of PV plants to be completed in 2025 |
| 54 | C4_Cross3 | Bratislava, Slovakia | Increasing energy efficiency and reducing the operational carbon footprint of the building complex of the Pankúchova zone, Petržalka Municipal District | Mar/26 | Dec/27 | Evaluation of financing forms and options of sharing between multiple owners |
| 55 | As above | Dubová, Slovakia | Photovoltaics in the village / Energy Community | May/24 | TBD | Further expansion of the project and awareness raising to larger audience |

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| 56 | As above | Ružomberok, Slovakia | City of Ružomberok, primary schools, contributory organizations of the city | 2026 | 2026 | Obtaining the investment approval of the City Council |
| 57 | C4_Cross4 | Ústí nad Labem, Czech Republic | Usti Region RES Strategy – first phase (PV Installation) | Oct/24 | Jun/26 | Feasibility phase |
| 58 | As above | Kuressaare, Estonia | Community wind turbine | Jun/25 | Jun/26 | Pre-development |
| 59 | As above | Nisporeni, Moldova | Creating an Efficiency Department in Nisporeni City Hall and a One Stop Shop | 2025 | 2031 | Development, planning |
| 60 | As above | Monaghan, Ireland | Monaghan Goes Green: Energy Master Plans & Community Action | Jul/24 | N/A | Implementation and monitoring |
| 61 | C4_Cross5 | La Carnia, Italy | Construction of a new PV system connected to the distribution grid of Tolmezzo bus station rooftop | Sep/24 | N/A | On pause - depending on recent modifications in the national legislation |
| 62 | As above | Torino, Italy | Development of an analysis methodology for legal and organizational risks of publicly-initiated CERs | N/A | N/A | Stakeholders consultation and awareness raising |
| 63 | As above | Unione Reno Galliera, Italy | Creation of an Energy Community | N/A | N/A | Stakeholders consultation and awareness raising |
| 64 | As above | Parma, Italy | Berceto energy Park: creation of an Energy Community | N/A | N/A | Review of feasibility study results in view of lessons learned from other municipalities |
| 65 | C4_Cross6 | Milan, Italy | Energy Community for Brianza Ovest | Aug/22 | Jun/25 | On pause - depending on recent modifications in the national legislation |
| 66 | As above | Friuli Venezia Giulia Region, Italy | Energy Community for the Friuli Venezia Giulia Region | Oct/24 | 2025 | On pause - depending on recent modifications in the national legislation |
| 67 | C4_Cross7 | Cimișlia, Moldova | Street lighting in the city of Cimislia | 2021 | 2026 | Development |
| 68 | As above | Coimbra, Portugal | Renewable Energy Community - Coimbra Region | 2025 | 2045 | Launching tender public procurement for the |

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| | | | | | | concession of REC in Coimbra Region |
| 69 | As above | Athens, Greece | Empowering youth for energy community actions | Jan/25 | Jun/26 | Implementation |
| 70 | | Istambul, Turkey | NEUTRALPATH | N/A | N/A | Planning |
| 71 | As above | Dublin, Ireland | Decarbonising Zones | N/A | N/A | Development / Engagement |
| 72 | As above | Lago, Italy | EFFICIENCY LAGO | Apr/23 | Dec/26 | Implementation |
| 73 | C4_Cross8 | Jemeppe-sur-Sambr,e Belgium | Optimal management of municipal buildings | 2025 | 2030 | Project start-up. Analysis of prioritization of sites to be renovated |
| 74 | As above | Etterbeek, Belgium | "Carbon Budget" in Etterbeek (focus on measure no. 2: "Renovation and energy optimization of municipal buildings") | 2023 | 2030 | Implementation |
| 75 | C4_Cross9 | Ankara, Turkey | Feasibility studies of development of biomass energy plant and supply-chain in Siirt-Tillo, Turkey | 2025 | 2027 | Development |
| 76 | As above | Kozani, Greece | STARDUST for installation of a new biomass combustion plant | 2018 | 2024 | Implementation |
| 77 | As above | Strovolos, Cyprus | Manage and Process Prunings | Dec/24 | Dec/26 | Development |
| 78 | As above | Zagreb, Croatia | BioVill, Renew Heat, Wood Key | 2016 | 2019 | Completed |
| 79 | As above | Bratislava, Slovakia | Bioenergy campus | Sep/24 | 2027 | Development |
| 80 | As above | Jílové u Prahy, Czech Republic | Establish an Energy Community | 2024 | 2026 | Implementation |
| 81 | As above | Ljublian, Slovenia | Renovation of public elderly homes | 2024 | N/A | Planning |
| 82 | C4_Cross10 | Lyon France | ELENA (European Local Energy Assistance) by EIB | Sep/25 | Sep/28 | Audit Consultancy at the end of the project (report) |
| 83 | C4_Cross11 | Dublin, Ireland | Using of different sources of energy in district heating system | 2028 | 2030 | Planning |
| 84 | As above | Konotrop, Ukraine | Installation of the biomass cogeneration unit for the Konotop Transport Department in Konotop Urban Territorial Community | Mar/25 | Sep/25 | Planning, seeking funding sources |

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| 85 | As above | Galați County, Romania | PELET DREAM -Pilot project-1 stage/5 stages | 2024 | 2025 | Implementation |
| 86 | As above | Ankara, Turkey | Exploration of pellet and pellet heating potantial | N/A | N/A | Preliminary plan |
| 87 | As above | Vilnius, Lithuania | K13 Multi-apartment building renovation project | N/A | N/A | Development |
| 88 | As above | Bakirkoy, Turkey | Seymen Biogas Powerplant (LFG) | 2017 | Dec/20 | Completed, monitoring |
| 89 | As above | Priboj, Serbia | Using of geothermal energy in district heating system | Dec/24 | Dec/26 | Implementation |
| 90 | As above | Nisporeni, Moldova | Small Biomass CHP pilot project | Dec/24 | Nov/27 | Development, cooperation/networking and knowledge acquisition on contracting and financing |

## Verification of PROSPECT+ achieved impacts compared to initial targets

Figure 6 below shows the total average potential impact of PROSPECT+ until February 2025, based on the final count of **unique** participants (without double-counting their multiple participation in different LCs). A total of **152 participants** provided data on their projects on SECAP measures or other plans that progress towards financing. As already mentioned, the numbers below result from the sum of mentees' actual data from implemented/completed projects as of February 2025 across all LCs, plus literature-based calculations for those mentees who have not completed their projects, hence did not provide any estimates of their impacts. The latter may be due to the initial stage of their respective projects or because projects have been put in stand-by and/or did not continue.

**65,512.65 GWh/year energy savings**

**7,420,510.50 tCO2/year (or 7,420.51 MtCO2/y) reduction**

**11,012.73 GWh/year renewable energy production**

**251.43 M€ total costs of investing in renewable energy**

**1.06 B€ total investment costs in SECAPs**

**Figure 6. Impacts triggered by PROSPECT+ CBP (calculated plus actual aggregated figures across all 4 LCs).**

According to the PROSPECT+ verification methodology (Chapter 2) each participant was asked to complete the EU survey and/or provide an update via email to their facilitator, stating the progress of their projects and the impact PROSPECT+ has had on them between June 2023 and February 2025. Based on the **actual data collected through the EUSurvey until February 2025**, an average of 27% of mentees per LC have provided updates regarding their projects. Specifically, the response rates per LC are as follows: a notable 46% on LC1, followed by 36% in LC2, a lower 16% in LC3 and 11% in LC4.

Below, an explanation for each impact figure, based on the methodology detailed in Chapter 2 is provided:

- Where no actual data from mentees was provided, the **annual energy savings (GWh/a)** were calculated by multiplying the estimated JRC figure for energy consumption per capita (i.e. 3.8 MWh/year) by the average number of inhabitants per unique LRA participating in the CBP by the end of the PROPSECT+ project. The final annual energy savings were converted into GWh/year, and it is the sum of mentees' actual data (EUSurvey) plus assumptions based on the JRC report. Notably, the energy figure obtained in PROSPECT+ is higher than the one reported in the JRC 'CoM 2023 Energy Figures' report[9]. The difference may be explained by the fact that JRC reports an average of 27,715.5 inhabitants in each CoM signatories. PROSPECT+ considers instead the total number of inhabitants per municipality. Some of them reaching up to half a million, e.g. Lyon (France), or Istanbul (Turkey) with more than 5 million inhabitants. The next PROSPECT+ CBP edition will start in fall 2025 and will work on obtaining more detailed data on the actual population influenced by the energy efficiency-related measures, especially in the case of Renewable Energy Communities, where an even lower percentage is addressed.

[9] JRC Publications Repository - Covenant of Mayors 2023 Energy figures

- The yearly **CO2 reduction (tCO2/a)** is based on the JRC 2022 assessment report, predicting an average reduction of 1.6 tonnes-CO2 per capita. Where no actual data was available, this figure was also multiplied by the average number of inhabitants per unique LRA participating in the CBP. The final figure consists of a sum of actual data from mentees plus calculated figures based on the JRC report assumptions.

- The **RES production (GWh/y)** is based on the sum of actual data from mentees plus calculated figures based on the 2023 JRC CoM assessment[10]. The report estimates a RES production per capita of 1.17 MWh/year by 2030, considering all sectors, and based on data from 1317 signatories.

- The **total RES investment (M€)** is based on the IRENA assessment from 2019[11], assuming that the cost of installing renewables (average between solar and wind power) is 1 million EUR for 1MW of installed capacity. Given the calculated RES installed capacity of 251.43 MW, the cost of investing in RES is 241.43 million Euros. The RES installed capacity was calculated by multiplying 11,012.73 (GWh/a RES production as above) * 8760 (hours) * 0.2 (conservative capacity factor averaged for wind and solar) * 1000 (from GW to MW).

- The **energy investments costs (M€)** are derived by summing up the investments costs per SECAP measure or other local action by each mentee, per all LCs. Because the investment figure is significantly higher than the one reported by JRC for 3421 CoM signatories[12], some examples from mentees' projects are reported, to support the calculations made within PROSPECT+. As a matter of fact, the total investment costs from the 2017 JRC report amounted to 108,701 million Euros, hence a total average cost per SECAP of approximately 32 million Euros per 3421 signatories. This leads to a total average cost of approximately 1.77 M€ per measure, assuming an average of 18 measures per SECAP. On the other hand, based on the direct data collected from PROSPECT+ participants, the actual resulting total investments made in energy efficiency-related measures under SECAPs or other plans result in approximately 1.06 billion Euros. This figure includes those mentees' projects reporting investment costs well above the estimated 1.77 million Euros/SECAP measure, as in the case of setting-up a Renewable Energy Community in Coimbra (Portugal) accounting for 20.8 million Euros, or the approximately 45 million Euros required for the implementation of an electric bike sharing system across the city of Zaragoza (Spain).

The above discrepancies may stem from the different timing in data submission, or also differences in what is considered an "energy efficiency investment" at the local level. It is important to stress that the CoM reports and assessment serve as a comparative benchmark to evaluate signatories' progress over time, and it may thus vary significantly from one reporting period to the other. The next PROSPECT+ CBP iterations will further work to bridge this data discrepancy and ensure that future reporting **continues to provide accurate figures based on participants' actual progress** with their investment efforts in SECAP actions. Overall, the investments recorded

[10] JRC 2023 CoM Report.pdf
[11] How Falling Costs Make Renewables a Cost-effective Investment
[12] JRC Publications Repository - JRC Annual Report 2017

within/by PROSPECT+ could be regarded as LRAs' strong commitment to advance the clean energy transition. This further supports the claim on their pivotal role in meeting EU climate and energy objectives.

Finally, below an overview of the recorded answers from all participants is provided. Most of the projects have not undergone changes in the period between the mentees' end of their LC and the final month of the PROSPECT+ project. Percentages show aggregated results across all EUSurvey respondents.

Notably, 95% of respondents declared that the initial estimates related to their projects KPIs (in terms of energy and monetary savings, RES production, carbon emissions) remained unchanged until February 2025. In terms of investments costs, 85% of the survey respondents indicated that no changes were recorded. Solely the start and/or completion dates of mentees' individual projects registered a higher percentage of changes in their targets (32%). Considering these numbers, the reason why a verification process was not only needed, but a high priority, is easily understandable.

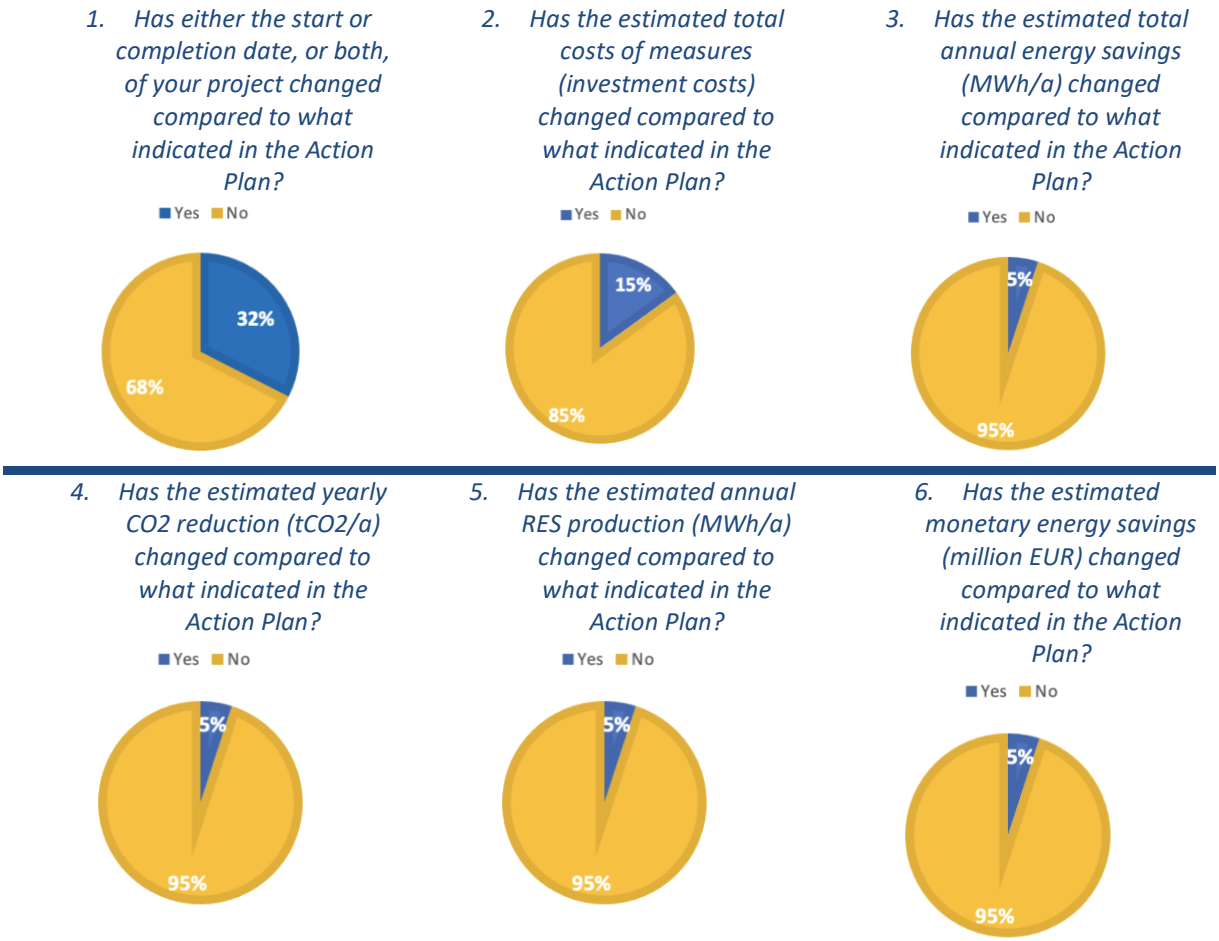



**Figure 7. Overview of actual changes in mentees' projects compared to their Action Plans (aggregated EUSurvey results).**

# 5 SECAP measures influenced by PROSPECT+

By the end of March 2025, a total of **53 learning groups** successfully completed the LCs and provided information regarding the SECAP measures they have worked on during the implementation of the CBP. Based on the JRC report on 315 Covenant of Mayor (CoM) signatories from 2017[13], each SECAP has an average of 35-45 measures, depending on the size of the municipality, out of which 11 policies/measures in buildings (not differentiated in public or private), 4 for transport and 3 public lighting measures. The assumed total average of directly influenced SECAP measures by PROSPECT+ is 18 per SECAP or other local action. Further, it is assumed that the knowledge transfer on the application of innovative financing schemes would not only affect the project(s) developed during PROSPECT+ by mentees (*direct influence*), but the total average sustainable measures (*indirect influence*) in the specific SECAP of participating cities and/or regions. For those indirectly influenced measures, the 2017 JRC report also highlights that – until 2020 – the share of SECAP actions described as "*new actions, not started or postponed*" is 23%. Those are the actions targeted and encouraged within PROSPECT+. The total number of SECAP measures or other local actions was therefore multiplied by 0.23 to derive the presumed project indirect influence on the implementation of energy efficiency measures per CBP participant, as shown in Table 7.

**Table 7. Directly and indirectly SECAP measures (or actions) influenced by PROSPECT+ aggregated per learning cycle.**

| Learning cycle (LC) | Direct impact | Indirect impact (*0.23 of total measures) | |
|---|---|---|---|
| LC1 | 89 | 265 | |
| LC2 | 32 | 104 | |
| LC3 | 61 | 175 | |
| LC4 | 80 | 314 | |
| ***Sub-total*** | ***262*** | ***858*** | ***Total = 1120*** |

the verification process identified a total of **~1120 measures** influenced by the programme. Data was collected during the verification process under the coordination of IEECP, which received inputs from all participants through their respective Action Plans at the time of their LC, plus updates via the EUSurvey and/or email communication after the end of their cycle (detailed in Chapter 2). Notably, the number of directly influenced measures (i.e. 262) can be considered as the closest assumption to reality, given that the number was calculated by summing up the SECAP measures that mentees have reported in either the Action Plan or in the EUSurvey responses. Nevertheless, considering the broader perspective of the project, PROSPECT+ had both direct and indirect influence on SECAP measures – improving to a degree monitoring, synergies with similar plans and strategies, as well as relevant stakeholders. The peer-to-peer knowledge exchange across mentors and mentees resulted in an overall better chance of finding financing for energy efficiency measures, because of improved project readiness. This claim is further supported by the fact that 44% of participants were recorded to have used the PROSPECT+ **Project Financial Readiness Tool**[14].

[13] JRC Publications Repository - JRC Annual Report 2017
[14] Project Finance Readiness Tool | PROSPECT+

# 6 Lessons learned from the verification process

The final chapter brings forth key challenges to the methodological process and reliability of results, alongside the benefits of the PROSPECT+ verification process, plus concluding remarks.

## Challenges of the PROSPECT+ verification process

In this section, challenges to the verification process are discussed.

1 **Diminishing survey response rate**. After the second verification round for LC2 (June 2024), the project registered a decrease in the percentage of mentees who completed the survey related to their project.

Notably, the percentages of respondents are higher within the 6 months following the end of their LC. For example, the response rates in the first round for LC 1 and 2 respectively, are 46% and 36%. In the second round, they drop to 5% and 9%. Upon following up with mentees, the following justification is provided:

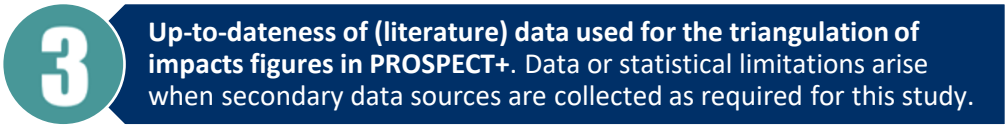
- Mentees received satisfaction surveys, and other questionnaires to fill in from the PROSPECT+ consortium during the programme, prioritising the ones that allowed them to successfully complete the LC. Technical and energy transition departments of cities and regions are often understaffed and overworked, thus, upon following up directly via emails, they ultimately replied, summarizing the project progress in a few sentences.
- Individual projects experienced delays or were not implemented, thus, mentees had no updates (e.g., start date, renewable energy investments, or energy savings figures) to provide, compared to what they initially filled in in their Action Plan.
- A low percentage of mentees changed job and there was therefore no means to provide an update on the project any longer.
- Last but not least, literature studies rooted in education and psychology suggest that enthusiasm and motivation are key to successful learning and engagement. In the months right after the end of the learning experience, mentees may be more compelled to stay engaged and follow-up with either their peers or mentors. As time passes, other priorities take root in the agenda of participating LRAs, which could be further exacerbated by a decreasing motivation to stay engaged since the follow-up is conducted online.

2 **Reliability of estimated impacts without information beyond the limited project duration**. As a matter of fact, empirical/actual evaluation and verification of mentees' projects progress as well as impact after project-end is not possible.

Another challenge under the PROSPECT+ relates to claiming the accuracy and/or reliability of impacts estimates – as calculated and in Chapter 3 – without being able to verify them **beyond the limited project duration** (in this case, February 2025). Empirical/actual evaluation and verification of impacts in the aftermath of the project is not possible, however, Chapter 3 presented a close-to-reality outlook of impacts based on the information collected during the project duration. In practical terms, the following elements were integrated into the verification process, aimed at overcoming the long-term nature of the practical progress in CBP participants:

- A separate column was added to the Excel worksheet with the inventory of mentees' projects, to record changes in the start and/or end date of the project, and to evaluate whether mentees' projects impact can be considered within the project duration.

- As abovementioned, calculations based on market-data assumptions, literature studies, JRC reports and assessments and other projects reporting methodologies were used for triangulation on top of primary data from mentees' EUSurvey. Concrete examples of how such documents and secondary sources are employed in the verification of PROSPECT+ achieved impacts are included in Chapter 3.




A delay between research data collected and the publication time of such data is regarded as a limitation to this study, as some out-of-date figures in the literature may not provide the optimal real-life outlook to the current energy savings, energy efficiency investments and/or RES production scenarios in Europe. Next iterations of the verification methodology as an internal monitoring process could benefit from using the most up-to-date information, if available/accessible.

Baseline and biannual monitoring review of e.g. emission inventories require energy as well as CO2 emissions data acquisition at the local level. Nevertheless, these sources are not always up to date as data's collection and especially quality are dependent on several factors. Hence, it is important to highlight that the methodology for data processing and verification applied in PROSPECT+ is subject to such limitation, for which a series of hypothesis has been set based on the available data to calculate the project performance indicators in terms of its impacts, as detailed in the Methodology.

## Benefits of the PROSPECT+ verification process

Based on the PROSPECT+ experience, this paper offers feedback to support other projects in improving existing and future monitoring and verification of quantitative impacts, in relation to energy and climate targets or other thematic areas. An effective verification methodology for achieved impact considers the following elements:

- Enable facilitators with tools (*EUSurvey* platform, email templates, monitoring tables) to carry out the data collection on their mentees' progress. This has multiple benefits including mentor-mentee prolonged engagement.
- The collected information on participants' progress on their projects has the potential to be stocked into a 'good practices' library, collecting both mentees' and mentors' replicable practices or successful cases – as they advance with the implementation of energy efficiency measures.
- The monitoring tables should also unveil what information is needed to verify mentees' outputs on a regular basis.

# 7 Conclusions

PROSPECT+ supports cities and regions to fulfil their role as drivers of the energy transition. The findings from the project verification methodology have benefited PROSPECT+ in several ways, including showcasing and monitoring the progress of clean energy transition projects from 218 public authorities (participants who successfully completed through innovative financing mechanisms, thereby reducing their reliance on public subsidies., energy agencies and other public authorities. Based on data collected until February 2025, this report presents a complete set of performance indicators generated through a robust methodology that combines calculated estimates, a well-grounded set of assumptions, and actual data collected from all participants. Assumptions were primarily informed by benchmarks from authoritative literature sources as detailed in Chapter 2 (Methodology).

Overall, the PROSPECT+ initiative has not only met but surpassed its originally set energy targets. This achievement underscores the strength and effectiveness of its verification methodology, which has demonstrated a strong capacity to capture tangible changes and progress in mentees' projects. The tools developed for monitoring have been instrumental in this success, and they offer a high degree of replicability and potential for further refinement.

Looking ahead, several improvements have been identified for future iterations of the PROSPECT+ CBP. Chief among these is the integration of automated data collection mechanisms through a centralized digital platform. Such a development would enhance the efficiency, accuracy, and consistency of tracking project performance and impact, while reducing administrative burdens on participants. In conclusion, the results of this report not only confirm the added value of the PROSPECT+ methodology but also provide a clear path forward for scaling up and improving future capacity-building efforts in sustainable energy and climate action planning across Europe and beyond.

# 8 Annex I - EUSurvey form 'Verification of mentees achieved impacts'

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Date: 08/10/2024 13:22:35

## Verification of mentees progress with EEMs

Fields marked with * are mandatory.

PROSPECT+

**Welcome** to the PROSPECT+ EUSurvey to **verify mentees progress with the implementation of Energy Efficiency Measures included in their SECAP** (or other planning tools) following the participation in the PROSPECT+ capacity building programme. The survey will take **less than 10 minutes** to complete. Please note that data is very important for us in order to successfully report to the European Commission the effectiveness of our action. If taking part in the Prospect+ capacity building programme was beneficial to you, please support us by completing the survey.

***Data Protection and GDPR**: All data collected through this survey will remain confidential and we are complying with the General Data Protection Regulation (GDPR). Results will not be published per single case/project, but in aggregated form, to analyse the overall progress of each Learning Cycle. Data may be shared, if requested, with EU agencies or other auditing bodies within the European Union (EU).*
*By filling out this survey you agree that we will process your data in line with our privacy policy.*

If you have any questions, **contact your Facilitator** directly via e-mail.

* In which **PROSPECT+ Learning Cycle** (LC) did you participate?
- LC1, Feb-Sept 22
- LC2, Nov22-June23
- LC3, Sept23-March24
- LC4, May-Dec24

* Upon which **thematic areas** was your PROSPECT+ capacity-building programme articulated?
- Public Buildings
- Private Buildings
- Transport
- Public Lighting
- Cross Sectoral

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* Please specify your **project title and/or your city/municipality/region as in the Action Plan** (in case you do not recall the full title: location, solution and/or target groups are sufficient for the purpose OF updating the Action Plan data)

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* 1. Has either the **start or completion date, or both,** of your project **changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

* 2. Have the **estimated total costs of measures** (investment costs) **changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

* 3. Have you filled in your project's **Finance Readiness Tool**? (Multiple Choice Question)
  - No, I am not interested in participating to the Masterclass
  - No, I did not have time
  - Yes
  - Others

If Others, Please specify:

**Important!** In case you have not filled in the Tool or your project has changed/advanced, **please fill in /update the Tool with the latest progress** and send it to **financial-readiness@adelphi.de**
This is a mandatory step of the PROSPECT+ capacity building process, as per the project's guidelines.

The Finance Readiness Tool helps mentees assess the financial readiness of their projects and determine areas for improvement to provide potential financiers with a high-quality proposal. Moreover, it is mandatory to access the P+'s masterclass which will take place in Brussels (participation is covered by the project and free for mentees, date TBD). Finally, filling out the tool helps us report to the European Commission.

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* 4. Have the **estimated annual energy savings (MWh/A) changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

* 5. Have the **estimated yearly CO2 reduction (tCO2/a) changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

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* 6. Have the **estimated annual RES production (MWh/a) changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

* 7. Have the estimated **monetary energy savings (million EUR) changed** compared to what indicated in the initial Action Plan?
  - Yes
  - No

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* 8. If the Municipality has a **SECAP in place**, how many **measures** does the SECAP have? Please indicate the (estimated) number below:

* 9. Did PROSPECT+ **influence** any SECAP measure? If yes, how many?

* 10. What are the estimated annual energy savings (MWh/a) from the **cumulative measures** in the SECAP? I.e. for all the measures in the SECAP.

* 11. What is the estimated annual RES production (MWh/a) from the **cumulative measures** in the SECAP?

* 12. What are the **cumulative** estimated investment costs (million Euros) in the SECAP?

* 13. What are the **cumulative** estimated costs (million Euros) of investing in RES in the SECAP?

* **Financing & Funding** your project: have you applied for any of the following initiatives? E.g. EUCF, ELENA, LIFE, Horizon Europe, others...
  - Yes
  - No

If you took part to the Masterclass in Bruxelles in October 2023, has its content supported you in advancing to the next step of your project? If yes, how?

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* 14. How likely would you **recommend** the PROSPECT+ capacity-building programme?

- ☐ 5 (Extremely likely)
- ☐ 4
- ☐ 3
- ☐ 2
- ☐ 1 (Not at all likely)

On behalf of the PROSPECT+ consortium, **thank you** for your valuable time!

Your feedback is very important to us, as it will help us improve the capacity-building programme for the next cycles.
**Please share information about our capacity building programme with other potential mentees!**

The PROSPECT+ consortium

The PROSPECT+ project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101023271.
The sole responsibility for the content of this survey lies with the auhtorss. It does not necessarily reflect the opinion of the European Union. Neither CINEA nor the European Commission is responsible for any use that may be made of the information contained therein.

**Contact**

Contact Form

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