EUROPEAN CITY FACILITY
Deliverable D 3.8
Summary Report for Call 4 (Public)

Document version: 2
Date: 12/05/2023

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 864212.

Purpose:

The purpose of “summary report for the call 4” is to provide an overview of the EUCF fourth call results and outcomes. This report briefs the readers on the details of the fourth EUCF call’s application and evaluation phases containing the statistics of registered applicants, submitted applications and selected applications within three geographical regions and also per each country.

Abbreviations:

CINEA – European Climate, Infrastructure and Environment Executive Agency

EUCF – European City Facility

EEA-EFTA States – States of Iceland, Liechtenstein and Norway

CEE - Central and Eastern Europe

IC - Investment Concept

NC&WE - Nordic Countries and Western Europe

SE - Southern Europe

Disclaimer:

The sole responsibility of this publication lies with the author. The European Union and CINEA are not responsible for any use that may be made of the information contained

This project has received funding from the European Union's Horizon 2020 Research and Innovation Programme under Grant Agreement No 864212.

Table of Contents

1. Introduction

This document briefs on the fourth EUCF call outcomes and presents key information on the fourth call application and evaluation phases.

The document contains information on the number of registrations to the EUCF Website User Zone with an overview per region and country, number of submitted/non-submitted applications per region and country, type of applicants, type of sectors targeted by the applicants, expected investment size and expected energy savings reported by the applicants.

This report also contains information on the number of "submitted applications", "unsuccessful applications during document check", "non-selected applications during evaluation phase" and "selected applications" per region and per country, as well as information on the final selection of municipalities/local authorities, groupings of municipalities/local authorities or local public entities aggregating municipalities/local authorities and the sectors in which the successful applicants will develop their investment concepts is also provided.

Executive summary of the EUCF report for call 4

The public summary provides an overview of the EUCF fourth call results and outcomes, which was open from **9 June – 30 September 2022**. The document is divided into several sections starting from the number of registered potential applicants and ending with the evaluation results, where the selected applicants of the EUCF 4th call and the planned measures of their envisaged project(s) are presented. This document aims to introduce the reader to the journey of EUCF's call 4 and to provide a better understanding of the evaluation process, especially for interested future applicants.

Section 2 – **Registration to the EUCF Website User Zone,** presents the number of registered applicants in the EUCF Website User Zone per region and per country in the EUCF call 4. A total of 164 applications were registered in the EUCF Website User Zone, out of which 85 were registered from Central and Eastern Europe (CEE), 32 from Nordic Countries & Western Europe (NC&WE) and 47 applicants from Southern Europe (SE).

Section 3 shows the results of the **Application process**, which is the process by which registered applicants can prepare, complete and submit the EUCF application form. The number of submitted and non-submitted applications per region and country are presented in this section. A total of 129 applications were submitted within the fourth EUCF call. The number of submitted and non-submitted applications per region and country are presented in this section. The largest number of submitted applications came from the CEE region (67), with the largest number of 23 submitted applications in Poland. A total of 35 applications were submitted in the SE region, where Italy stood out with the largest number of 15 submitted applications. Within the NC&WE region, 27 applications were submitted, where the largest number of applications was in Belgium (11). Within all EUCF regions, 36 applications were non-submitted during the 4th EUCF call.

Section 4 presents more detailed information on **Submitted applications,** including population, expected investment size and expected energy savings/renewable energy production reported by the applicants and type of submitted applications per region and country. Local public entities aggregating municipalities/local authorities were made eligible too for EUCF support from the second EUCF call. Within the 4th EUCF call, 104 applications were submitted by municipalities/local authorities, 16 by their groupings and 9 applications were submitted by local public entities aggregating municipalities/local authorities.

Section 5 – **Main investment sectors of submitted applications** provides a summary of the main investment sectors targeted by submitted applications per region and within the fourth EUCF call. Among the main investment sectors targeted by the EUCF applicants are public buildings, residential buildings, building-integrated renewables, district heating, smart grids, sustainable urban mobility and innovative energy infrastructure. Applicants could also specify other sectors e.g. innovative micro-scale liquefaction systems, e-mobility and charging facilities, waste management, public lighting, solar thermal plants etc. The results presented in this section show that the public buildings sector is targeted the most in the CE (48%) and SE (46%) regions. In the NC&WE region, the district heating sector has been selected with a share of 41%.

The **Evaluation results** are presented in the following Section 6. This section provides information on how many applications were submitted, rejected in the document check, non-selected due to a score below the quality threshold or due to a lower final score and selected for EUCF support per region and country. Overall, 129 applications were submitted within the 4th EUCF call. Out of them, 41 applications were unsuccessful in the documents check and 88 applications have been evaluated based on the five evaluation criteria. Within the 4th EUCF call, 50 successful applicants were selected for support in all 3 regions. Successful applications from 14 out of the 24 participating countries have been selected for the EUCF grant within the fourth call. In addition, an overview of identified reasons for unsuccessful submission of applications during the document check and the evaluation results per criteria of submitted applications that passed the document check were presented.

The final section 7 presents the **Selected applications** within the three EUCF regions, including a map of selected applications by countries from all EUCF regions and maps of successful applications including information on the population of selected applicants per region and per country. Out of 50, 24 applications were selected in the CEE region, 9 applications in the NC&WE region and 17 applications in the SE region. Additionally, this section presents the expected impacts in terms of energy efficiency and renewable energy production within the regions, main targeted sectors and the intended measures stated by each selected applicant.

2. Registration to the EUCF Website User Zone

After successfully passing the eligibility check the applicant receives login details to the EUCF website user zone to access the online application form.

2.1 Registered applicants to the EUCF Website User Zone per region

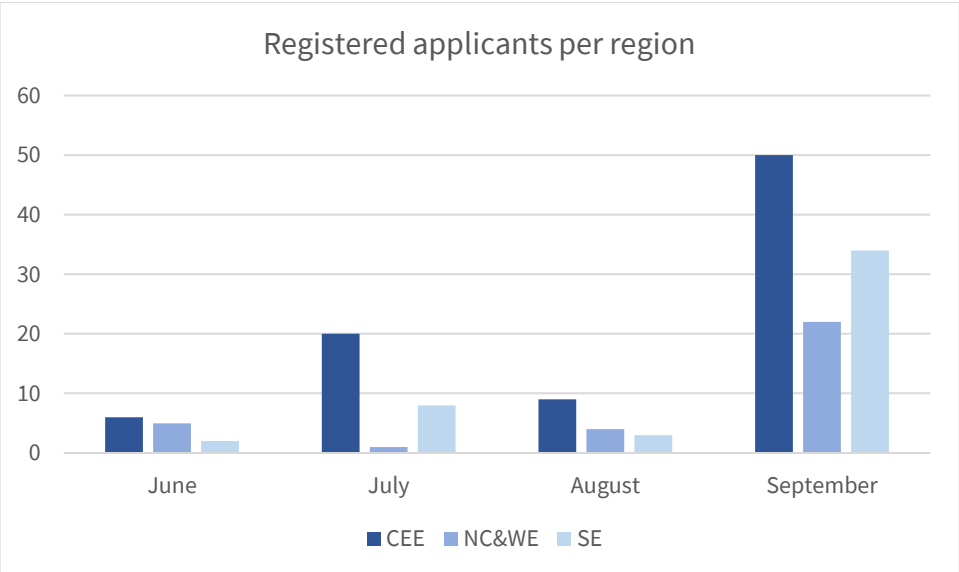
Table 1 presents the registered applicants status to the EUCF website user zone during the fourth EUCF call between 9 June – 30 September 2022 within the three EUCF regions.

Table 1. Registered applicants to the EUCF

Region	June 2022	July 2022	August 2022	September 2022	Total
Central and Eastern Europe	6	20	9	50	**85**
Nordic countries & Western Europe	5	1	4	22	**32**
Southern Europe	2	8	3	34	**47**
Total	**13**	**29**	**16**	**106**	**164**

Figure 1 shows the number of registered applicants in the EUCF website user zone during the months in which the fourth EUCF call was open.

Figure 1. Registered applicants to the EUCF



2.2 Registered applicants to the EUCF Website User Zone per country

Table 2 presents the number of registered applicants to the EUCF website user zone between 9 June – 30 September 2022 per country.

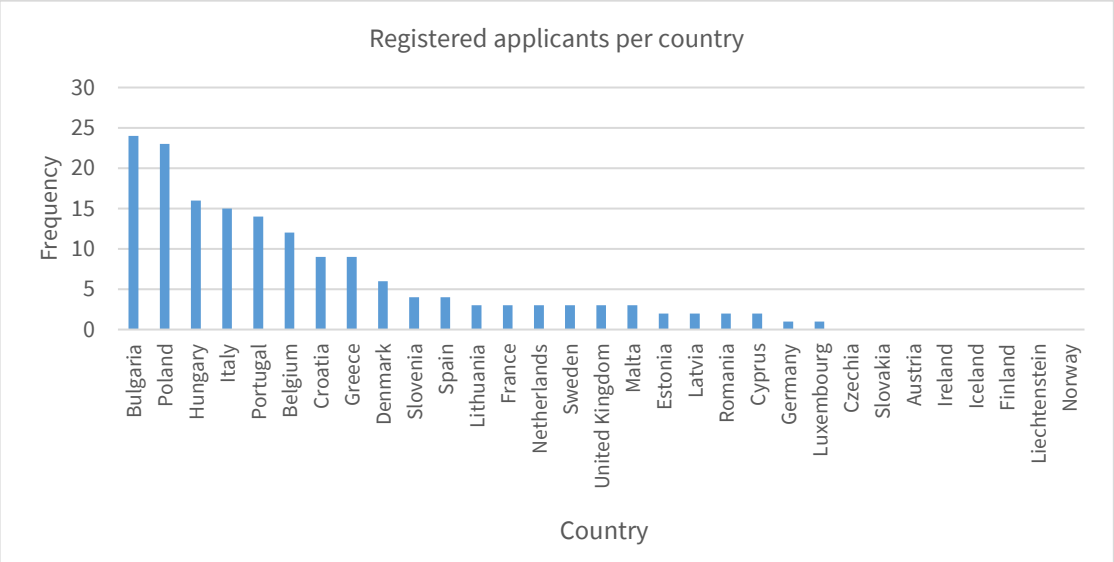
Table 2. Registered applicants to the EUCF fourth call per country

Registration to the EUCF website user zone is possible to be done after finishing the actual EUCF call. Registered applicants cannot fill an application form when the call is not running.

CEE		NC & WE		SE	
	N° of		**N° of**		**N° of**
Country	**Registered applicants**	**Country**	**Registered applicants**	**Country**	**Registered applicants**
Bulgaria	24	Austria	0	Cyprus	2
Croatia	9	Belgium	12	Greece	9
Czechia	0	Denmark	6	Italy	15
Estonia	2	Finland	0	Malta	3
Hungary	16	France	3	Portugal	14
Latvia	2	Germany	1	Spain	4
Lithuania	3	Iceland	0		
Poland	23	Ireland	0		
Romania	2	Liechtenstein	0		
Slovakia	0	Luxembourg	1		
Slovenia	4	Netherlands	3		
		Norway	0		
		Sweden	3		
		United Kingdom	3		
Total	**85**	**Total**	**32**	**Total**	**47**

Figure 2 shows the number of registered applicants to the EUCF website user zone per country within the fourth EUCF call.

Figure 2. Registered applicants to the EUCF per country



3. Application

Registered applicants to the EUCF website user zone can complete the full application form, prepare the supporting documents and submit them via the EUCF website user zone.

3.1 Submitted/Non-submitted applications to the EUCF User Zone per region

Table 3 presents the statistics of non-submitted and submitted applications to the EUCF website user zone within the fourth EUCF call between 9 June – 30 September 2022 per region.

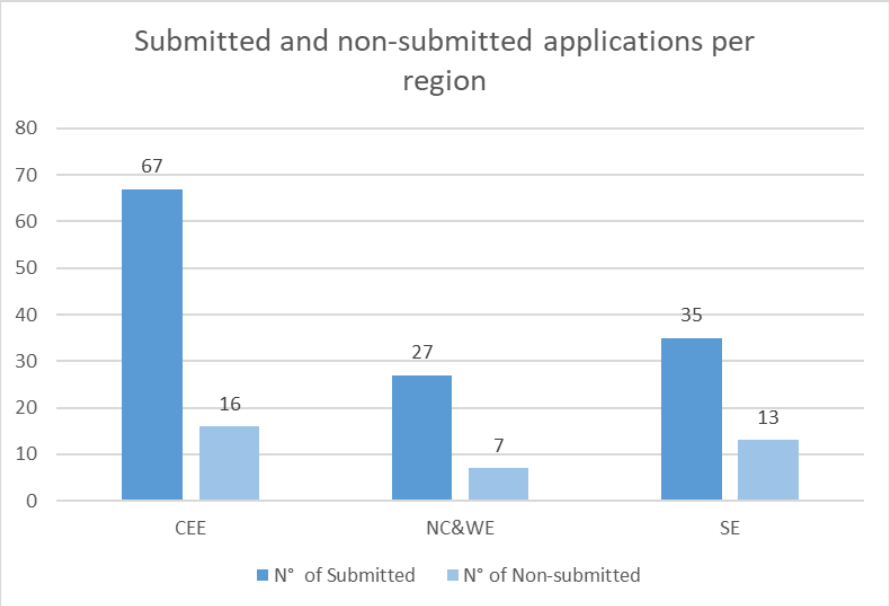
Table 3. Submitted & non-submitted applications

Region	N° of Submitted	N° of Non-submitted	Total
Central and Eastern Europe	67	16	83
Nordic countries & Western Europe	27	7	34
Southern Europe	35	13	48
Total	**129**	**36**	**165**

Figure 3 presents the number of submitted and non-submitted applications to the EUCF website user zone during the fourth EUCF call per region.

Figure 3. Submitted & non-submitted applications

Applicants who have previously registered in the EUCF website user zone can directly submit an application within the current EUCF Call. In this case, there was 1 application previously registered.



3.2 Submitted / Non-submitted applications to the EUCF Website User Zone per country

Table 4 presents the number of submitted and non-submitted applications to the EUCF website user zone during the fourth EUCF call between 9 June – 30 September 2022 per country.

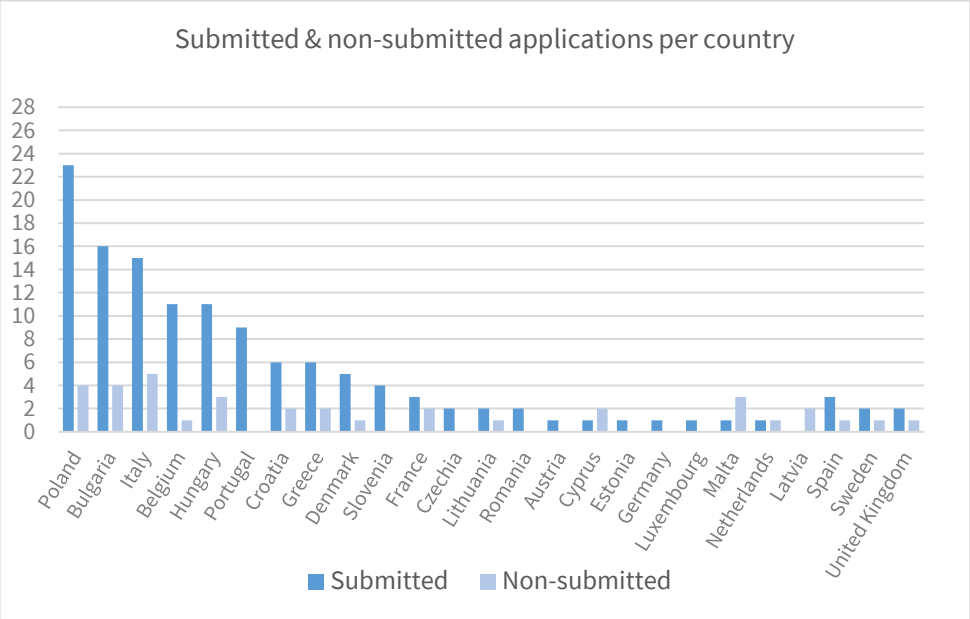
Table 4. Submitted and non-submitted applications

CEE			NC & WE			SE		
Country	Submitted	Non-submitted	Country	Submitted	Non-submitted	Country	Submitted	Non-submitted
Bulgaria	16	4	Austria	1	0	Cyprus	1	2
Croatia	6	2	Belgium	11	1	Greece	6	2
Czechia	2	0	Denmark	5	1	Italy	15	5
Estonia	1	0	Finland	0	0	Malta	1	3
Hungary	11	03	France	3	2	Portugal	9	0
Latvia	0	2	Germany	1	0	Spain	3	1
Lithuania	2	1	Ireland	0	0			
Poland	23	4	Luxembourg	1	0			
Romania	2	0	Netherlands	1	1			
Slovenia	4	0	Norway	0	0			
			Sweden	2	1			

			United Kingdom	2	1			
Total	**67**	**16**	**Total**	**27**	**7**	**Total**	**35**	**13**

Figure 4 presents the number of submitted and non-submitted applications to the EUCF website user zone within the fourth EUCF call per country.

Figure 4. Submitted and non-submitted applications trend



4. Submitted applications

This chapter provides information of submitted applications including the type of applicants, country and municipality/local authority, groupings of municipalities/local authorities as well as local public entities aggregating municipalities/local authorities, population, targeted sector/s, expected size of investment and expected impact within the three regions.

4.1 An overview of submitted applications per region

Table 5 shows the information on submitted applications within the fourth EUCF call per region.

Table 5. Submitted applications per region

Region	Number of submitted applications	Population	Expected investment size (EUR)	Expected energy savings/ RES production (GWh/y)	Number of applications by groupings	Number of applications by public entity aggregating municipalities/local authorities
CEE	**67**	5 334 858	2 249 451 115	1956,034	4	0
NC&WE	**27**	6 657 603	3 458 131 791	1447,765	3	4
SE	**35**	6 303 331	1 577 474 786	2206,467	9	5
Total	**129**	18 295 792	7 285 057 692	5610,266	**16**	**9**

4.2 An overview of submitted applications per country

Table 6 shows the information on submitted applications within the fourth EUCF call per country.

Table 6. Submitted applications per country

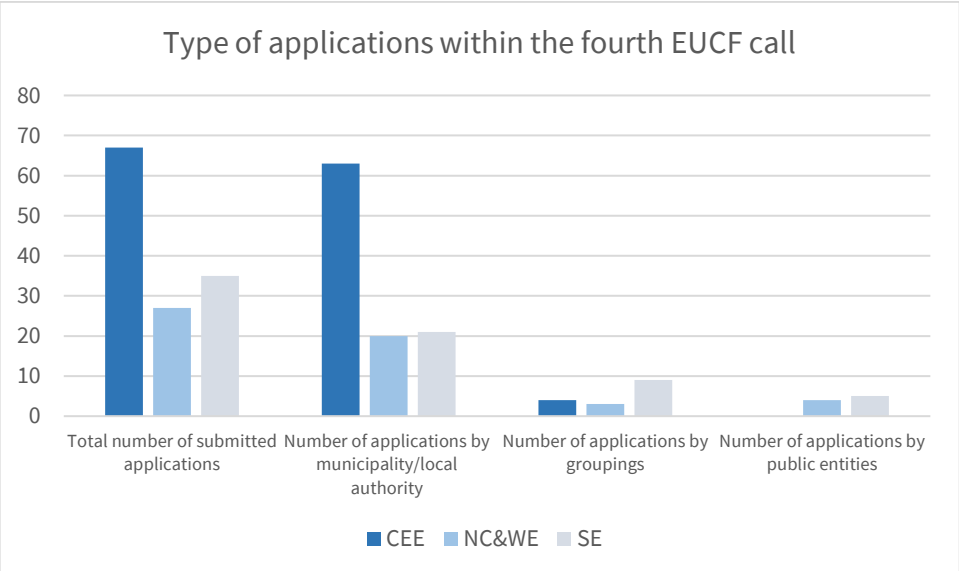
Country	Number of submitted applications	Population	Expected investment size (EUR)	Expected energy savings/ RES production (GWh/y)	Number of Applications by groupings	Number of Applications by public entities
CEE						
Bulgaria	16	635 029	428 534 586	427	0	0

Country	Number of submitted applications	Population	Expected investment size (EUR)	Expected energy savings/ RES production (GWh/y)	Number of Applications by groupings	Number of Applications by public entities
Croatia	6	125 898	526 813 041	283	1	0
Czechia	2	50 279	30 642 551	23	0	0
Estonia	1	7 002	4 320 000	12	0	0
Hungary	11	700 334	571 226 104	546	1	0
Lithuania	2	79 209	45 418 890	13	0	0
Poland	23	3 285 428	598 502 118	627	2	0
Romania	2	350 454	13 799 334	9	0	0
Slovenia	4	101 225	301 94 491	13	0	0
Total	**67**	**5 334 858**	**2 249 451 115**	**1 956**	**4**	**0**
NC&WE						
Austria	1	295 424	3 900 000	16	0	0
Belgium	11	1 012 083	553 300 307	221	2	1
Denmark	5	1 067 913	197 129 517	440	1	0
France	3	844 600	330 420 600	154	0	2
Germany	1	11 488	215 000 000	266	0	0
Luxemburg	1	29 281	135 000	2	0	0
Netherlands	1	185 567	84 300 000	138	0	0
Sweden	2	3 107 500	1 868 798 635	159	0	0
United Kingdom	2	295 424	3 900 000	16	0	1
Total	**27**	**6 657 603**	**3 458 131 791**	**1 448**	**3**	**4**
SE						
Cyprus	1	25 000	4 500 000	13	0	0

Country	Number of submitted applications	Population	Expected investment size (EUR)	Expected energy savings/ RES production (GWh/y)	Number of Applications by groupings	Number of Applications by public entities
Greece	6	426 888	506 096 776	363	2	0
Italy	15	1 138 321	434 314 230	1 031	5	3
Malta	1	14 592	12 000 000	22	0	0
Portugal	9	1 109 576	499 995 221	494	2	1
Spain	3	3 588 954	120 568 559	282	0	1
Total	**35**	**6 303 331**	**1 577 474 786**	**2 206**	**9**	**5**
Overall	**129**	**18 295 792**	**7 285 057 692**	**5 610**	**16**	**9**

Figure 5 presents the number of submitted applications by municipality/local authority, the number of groupings of municipalities/local authorities, the number of local public entities aggregating municipalities/local authorities and the total number of submitted applications per region.

Figure 5. Type of submitted applications within the 4th EUCF call



5. Main investment sectors of submitted applications

This chapter provides a summary of the main investment sectors targeted by submitted applications.

5.1 Targeted investment sectors per region

Figures 6, 7 and 8 illustrate the share of the main investment sectors within the three regions. Applicants were asked to select the sectors targeted by their proposed investment project and indicate the main sector. Among the main investment sectors targeted by the EUCF are public buildings, residential buildings, building-integrated renewables, district heating, smart grids, sustainable urban mobility and innovative energy infrastructure. Applicants can also specify other sectors e.g. innovative micro-scale liquefaction systems, e-mobility and charging facilities, waste management, public lighting, solar thermal plants etc.

Figure 6. Targeted main investment sectors by submitted applications in CEE region

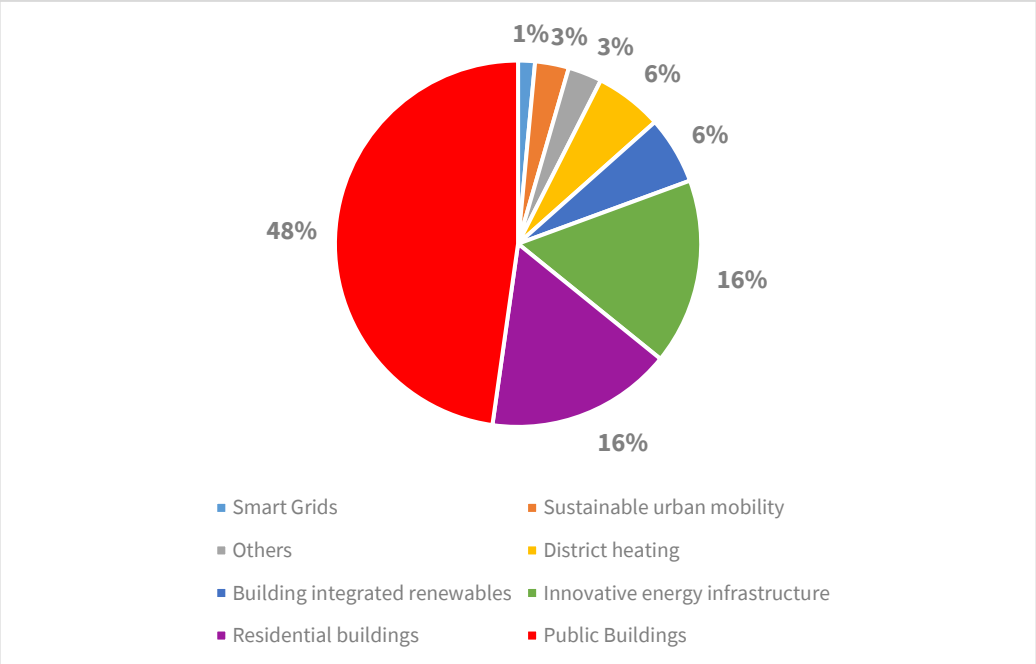


Figure 7. Targeted main investment sectors by submitted applications in NC&WE region

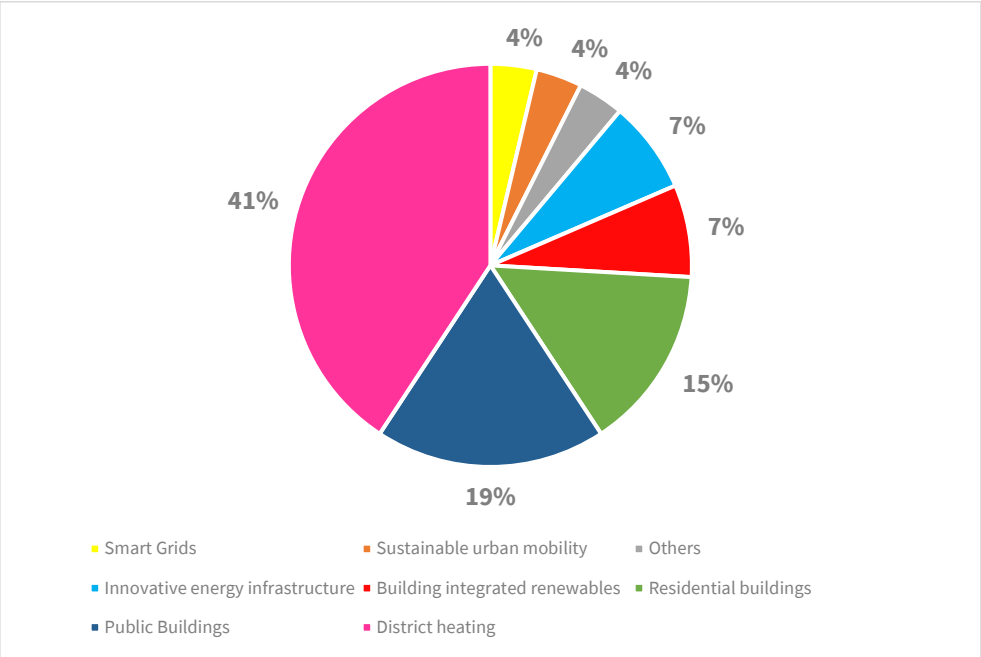
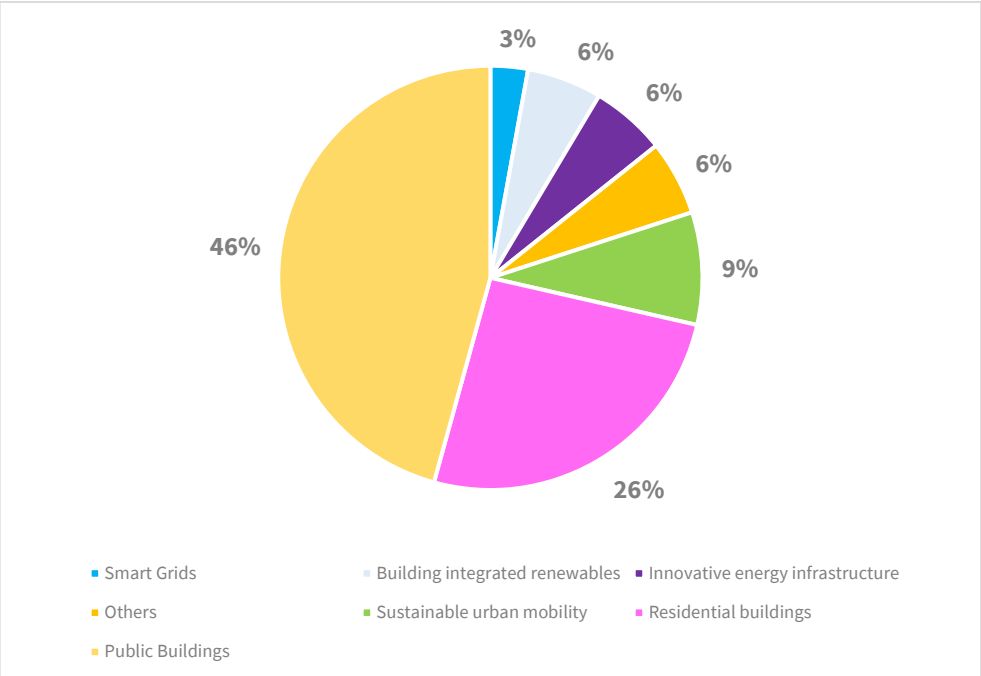


Figure 8. Targeted main investment sectors by submitted applications in SE region

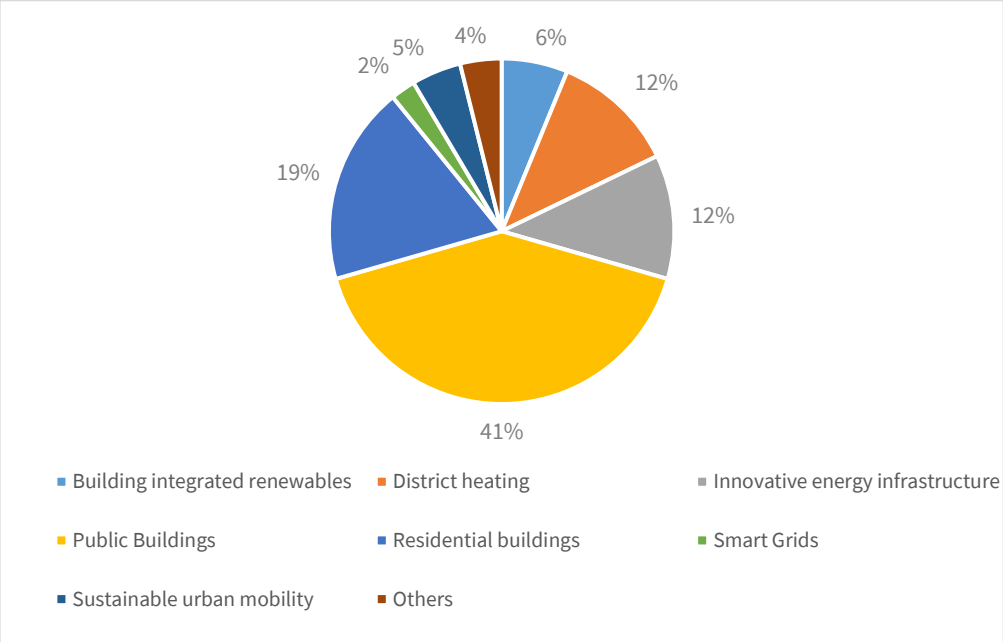


From the pie charts, it is clear that the public sector is targeted the most, in the CEE (48%) and SE (46%) regions. In the NC&WE region, the district heating sector has been selected the most by the applicants with a share of 41%.

5.2 Targeted investment sectors of submitted applications within the EUCF 4th call

Figure 9 summarizes the targeted main investment sectors of submitted applications within the fourth EUCF call, for all regions together. Overall, the public sector (41%) was selected the most in the submitted applications, followed by residential buildings (19%), innovative energy infrastructure (12%) and district heating (12%) sectors.

Figure 9. Targeted main investment sectors



*Others refer to innovative micro-scale liquefaction system, e-mobility and charching facilities, waste management, public lighting, solar thermal plants etc.

6. Evaluation results

Overall, 129 applications were submitted within the 4th EUCF call. Out of them, 41 applications were unsuccessful in the documents check and 88 applications have been evaluated based on the five evaluation criteria. Within the 4th EUCF call, 50 successful applicants are selected for support in all 3 regions. Detailed evaluation results per region and country are presented below.

6.1 Evaluation results per region

Table 7 presents the number of "submitted applications", "rejected applications in the documents check", "non-selected applications due to score below the quality threshold", "non-selected applications due to lower final score" and "selected applications" per region.

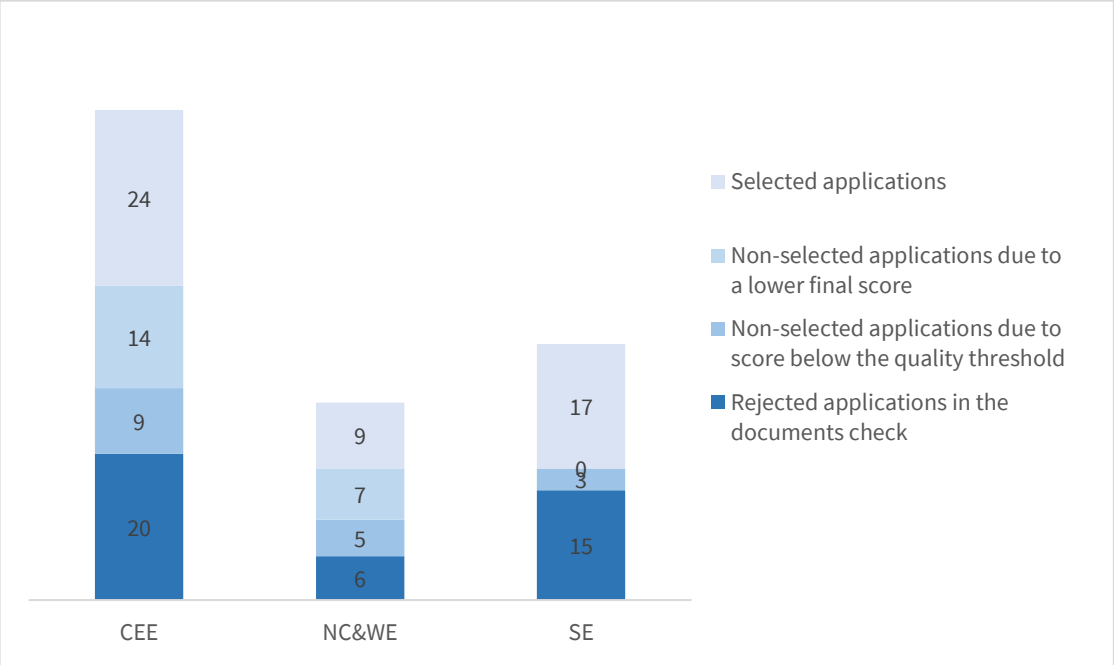
Table 7. Evaluation result per region

Region	Submitted applications	Rejected applications in the documents check	Non-selected applications due to score below the quality threshold	Non-selected applications due to a lower final score	Selected applications
CEE	67	20	9	14	24
NC&WE	27	6	5	7	9
SE	35	15	3	0	17
Total	**129**	**41**	**17**	**21**	**50**

Figure 10 presents the number of "submitted applications", "rejected applications in the documents check", "non-selected applications due to score below the quality threshold", "non-selected applications due to lower final score" and "selected applications" per country. Overall, 32% of submitted applications did not pass the document check.

Overall, successful applications from 14 out of 24 participating countries have been selected for the EUCF grant within the fourth EUCF call.

Figure 10. Evaluation result per region



6.2 Evaluation results per country

Table 8 shows the number of “submitted applications”, “rejected applications in the documents check”, “non-selected applications due to score below the quality threshold”, “non-selected applications due to lower final score“ and “selected applications” per country.

Table 8. Evaluation results per country

Country	Submitted applications	Rejected applications in the documents check	Non-selected applications due to score below the threshold	Non-selected applications due to a lower final score	Selected applications
CEE					
Bulgaria	16	9	4	1	2
Croatia	6	1	0	0	5
Czechia	2	1	0	0	1
Estonia	1	1	0	0	0
Hungary	11	0	2	2	7
Lithuania	2	1	0	1	0
Poland	23	5	3	7	8
Romania	2	1	0	1	0
Slovenia	4	1	0	2	1
Total	**67**	**20**	**9**	**14**	**24**
NC & WE					
Austria	1	0	0	1	0
Belgium	11	3	2	3	3
Denmark	5	1	0	1	3
France	3	1	1	1	0
Denmark	1	1	0	0	0
Luxemburg	1	0	1	0	0
Netherlands	1	0	0	0	1
Sweden	2	0	1	0	1
United Kingdom	2	0	0	1	1
Total	**27**	**6**	**5**	**7**	**9**
SE					
Cyprus	1	1	0	0	0
Greece	6	2	1	0	3
Italy	15	6	2	0	7
Malta	1	1	0	0	0
Portugal	9	2	0	0	7

Country	Submitted applications	Rejected applications in the documents check	Non-selected applications due to score below the threshold	Non-selected applications due to a lower final score	Selected applications
Spain	3	3	0	0	0
Total	**35**	**15**	**3**	**0**	**17**
Overall	**129**	**41**	**17**	**21**	**50**

6.3 Reasons for rejected applications during Document check

Table 9 presents a detailed overview of the most common reasons for rejected applications during the documents check. The table is organized according to the occurrence of the reason.

Table 9. Reasons for rejection of applications during the document check

Document	Identified issues
Annex D -Calculation log for energy savings	The calculation log contains miscalculations resulting wrongly in lower energy impacts on renewable energy production.
	The calculation log is only partially filled/empty and therefore it is not possible to assess the plausibility of the figures.
	The calculation log on the expected energy savings and/or renewable energy production was not submitted with the application.
	The submitted calculation log on the expected energy savings/renewable energy production does not correspond to the EUCF template.
	The figures do not correspond to the figures indicated in the application form
Annex E -Calculation log for investment size	The calculation log misses information on the foreseen investment components.
	Estimation of investment size: The submitted calculation log on the expected investment size does not correspond to the EUCF template.
	The calculation log on the expected investment size was not submitted with the application.
	The submitted calculation log is undereadable
Annex A – SEAP, SECAP or plan of similar ambition and summary	Annex A - SEAP, SECAP or plan of similar ambition - Summary was not submitted with the application.
	The submitted summary of the SEAP, SECAP or plan of similar ambition does not correspond to the EUCF template and is not in English Language
	SEAP, SECAP or Plan of similar ambition: The submitted plan has not been formally approved before the submission of application,
	Plan of similar ambition does not correspond to the SEAP, SECAP.
Annex B - Letter of support	The submitted letter of support was not signed by the Mayor or other political representative.
	A letter of support to the project by the Mayor or other political representative was not submitted with the application.
	The submitted letter of support does not correspond to the EUCF template

Annex C - Self-declaration form	The submitted self-declaration form was not signed by the representative of the municipality/local authority or local public entity.
	The submitted self-declaration form was not submitted with the application.
	The submitted self-declaration form does not correspond to the EUCF template
	The submitted self-declaration form contains different information than in the application form

6.4 Evaluation results - score per criterion

Applications were evaluated based on the following five evaluation criteria:

A1: Investment Size

A2: Energy savings

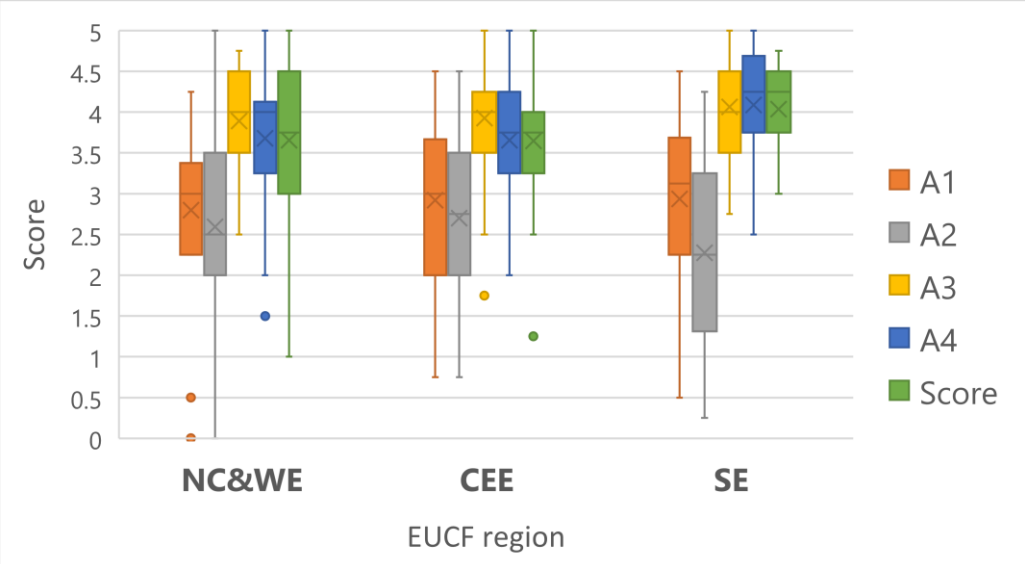
B1: Governance structure

B2: Stakeholder engagement

B3: Alignment with EUCF objectives.

Figure 12 shows the score per criterion within three regions. For each of the five criteria, a score ranging from 0 to 5 (half-point scores may be given) was awarded by the evaluators. The quality threshold criterion B1, B2 and B3 was 3 out of 5. There was no threshold for criterion A1 and A2.

Figure 12. Score per criterion



6.5 Evaluation of criteria- justification for scoring

6.5.1 A1 criterion – Investment size

Table 10 shows the absolute figures of submitted applications that passed the document check, including the maximum, median and minimum investment size within three regions.

Table 10. Absolute figures of submitted applications that passed the document check

	General (EUR)	CEE	NC&WE	SE
Max. investment size	1 868 416 380	202 686 401	1 868 416 380	413 800 000
Median of the respective call	17 700 000	17 500 000	32 959 133	26 930 091
Min. Investment size	135 000	1 863 620	135 000	2 060 000

6.5.2 A2 criterion – Energy savings

Table 11 shows the absolute figures of submitted applications that passed the document check, including the maximum, median and minimum energy savings within three regions.

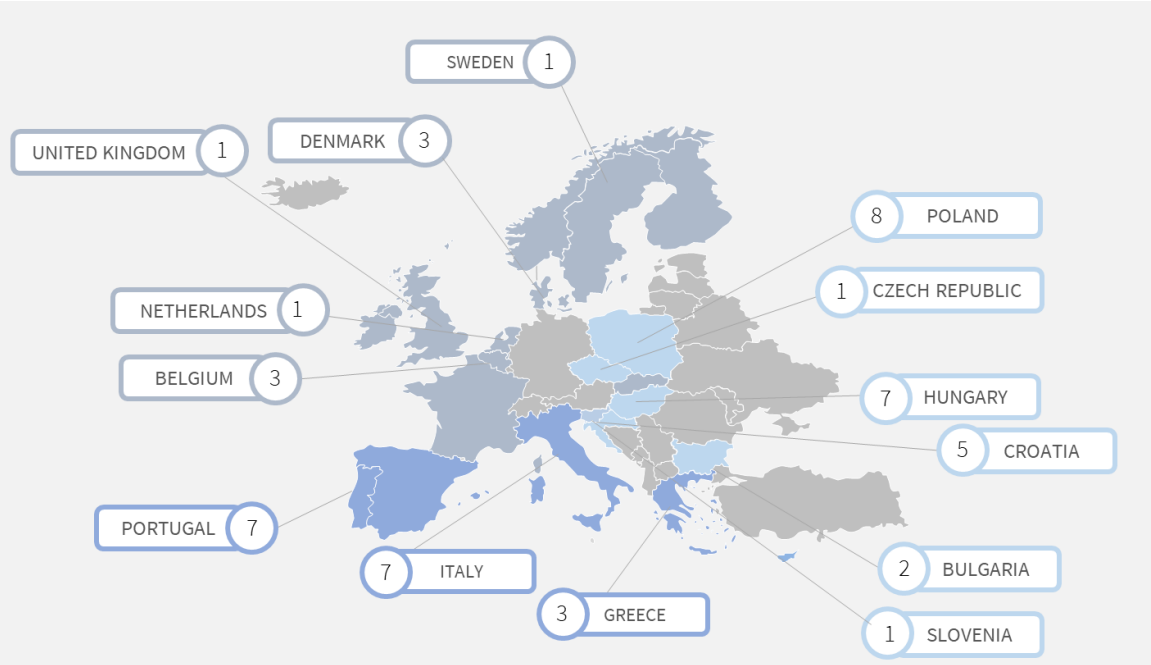
Table 11. Absolute figures of submitted applications that passed the document check

	Overall (GWh/y)	CEE	NC&WE	SE
Max. energy savings	303	213.7	186	303
Median of the respective call	15	15	11	24
Min. energy savings	0.2	0.35	0.22	3

7. Selected applications

Figure 13 presents a map of selected applications by countries from the EUCF regions.

Figure 13. Map of selected applications



Successful applications from 14 out of the 24 participating countries have been selected for the EUCF grant within the fourth call.

Figures 14 to 16 present maps of selected applications including the number of population of the selected applicants for the three EUCF regions.

Figure 14. Map of selected applications in CCE region

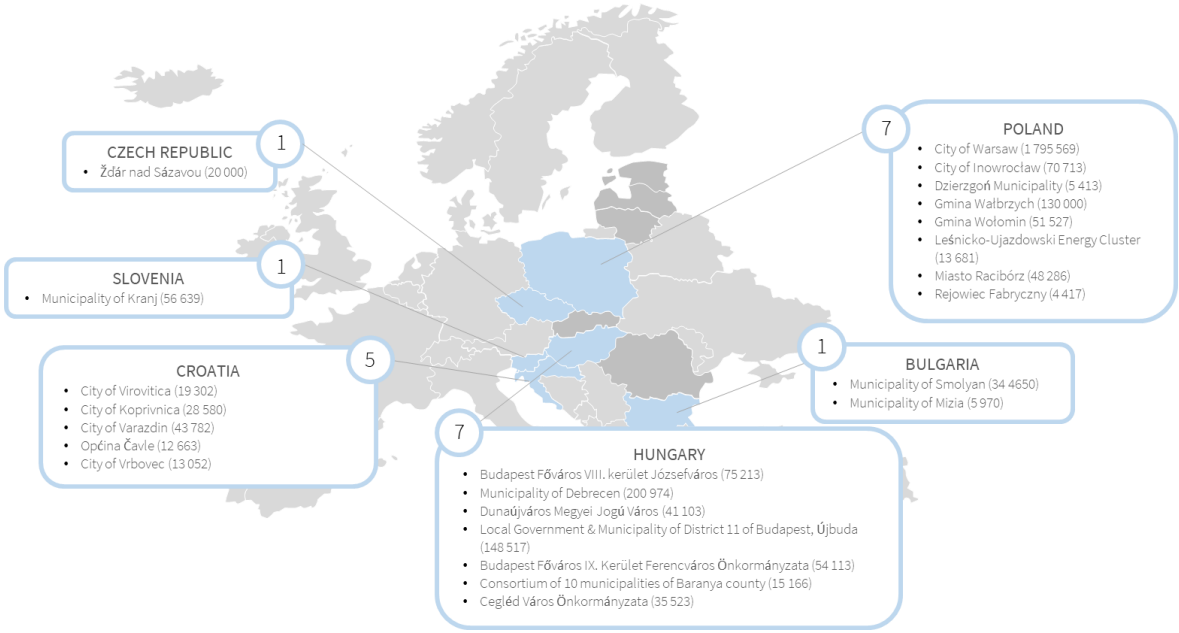


Figure 15. Map of selected applications in NC&WE region

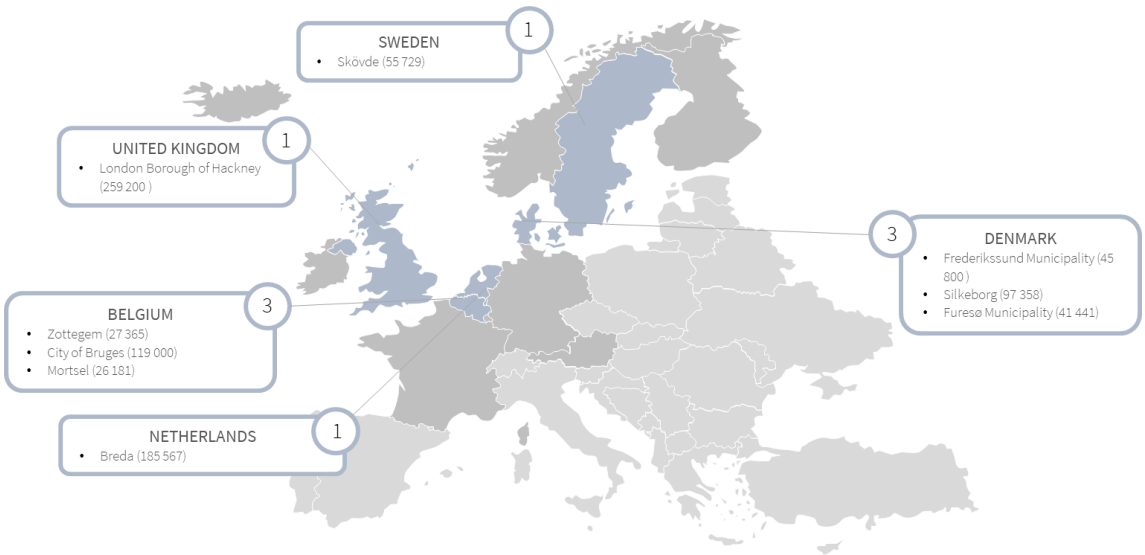


Figure 16. Map of selected applications in SE region

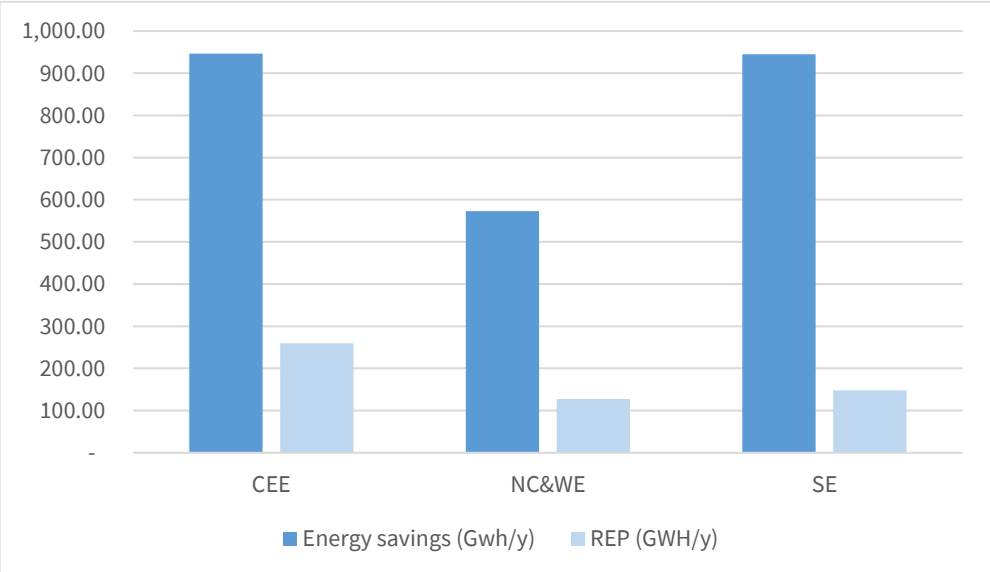
Out of 50, 24 applications were selected in the CEE region, 9 applications in the NC&WE region and 17 applications in the SE region .

Out of 50 selected applications, 8 are by groupings of municipalities/local authorities and 3 are by local public entities aggregating municipalities/local authorities.

7.1 Expected impact of selected applications

Figure 17 shows the expected impact (GWh/y) of selected applications differentiated in terms of energy efficiency (EE)/energy savings and renewable energy (RE) production within the three regions.

Figure 17. Expected impacts per region



7.2 Main targeted sectors and intended measures

Table 13 presents the main sectors targeted by the investment project and intended technical measures stated by successful applicants.

Table 13. Intended measures by country/detailed overview

Municipality/local authority or grouping, public entity aggregating municip./loc. auth.	Main targeted sectors	Intended measures to be financed
Belgium		
Zottegem	Public Buildings	The City of Zottegem aims to obtain a zero energy public building stock by 2050 (and to -55% CO2 emissions by 2030). To this end, their 37 buildings, ranging from office buildings to public meeting centres for inhabitants, a residential care centre, schools and sports facilities, need to be insulated (including window replacement) and their building installations need to be replaced by efficient non-fossil ones. The engineering analysis of this project will uncover the required measures for each of the buildings. The financial analysis will reveal how these measures can financed (partially the city's budget, partially the budget that is recuperated by the energy savings, possibly the profit of selling some of the buildings). A timeline will be set up, specifying which measure needs to be implemented in which year and the annual budget the city has to foresee.

City of Bruges	District heating	The short term goal is to realise renovation of the dwellings/buildings and implement district heating in a specific neighbourhood between IVBO and the city centre. This project will be an absolute game changer in people's minds and will be used to accelerate the development of a heating network in 4 clusters in city centre after renovation (long term): a city with a lot of UNESCO heritage, small streets, full underground, a lot of worker's houses, city and public buildings which are badly insulated… Regarding to the short term, we target a part of Christus Koning, a neighbourhood of 19th and beginning of the 20th century with (and a surface of 101,1ha). Apart from private dwellings, there is a swimming pool, two school buildings, Carrefour market, fitness centre, building of the national employment office and a lot of small retailers. In this way the city shows the good example, showcasing that heat net developed in historic densely built areas are also possible.
Mortsel	District heating	The city of Mortsel has ambitions to lower its CO2-emissions of building heating by applying alternatives for fossil heating such as citizen owned DHN on waste and renewable heat. Therefor it supported the district heating grid operator Warmte Verzilverd to build and operate their DHN using industrial waste heat from an industrial site in Mortsel. For now only a part of the capacity of the heat source is utilized. It is estimated that there is additional capacity of at least 5000 MWh of heat per year. The heat is captured from the chimney of high temperature processes and would otherwise be dissipated in the air. To expand the DHN further investments in distribution infrastructure (piping, pumps, satellite units, …) are needed. 5000 MWh of heat equals the annual energy consumption for heating of about 350 households.
Bulgaria		
Municipality of Smolyan	Public Buildings	Despite the significant efforts from the Municipality in recent years, most (97%) of the public and residential buildings in Smolyan are still characterized by high energy intensity, due to both the inefficient heating systems and the length of the winter season (6 month). 90% of the non-renovated buildings have energy consumption classes E, F and G. The central goal of the project is to introduce Energy Efficiency measures that include thermal isolation of the buildings, switching to using heat pumps and PV for the energy needs with the goal to create PEBs or, if that is not possible, to build smart grids to achieve PEDs and to develop legal and technical framework to enable the inclusion of multi- and single-family homes in PEDs. The city also intent to replace its old public transport vehicles with electric based ones and build PV-powered charging stations with enough power to cover the energy needs of the new vehicles.
Municipality of Mizia	Residential Buildings	Public Buildings - Renovation to nearly zero energy building and energy positive buildings Residential buildings - renovation to class A and where feasible to nearly zero energy buildings Building integrated renewables - PV systems on public buildings - installation of PV systems mainly for covering own needs Street lightening - Replacement of luminaries, Use of RES, Energy management - advanced LED Innovative energy infrastructure - production, storage and distribution of green hydrogen to replace oil fuel used in transport and industry.

Croatia		
City of Virovitica (CoVT)	Residential buildings	This IC will demonstrate how 0-energy neighborhoods concept and smart grid-interactive technologies can transform homes and public buildings into connected self-sufficient energy communities. The project will put the spotlight on neighborhood level green renovation of public and multifamily buildings including the RES deployment (heat pumps and PVs in public and PVs only in multifamily buildings) and "demand response" testing to round up the sustainability story. Besides, in order to reduce dependence on fossil fuels in buildings sector and to encourage shared production/consumption from renewables as well as prosumer behavior promoting responsible energy citizenship, CoVT will test the smart microgrid concept in the 0-energy renovated neighborhoods by forming the connected self-sufficient energy communities. This FIT4 55 community partnership between public authorities and citizens will be formed around shared goals and values in order to jointly lead the way to the sustainable city.
City of Koprivnica	Public Buildings	This IC will target the systematic implementation of 0-energy concepts through the district level DER and consumption of renewable energy. District scale energy renovation approach will be tested in order to speed-up the renovation works and it will be combined with the geothermal-based (GB) supply to the climate friendly neighborhoods (CFNs). The latter will serve as a test bed for planning the city's district heating network. To lower the operating costs for public buildings and to mobilise the private investments for energy renovation in the building sector, CoK decided to roll out the large-scale DER works in the three significant zones (1st – public and multifamily buildings, 2nd – public buildings, 3rd – university campus) with the aim to turn them into CFNs (0 – emission zones) by employing the mini GB heat plants for supplying these zones. Preliminarily analysis of geothermal potential has been performed but the technical analysis and feasibility study is to be done in this IC
City of Varazdin	Residential buildings	Considering the fact that buildings are responsible for 40 % of global energy consumption and 33 % of GHG emissions, city is planning a major green renovation wave focusing on a building sector (swimming arena, sports hall, school buildings; multifamily apartment blocks and social housing buildings). District scale energy renovation approach will be tested in order to speed-up the renovation works and to lower the costs (joint green procurement). Moreover, in the light of a recent events on an energy market, together with the energy renovation wave strategy, city is decisive to develop plans for preparing the infrastructure for DHN employing renewables-based CHP plants. Pilot project will be prepared with the existing biomass-based CHP plant which should cover the heat needs of several public buildings and multifamily apartment blocks which will be renovated. Along with that, an innovative buildings "heat sharing network" will be tested in the self-sustained renovated building blocks.

Općina Čavle	Sustainable urban mobility	The area is on the verge of becoming an attractive year-round tourist destination. In order to preserve natural resources, it is necessary to establish an innovative transport system. In addition to decarbonization itself, the paradigm changes to a sharing economy. EVs as mobile batteries with smart charging from local RES, a sharing system and an efficient on-demand mobility system, park&ride and the net-zero CO2 last mile concepts contribute to optimizing resources, saving energy and emissions, reducing congestion and financial benefits. Being a regional link between the mountainous and coastal parts of the County and is close to a zone with numerous shopping centers, the innovative public and private infrastructure should be complementary, to create energy and transport sectors synergy. For the successful implementation of IC, the active participation of end users, who are placed at the center of the energy transition with a multidisciplinary approach to sustainability, is crucial.
City of Vrbovec	District heating	The analysis of geothermal potential in the preliminary report is based on four existing testing boreholes to depths from 203 m to 1584 m. The water temperature is 70°C at the depth of 1500m while according to the study there could be even higher temperatures in the Southwest parts of the city, up to 140 C° at the depths of 2000-3000 m. Two boreholes production and injection with estimated capacity of 25 GWh will be installed on the land owned by the city of Vrbovec. To make maximal use of available heat it will be used in cascade. Water with higher temperatures will go to industry, lower temperatures water will be utilised in the buildings and agriculture. To have low temperature heating buildings should be renovated to nZEB standard and should be equipped with district heating substations and additional PVs for electricity generation. Special heat exchange network will supply industrial and agriculture objects. The 4DH pipelines will connect different buildings/neighbourhoods.
Czechia		
Žďár nad Sázavou	Building integrated reneweables	The summary of the planned energy measures can be found in a chart in Appendix E. Generally, the plan is to lower the energy consumption of the Town ´s buildings through replacing lights by LEDs, installation of IRC regulation of heating, insulation of perimeter constructions, and building roof PVPPs. A complex reconstruction of the Ice Arena is an independent item, entered separately in Appendix E. Complex reconstruction of the Ice Arena, the building of the former Magistrate, modernization of the Kindergarden, large-scale installation of PVPP on municipal roofs, the battery for public light. Separately to technology measures are soft measures as education and technical advisory for citizens – see the chapter 4 above and for small villages nearby – see the chapter 5.
Denmark		

Frederikssund Municipality	District heating	The investment concept will include at least 5 technological themes: energy efficiency optimisation, electrification, district heating (DH), sustainable mobility, renewable energy. In industry, measures include energy efficiency in production, electrification of processes replacing natural gas and utilisation of waste heat to safeguard year-round utilisation of waste heat to reduce energy consumption for cooling and as input to district heating. In DH, measures include expanding the DH network, hence replacing the heating source for households from natural gas to efficient DH and utilising waste heat from industry to DH, hence replacing part of the natural gas driven heat production. Sustainable mobility involves citizens in the transition by installing charging stands for electric cars, electric bicycles on subscription, and charging stands for private electric bicycles to encourage green transportation. Renewable energy includes among others solar plants, wind, heat pumpe and ATES.
Silkeborg	District heating	TERMUN+ IC aims to accelerate the transition from fossil heating to heat pumps in TS whit local SP but will not consist of one technical solution for all TS. TERMUN+ IC works across the different technically solutions possible for establishing a TS. (cf. Annex4) A thermometer is a supply network that transports thermal energy from different types of energy sources. The network runs across many homes/buildings with a typical temperature of between 0 and 10 degrees. (cf. Annex4 Description of the technology) Investment needed to build a TS contains but are not limited to: • Tendering and analysis of potential • Pipes and pumps in a horizontal og vertical system for the brine system. • Heat pumps in private houses sizes is individually calculated • Service and billing systems • Solar parks The TS can be in combination with geothermal heat pumps and excess heat from local factory's' being stakeholders in the system (cf. Annex2) analysis of potential for local heat sources has a great impact.

Furesø Municipality	Residential buildings	The project is based on previously identified energy saving potentials in the social housing sector and the main actions of the project are: 1. update of previous screenings 2. re-visit the housing associations to identify the status since the previous screening 3. identification of new potentials and calculation of savings for new measures and update of savings for previously identified measures, investments and payback times 4. preparation of a plan for the implementation of the energy saving measures and local RES production of each housing association. 5. presentation at meetings with housing associations and departmental interest groups and residents' democracy in those associations
Greece		
Municipality of Kozani	Sustainable urban mobility	In the Municipality of Kozani (MoK) there are around 18.300 private residential buildings, mainly built before 2000, having poor energy efficiency and therefore high energy needs. Their large number comparing to the other buildings, explains the large potential of this sector. Thermal insulation of walls, floors and ceilings, replacement of windows with double glazed ones, installation of solar thermals and upgrade of their heating systems are the main actions to be followed minimizing buildings' energy needs to up to 40% Pedestrian mobility actions should be the stepping stone to achieve sustainable mobility. Moreover, to achieve this goal, the municipal fleet with its around 170 vehicles, the public transportation and private vehicles in the MoK based on fossil fuels, should be replaced with new more effective ones, battery electric and fuel cell electric ones. A concrete plan for this replacement and also the upgrade of the infrastructure to support this change is required.
Municipality of Korydallos	Public Buildings	The investment concept focuses on upgrading the municipal building stock and the street lighting network in the Municipality of Korydallos including installation of building-scale renewables mainly at schools. The following interventions will be considered: - Buildings: Thermal insulation of envelope, heat pumps, thermal insulation of systems for the distribution of heat within the buildings, upgrade of lighting system, building management systems - Renewables: Installation of solar panels on the rooftops of buildings - LED bulbs in street lighting The interventions above are expected to lead to energy savings that are more than 70% of the current energy use contributing at the same type to the electrification of the building stock and moving towards independence from fossil fuels. Moreover, the city has allocated 1,5 million € through the funding of the development coalition of Western Attica Municipalities for energy upgrade of specific residential buildings.

Nea Smyrni	Public Buildings	The investment concept focuses on the retrofit of municipal buildings including integration of building-scale renewables, upgrade of public lighting and electrification of the municipal fleet. The following interventions will be considered: - Buildings: thermal insulation of the envelope of the buildings (walls, roof, windows), energy upgrade of HVAC systems and lighting equipment, replacement of equipment at schools with energy efficient ones, installation of solar PV on building rooftops - Public lighting: upgrade with LEDs and automations for controlling of its operation - Municipal fleet: electric vehicles and charging points The measures are expected to lead to energy savings of up to 55% in total without taking into account building-integrated renewables.
Hungary		
Budapest Főváros VIII. kerület Józsefváros	Residential buildings	Our investment concept focuses on three major areas in two districts: 1) energy efficiency of buildings 2) sustainable transport 3) renewable energy production. The largest energy savings are expected to come from energy efficiency renovation of municipality-owned institutions, apartment buildings, and selected multi-apartment buildings. The planned investments will include the replacement of windows, roof insulation and heating system upgrades, as well as facade insulation where possible. Measures will also include lighting upgrades in municipal buildings and a household appliance replacement program for citizens. In addition to municipal properties, we also want to involve condominiums and certain companies in renewable energy production by installing solar panels and setting up energy communities. In the field of transport, the main priority is to replace municipal vehicles with electric ones and to continue the traffic calming and cyclist-friendly improvements already underway.
Municipality of Debrecen	District heating	The expected total energy savings resulting from the energy efficient refurbishment (i.e. adding thermal insulation and modern control and measurement) of the 7 808 dwellings supplied by district heating (DH) is 29 GWh/yr. The replacement of undersized heat exchangers and thus reducing temperature level from 127/70 °C to 117/65 °C in the DH network will add 4 GWh/yr to the savings. For the extension of renewable energy utilisation, a new RDF fired hot water boiler is planned. This can feed 15 GWh/yr heat in the DH system using the fuel produced by the local waste sorting plant, resulting reduction in imported fossil fuel demand and GHG emission. It yields further saving of 0.2 GWh/yr by avoiding the road transport of the RDF. Using geothermal heat for heating the sewage sludge at the wastewater treatment plant will produce 12.7 GWh/yr green energy. This subproject allows the feeding in the heat currently used on site the DH network reducing the natural gas-based heat production.

Dunaújváros Megyei Jogú Város	Public Buildings	The city will analyse various investment possibilities to produce renewable energy, such as installing photovoltaic panels. The targeted buildings are mostly public buildings owned by the Municipality (city hall, schools, kindergartens, cultural centres, theatre, other institutions, sports facilities, etc.). However, some investments address prefabricated houses, the district heating of 5000 apartments, street lighting network. The primary investment option is improving some buildings' insulation and lighting systems and upgrading their heating (and cooling) systems, mainly using heat pumps. The replacement of outdated radiators and the renovation of heating pipes and heat exchangers are also planned. Solar panels are envisaged on the roofs of public buildings (flat roofs and pitched roofs facing SE-SW). In addition, expanding an existing biogas plant and using Danube's kinetic hydroelectricity through floating turbines would significantly contribute to producing renewable energy.
Local Government & Municipality of District 11 of Budapest, Újbuda	Public Buildings	The investment concept will foresee energy saving measures and RE generation measures with ambitious goals in CO2 reduction (3222 t CO2 eq / year) as follows: Insulating the exterior walls, ceilings and basements Replacing windows and doors Replacing gas convectors with gas boilers Installation of solar panels on roofs Replacing pipelines of the district heating system. In the implementation phase of the concept, a local energy community will be prepared supported by a SMART monitoring and management system. The energy community is to ensure that the surplus of the generated solar energy will be consumed locally. This way the concept aims to decrease the dependence on the network of the electricity supplier in longer term. The interventions worked out during development phase of the concept will be bundled to apply either for non-recoverable EU grants (especially for the public buildings) or alternative financing instruments such as ELENA facility, ESCO financing or green loans.
Budapest Főváros IX. Kerület Ferencváros Önkormányzata	Public Buildings	- Energy efficiency improvements to buildings: installation of thermal insulation, replacement of louvres, modernisation of building services equipment - Developing renewable energy sources: installing solar panels where possible - Creating an energy efficiency improvement document for residential buildings to facilitate the planning of energy improvements and the efficient use of resources.

Alsómocsolád	Public Buildings	There are 64 public buildinges owned by the 10 municipalities of the consortium which need window and door replacement as well as facade / ceiling / roof / attic / basement insulation. Solar cells are suggested to install on 58 municipal buildings of the 10 municipality. Energy renovation of residential buildings is necessary to reduce energy consumption by replacing boilers to more effective condensing boiler, even with smart meters and by insulation. The solution for local energy production can be the biomass with the energy use of local bio- and green wastes. The territory of fishponds of Alsómocsolád can be suitable for the installation of solar cells. The procurement of electric public buses and the replacement of micro area- and village caretaker services buses to electric ones to serve all 10 municipalities of the consortium are recommended. It must be examined how industrial residual heat can be reused - used for example domestic purposes.
Cegléd Város Önkormányzata	Public Buildings	General energy goals: 1. Support for the modernization of energy produced by private and public owners, economic actors through special programs technical and financial support by government programs. 2. Preparation of the procurement of low CO2 urban electric vehicle fleet. 3. Local regulation to support the proposed goals and develop new ones. 4. Local energy production from renewable energy sources. 5. Creating an effective system for observation and regular monitoring of results. 6. Realization of an investment concept for application for loans to specialized banks for instruments applicable to energy efficiency, government funds, structural funds.
Italy		

Bologna	Others - Energy efficiency measures to reduce fossil fuels consumption and allow a better integration of renewable sources	The technology measures to be financed include: - Substitution of natural gas boilers and burners with heat pumps: in most of applications related with SFs, the temperature of heat supplied to the end-users is relatively low (under 40°C). Their substitution with heat pumps can produce a reduction in energy consumption with a ratio 3.0 as a minimum. The efficiency can be further increased if the heat sink is a geothermal source, and if the heat pump is powered by renewable energy. - Substitution of existing lighting system with led and smart lighting system: the adoption of led lights and of smart sensors can reduce power consumption and optimize the use of lighting systems. - Installation of PV panels: SFs often offer free areas for installation of PV panels (large buildings' roof and parking area). Due to seasonal nature of some SFs, the realization of PV plants may be not profitable. Therefore, the integration inside renewable energy communities, should be evaluated.
Federazione dei Comuni del Camposampierese	Public Buildings	Targeted schools & annexed gyms, daily used by citizens, are uniform buildings highly representing the local governments role towards sustainability for the well-being of next generations. These buildings have poor energy efficiency classes, poor comfort and safety and negative economical impact in their management. Intended technology measures include energy efficiency retrofitting & safety measures to reduce energy consumption (& GHG emissions), improve comfort & safety deploying innovative technologies to aim at NZEB buildings going right in the direction of REPowerEU avoiding gas use and contributing to green transition. Technology measures include improved insulation of both walls and roofs, double glazing, thermal plants retrofitting, efficient lighting systems installation, heat pumps & PV plants installation to obtain gas free buildings used mainly while electricity from PV is produced. Innovative HVAC systems will contribute to energy efficiency and infections prevention.

Union of Bassa Romagna Municipalities	Public Buildings	PV systems will be installed and integrated in public buildings with related storage and smart devices participating in RECs entities to share the electricity produced. In each municipality 2 public buildings will be grouped to perform deep retrofit interventions and PV installation, for a total of 16 public buildings in the UBR. The energy efficiency measures in public buildings: retrofitting interventions such as thermal insulation, windows replacement, heating system/HVAC revamping and internal lighting substitution are also foreseen in the same 16 public buildings. Sustainable urban mobility: 2 e-shelters charging stations for EVs will be installed in each public building, 32 overall, fed in by the PV plants + storage installed. Innovative energy infrastructure: 1 PV Energy Park with 1MWp installed in the UBR area. The technology measures adopted within the technical assistance are aligned with the new European Investment Bank energy lending policy, adopted on Nov. 2019.
Comune di Capannoli	Smart Grids	The investment plan (IP) includes the following technological measures: - photovoltaic systems to be placed on land and public buildings - energy storage - columns for charging electric vehicles (cars, bikes, scooters), to be placed on the bike paths and/or car parks) - monitoring and data collection systems (IoT), software platforms for the control and management of energy exchanges necessary for the creation of a Smart Grid within the Renewable Energy Community, AI algorithms, blockchain platform - electric vehicles for the renewal of the municipal car fleet - efficient lighting systems (for houses, public buildings, tertiary and productive sectors buildings) - efficient heating and cooling systems (for houses, public buildings, tertiary and productive sectors buildings)

Unione Terre Di Castelli	Public Buildings	PV systems will be installed and integrated in public buildings with related storage and smart devices participating in RECs entities to share the electricity produced. In each municipality 5 public buildings will be grouped to perform deep retrofit interventions and PV installation, for a total of 40 public buildings in the ULC. The energy efficiency measures in public buildings: retrofitting interventions such as thermal insulation, windows replacement, heating system/HVAC revamping and internal lighting substitution are also foreseen in the same 40 public buildings. Sustainable urban mobility: 2 e-shelters charging stations for EVs will be installed in each building, 80 overall, fed in by the PV plants plus storage installed in the public buildings. The technology measures adopted within the technical assistance are aligned with the new European Investment Bank energy lending policy, adopted on Nov. 2019.
Valle del Chiampo	Sustainable urban mobility	- Movement matrix: analysis of commuting movements. The source / destination matrix will be used to develop an algorithm for the digital service - Urban analysis: identification of the main destinations - Architectural and engineering analysis of the existing network: improvement of the existing network, to increase the number of users - Improvement of the existing cycle-pedestrian infrastructure: integration, expansion and interconnection of the existing cycle-pedestrian network - Prototype of the sharing module: easy assembly / disassembly, with technologies for the production of sustainable energy and with access via digital codes. - Online service: IT support optimized based on the characteristics of the movement matrix and urban analysis - Business model, legal, administrative and insurance analysis: the business model is fundamental for developing a sustainable sharing model in low-density areas. The analysis will remove legal, administrative and insurance bottlenecks.

Comune Di Castellammare Di Stabia	Others - Smart Cities: digital platform for multimodal integration	The measures involved in the investment concept are the following: - Set up of the Open Data platform: development of interface (website and/or app) designed to make the most of public transport services (electric small buses, public transport services, car and bike sharing services) - Planning booking and paying for demand responsive services within the platform. - Integration of the designed platform in the portal managed by the Ministry of Cultural Heritage https://grandepompei.beniculturali.it. Currently, the portal hosts information on local touristic destinations, but, as such, it does not allow to share information on sustainable mobility, transport services and timetables. - Installation of 17 solar recharging points for shared vehicles. This concept supports the management of the itineraries, inspired by a concept of flexibility, allowing the modification and implementation of the routes over time, considering current and future interventions planned by the Strategic Plan.
Netherlands		
Breda	District heating	Intended measures comprise the establishment of the EHB to provide heat to one part of the city Breda. The technical scope includes: - Heat source extraction WWTP - Central system, large scale, high temperature heat pump - Tracker based solar-PV to increase sustainability of project (electricity supply) - Internal heat network system to connect several systems - External heat network system to connect with main heat network Breda - High temperature, seasonal, underground storage and daily storage/buffer - E-boiler with smart interaction electricity grid - Smart digital controls irt WWTP - Electricity connection - Pumps, filters, civil works - Monitoring and control systems
Poland		

The City of Warsaw	Public Buildings	The planned investment will cover: monitoring the environment outside the building and indoor (temperature, pressure, humidity, air quality, sunlight, sound pressure); measurement of the consumption of electricity, water, thermal energy, RES production; control of the heating and electricity consumption, air quality, ventilation; protection against flooding and fire; provision of indoor communication; display and store of the data; registration of cameras and intercoms. The system will take care of appropriate conditions in individual rooms, taking into account both internal / external conditions. It is planned to prepare mechanisms for monitoring energy measurements, search and automatic monitoring of exceedances or deviations from the norm, which will allow to obtain an image of how energy is used, where savings can be found and it will be possible to monitor the condition of the rooms that affects the efficiency of users, as well as their health in the longer term.
City of Inowrocław	Public Buildings	- Thermal modernization of buildings: public ones in the resources of town and county, multi-family residential ones in the resources of town, multi-family residential ones in the resources of housing associations and communities, health service and health resort ones, - Integration of photovoltaic installations with public buildings, - Introduction of intelligent measuring system, monitoring and energy management, - Development of energy community associating municipal companies (energy cluster), - Construction of installation for heat recovery from treated sewage at the area of municipal sewage treatment plant in order to produce heat for the needs of heating system, - Construction of large-scale photovoltaic installation to satisfy the needs of planned heat pumps, and in case of temporary surplus in production cooperation with planned electro-energetic network for the sake of energy community.
Dzierzgoń Municipality	Public Buildings	The investment project plans to use these technologies: - agrovoltaic installations - energy storage system - efficient smart lighting system based on LED lamps - smart energy metering - efficient power grids - energy consumption optimalization system for public entities

Gmina Wałbrzych	Residential buildings	1) Path 1 – 95 Communal Multifamily and Public Utility Buildings (MFB + PUB): Deep modernization (50% reduction Efin thorough sealing improvement & building envelope insulation, new HVAC systems, coal source replacement, shift to RES power (electrical heating systems, incl heat pumps) supported by energy storage systems. 2) Path 2 – 13 PUBs Deep renovation without heating source replacement - action aimed at low energy performance buildings heated by gas fuel systems 3) Path 3 – 3 PUBs Heating source replacement with limited thermo-renovation 4) Virtual Power Plant (VPP) - 20 solar community PV systems of total 1,58 MW power; 20 energy storage systems of total 1 MWh capacity 5) Energy efficient communal lighting - replacement of existing 2 807 sodium lamps for LED lights with an estimated 30% reduction in energy consumption and powered from VPP 6) Decarbonised power supply to 7 leisure, sports and recreation municipal facilities by energy generated through VPP
Gmina Wołomin	Public Buildings	The concept of energy security in Wołomin was based on a number of activities carried out by the city hall and municipal companies (ZEC and PWiK). The area related to the optimization of heat energy distribution and production through the modernization of the heating network, the introduction of biomass co-firing and the modernization of coal-fired CHP boilers will be carried out by the municipal heating company. At the same time, the company, together with the municipal authorities, will be responsible for the use of geothermal water by means of heat pumps. Miejskie Przedsiębiorstwo Wodociągów i Kanalizacji will build a part with a photovoltaic farm. The companies will also provide their own financial contribution at the project implementation stage. The component related to optimization in public utility buildings and residents' homes will be implemented by the Wołomin City Hall, and the financial contribution will come from the city budget and the participants of the task.

Leśnicko-Ujazdowski Energy Cluster	District heating	The intended technology measures to be financed are as follows: - photovoltaic installations on municipal buildings and ground-based photovoltaic power plants, - energy storage system, - smart grids connections between stakeholders and energy storage connected to energy, - energy consumption optimalization system for public entities and entrepreneurs, - a system of cascaded heat pumps connected to energy storage powered by photovoltaic installations - measurement of public buildings and local entrepreneurs with two-way meters for remote reading of electricity and heat production and consumption.
Miasto Racibórz	Public Buildings	The investment project plans to use these technologies: -gas cogeneration -energy storage system - efficient smart lighting system based on LED lamps - smart energy metering - efficient power grids - energy consumption optimalization system for public entities - building thermomodernization
Rejowiec Fabryczny	Public Buildings	"Revitalization of the post-industrial area will result in preparing a recreation center for local residents and tourists, including filling-in of the excavation site with gangue. This will also include the possibility of additional quality of life investments (e.g., charging stations). New energy sources will supply it with clean energy both during investment and running. Project will cover: - Power generation - adaptation of part of the newly freed post-industrial areas into PV farms(cca 1GWh of energy per year) - Public lighting - illuminating roads and paths with LED lamps - Geothermal heat pumps - for public buildings and residential areas - New types of energy infrastructure/demand response - deriving a part of the energy to the local energy grid for local communities."

Portugal		
Municipality of Almada	Residential buildings	The investment concept will study the implementation of energy efficiency and renewable energy production measures. The measures include: A. Energy Efficiency - Insulation (external walls, roofs and windows refurbishment), which can reduce the heat loss in buildings in cold weather, and reduce a heat surplus in warmer weather, through the implementation of several layers of materials with high thermal resistance. - Optimization of Climatization and Sanitary Hot Water (replacement of less efficient equipment with heat pumps for hot water and space heating and cooling. Heat pumps are the most efficient alternative to fuel, oil and electrical systems, and the efficiency rate is able to go up as high as 300%. - Lighting (Replacement of LED lighting and implementation of automatic lighting control systems). - Passive measures shall be implemented whenever is possible B. Renewable energy production - PV panels installation framed on the creation of a Renewable Energy Community

Município de Valongo	Public Buildings	The measures will: • Boost buildings energy efficiency and its financing: o Renovation of 82 public buildings/facilities - replacing HVAC systems, installing solar thermal and heat pumps, etc. o Renovation of 905 dwellings in social housing – thermal insulation, efficient windows, and installation of solar panels. • Boost decentralised renewable energy production: o Implementation of 215 kWp (PV) for self-consumption in high consumption municipal buildings; o Creation of renewable energy communities in 18 social housing districts (1,1 MWp PV); o Creation of a Municipal Energy Community including 14 municipal buildings (85 kWp of PV); • Boost EE through smart grids: o Remote management system in the city SL (15211 LED) by a transformation station. • Boost sustainable urban mobility: o Improve the cities cycling paths (transfer 5% pkm). o Installation of 43 EV chargers. • Promote innovative energy inf.: o Green H2 production of 1MW with storage (3MWh) and 2.1 MW wind energy and 2MWp PV.

Municipality of Matosihos	Public Buildings	The measures consist of: • Widespread buildings energy efficiency and its financing: o Renovation of 89 public buildings - envelope insulation, efficient lighting systems, HVAC replacement, BMS and solar thermal; o Street lighting: installation of remote-control system (19 983 LED) o Renovation of 53 social housing complexes - envelope insulation, solar thermal to support DHW; • Increase decentralised renewable energy production: o Installation of 296 kWp of photovoltaic solar energy in high consumption buildings; o Creation of energy communities in social housing - 4,9 MW of PV; o Installation of 400 kWp of PV in 8 sport municipal facilities; • Promote sustainable urban mobility: o Replacement of municipal fleet with electrical vehicles; o Installation of 100 EV chargers across the municipality territory. • Encourage up-take of innovative technology: o Feasibility study of the restoration of 8 water mills in Leça River, representing 80 MW to be used in EV chargers and street lighting.
Câmara Municipal de Azambuja	Residential buildings	A. Renewable energy production measures Renewable Energy Community (REC) development, through the installation of PV panels. Accordingly with the Portuguese applicable law, REC can rely on the DNO and energy suppliers for energy sharing and billing, therefore those technologies are not comprised in the initial project. B. Energy Efficiency Measures - Illumination (substitution of current lights for LED and implementation of automatic lighting control systems) - Climatization and Sanitary Hot Water systems optimization (less efficient equipment replacement for heat pumps, both for hot water and space heating/cooling) - Insulation (roofs, external walls and windows renewal), which leads to a decrease of heat excess in high temperatures weather and reduces the heat loss in buildings in lower temp. - The measures will be implemented in 2 schools, a cultural and an admin. equipment and in 2 householders (pilot). Subsequent expansion to 52 buildings is also included in the project

Alto Alentejo	Public Buildings	In this IC, the 15 Municipalities intend to develop RCN with: study for the implementation of EE measures: improvement of lighting systems and air conditioning, replacement of glazing/coverings, among others - reduction of 60% of total energy consumption in Municipalities (corresponding to 30,4 GWh); study for the implementation of RECs (9.532 PV systems–5,15 MW of installed power with production of 8,1 GWh). Meeting the objective of decarbonizing public buildings and contributing to the reduction of 9.636 Ton of CO2. A reduction of 76% of the electricity consumption of the 15 Municipalities, an ambitious figure to the region. The production surplus will be used to social housing, business incubators, bringing services closer to citizens, promoting efficiency in the allocation of public resources, improvement of services and guarantee citizen participation. Planned implementations are in line with Ordinance n. 671/2022 9th September 2022, which regulates the procedures for EE contracts
Municipalities of Terra Quente Transmontana	Residential buildings	The intended measures to be financed are the deployment of local solar power photovoltaic installations, electric vehicles (EVs, as storage and sustainable mobility) in combination with an energy community for its management and heat pump installation for heating and cooling. These measures shall be applied to the 5 municipalities of Terra Quente. The decentralized solar power photovoltaic installations will be used: (1) for powering with the heating pumps and generating heat and cooling for buildings with an approximate COP of 3; (2) for powering the municipalities and EVs with local green energy; (3) as a local source for the energy community. The heat pumps allow not only to increase efficiency in the heating and cooling systems but also to replace old wood, heating oil & gas combustion and plug in electric heaters in buildings that have a very low efficiency. In addition, the heat pumps have the capacity to replace fans and other non-efficient cooling methods during warmer seas.
Slovenia		

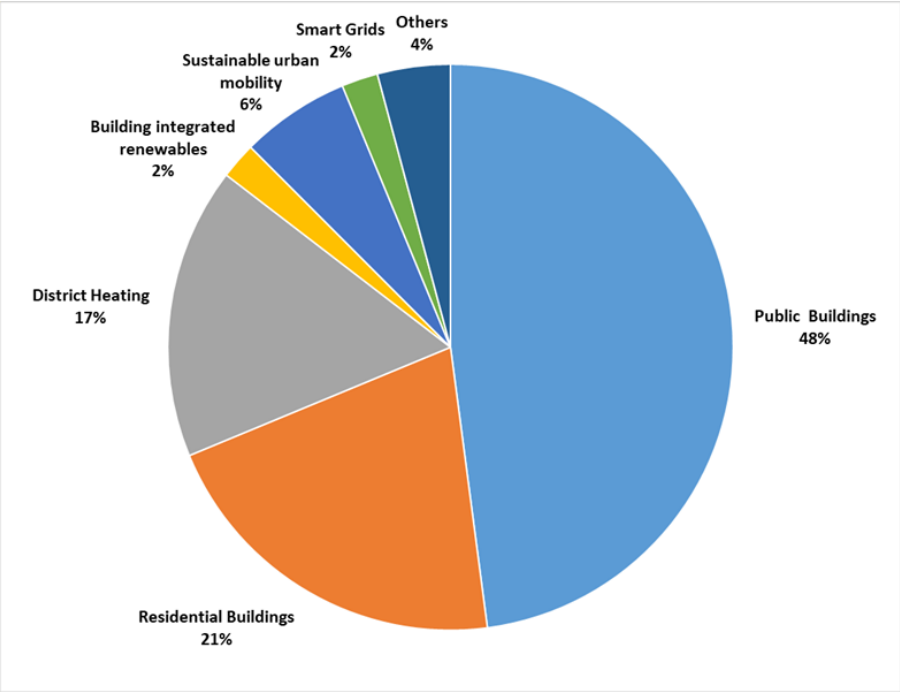
Municipality of Kranj	Public Buildings	1. PUBLIC BUILDINGS The following measures are envisaged to increase energy efficiency in 9 public buildings: Users' awareness raising of energy efficiency, thermal insulation of the building envelope (12,545 m2; 150 mm insulation thickness) and replacement of 10,188 m2 windows and doors (U-value 1,1). 2. BUILDING INTEGRATED RENEWABLES Solar PV installation on 15 public buildings: New solar roof-top PV installation 3,150 kWp. 3. REPLACEMENT OF OLD HEATING BOILERS WITH RES IN 8 PUBLIC BUILDINGS With replacement of old heating oil and natural gas boilers, we want to switch from fossil fuel generated heat to more energy efficient renewable systems in the form of heat pumps (water-source or geothermal) technology, with total capacity 1,939 kW. 4. DISTRICT HEATING SYSTEM Construction of a new wood biomass DHS system "Zlato Polje", with 4MW capacity, that will replace old natural gas boilers and Renovation of the existing DHS system "Planina", to reduce heat pipeline losses (3,7km long).
Sweden		

Västervik Municipality	Public Buildings	Energy savings in existing public and residential buildings such as recycling of ventilation air, additional insulation of attics and facades, replacement of windows, replacement of older light sources with LEDs. Exclusively renewable electricity is purchased. Most of the properties are heated with fossil free district heating, heat pumps and bio pellets, some of the properties have fossil oil boilers to phase out. Other planned investments: Carbon dioxide storage - wooden constructions in new public and residential buildings - See document below. Biochar as a carbon sink in rural and urban cultivation Replacement of fossil to electricity operation of municipality owned maritime traffic Expansion of charging infrastructure for electric cars Converting streetlights from high pressure sodium to LED Energy efficiency and phased out fossil oil boilers in NGO buildings Solar cell parks Solar cell on roofs Climate optimization of sports facilities/halls (solar, heat recovery)
United Kingdom		
London Borough of Hackney	Residential buildings	Technology measures proposed for the retrofit include: 1)Improvement of the current thermal efficiency through the insulation of external walls and roofs and glazing/replacement of windows and doors to the meet the London Energy Transformation Initiative (LETI) best practice retrofit standards (Walls – 0.18, Windows – 1.2(min), Roof – 0.12 W/m2K). 2)Installation of 'fossil fuel' free heat source such as air and ground source heat pumps, photovoltaic panels, and solar thermal hot water for all residents, targeting an energy use intensity of 50 kWh/m2/year, as compared to the current average energy use intensity of 71.2 kWh/m2/year seen in the buildings. 3)Possible installation of mechanical ventilation with heat recovery (MVHR) On completion, all dwellings will be at least EPC B (the London Councils standards) and ideally A (+) rated.

7.3 Main sectors targeted by successful applicants

Amongst the main sectors in which the successful applicants will develop their investment concept, “public buildings” is targeted most, followed by “residential buildings” and “district heating”. Figure 18 presents the main sectors targeted by successful applicants.

Figure 18. Main sectors targeted by successful applicants



*Others refer to innovative micro-scale liquefaction systems, e-mobility and charging facilities, waste management, public lighting, solar thermal plants etc.