Roll-out of 50/50 initiative to unlock energy saving in schools and other public buildings (EURONET 50/50 MAX)

Intelligent Energy Europe (IEE)
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Technical Report on the 50/50 Implementation in Non-school Buildings

Deliverable nº D4.1

[April 2016]

EURONET 50/50 max

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1 INTRODUCTION

Further to the schools the EURONET 50/50 max is implementing the 50/50 methodology to non-school public buildings. The educational buildings tend to have a very similar character with each other, which is not the case for public buildings. The project is currently implemented by 16 partners from 14 different countries in 48 non-school public buildings that include a wide range of differently used facilities like sport facilities, administration and office buildings, museums, libraries, educational buildings socio-cultural and civic centres as well as other type of buildings.

The users of the buildings have formed an energy team consisting of staff, caretakers and representatives from the local authorities. The energy teams were provided with guiding material for the successful implementation of the 50/50 methodology, from the partners, including the e-pack and brochures that have been prepared by the partners and have been adjusted to the specifics of each country. Furthermore the buildings have been provided with luxmeters, thermometers and energy meters as well as energy monitoring equipment (smart meters).

This report deals with the implementation into the non-school public buildings and their specific characteristics with regards to their area, their occupants and visitors, the different working hours as well as the expected savings that may result from the implementation of the project. The results and the experiences of this project will be transferred into a guide for the local authorities across Europe on how the 50/50 methodology should be implemented in non-school public buildings.

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List of Partners and Number of Non-school Buildings involved in the EURONET 50/50 max

TABLE 1 - LIST OF PARTNERS AND NUMBER OF NON-SCHOOL BUILDINGS

	PARTNER	Acronym	Country	No. of Non-school Buildings
1	Barcelona Provincial Council	DIBA	Spain (Catalonia)	11
2	Association of Municipalities Polish Network "Energy Cities"	PNEC	Poland	9
3	University of Vaasa	UVA	Finland	1
4	Region of Crete	CRETE	Greece	5
5	Energy Agency of Savinjska, Šaleška and Koroška Region	KSSENA	Slovenia	3
6	Kaunas Regional Energy Agency	KREA	Lithuania	1
7	City of Zagreb	ZAGREB	Croatia	2
8	Riga Managers School	RMS	Latvia	3
9	TOP-ENVI Tech Brno	TOP-ENVI Tech	Czech Republic	1
10	Agenzia Fiorentina per l'Energia	AFE	Italy	2
11	Climate Alliance Austria	CAA	Austria	1
12	Cyprus Energy Agency	CEA	Cyprus	3
13	Energy Agency of Vysocina	EAV	Czech Republic	1
			Total	**43**

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2 TYPES OF BUILDINGS

Differentiating between the types of buidlings, their use, their area, the number of occupants and visitors and the level of commitment in the implementation of the project helps identify the reasons for achieving savings results.

The pie-chart below shows what type of buildings are implementing the 50/50 methodology. It is important to identify the different type of public buildings that are able to implement the 50/50 methodology in their premises. The results of this report will identify the possibility of savings in all the type of public buildings that have been identifyed in the project.

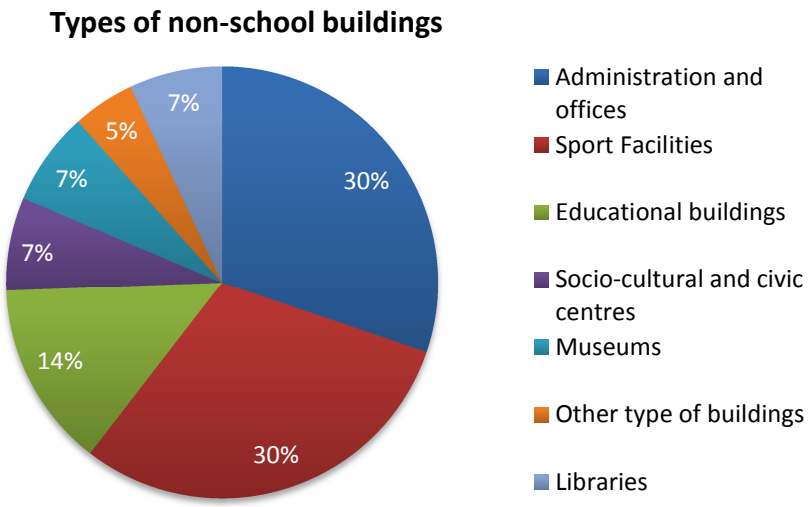

FIGURE 1 - PERCENTAGE SHARE OF THE TYPES OF PUBLIC NON-SCHOOL BUILDINGS

From the above pie-chart (Figure 1) we can deduce that the buildings that have been included in the EURONET 50/50 max are sport facilities, administration and office buildings, museums, libraries, educational buildings socio-cultural and civic centers as well as other type of buildings like multipurpose buildings.

The sport facilities and the administration and office buildings are the ones that have been widely used by the partners of the project, accounting for 30% each, summing up to 60% of the overall buildings used for the implementation of the project. The rest of the buildings share a much smaller percentage close to 7% with only the Educational buildings standing out at 14%.

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The Table 2 below shows the number of each type of facilities that have been implementing the 50/50 methodology.

TABLE 2- NUMBER OF EACH TYPE OF FACILITIES IMPLEMENTING THE 50/50 METHODOLOGY

Type of facility	Number of facilities
Administration and offices	13
Sport facilities	13
Socio-cultural and civic centres	3
Museums	3
Libraries	3
Educational	6
Other type of buildings	2

The local authorities spend a large portion of their budget on energy use of their buildings and the schools, the administration and offices and the sports facilities are the ones that take the biggest share of this energy usage. They also have the biggest number of users. The Figure 1**Error! No s'ha trobat l'origen de la referència.** below gives an indication on the average number of users per day for each type of building, both staff and visitors.

The sport facilities have the biggest number of users (38%) with the libraries coming next (21%) and the educational buildings in third place (17%). Since this project deals with user behavioural changes, buildings with a large number of users are likely to benefit with bigger energy savings. The sample for the libraries cannot be taken for a fact since it only represents the users of one library and therefore could be neglected from the observations on the number of users. **Error! No s'ha trobat l'origen de la referència.** provides the average number of users as a percentage.

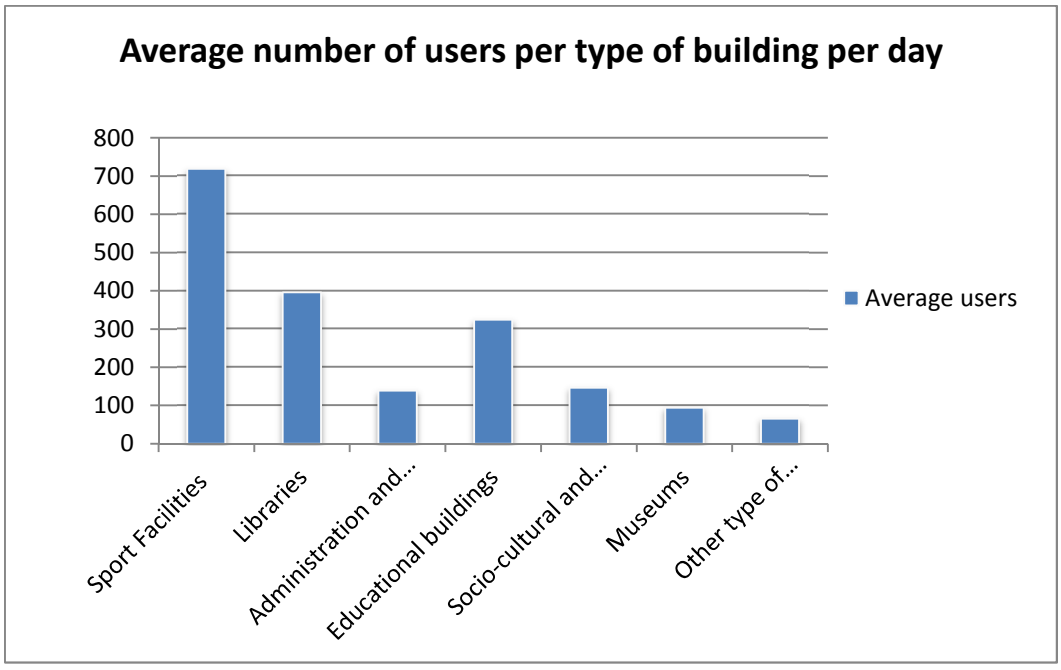

FIGURE 2 - AVERAGE NUMBER OF USERS PER DAY FOR EACH TYPE OF PUBLIC BUILDING

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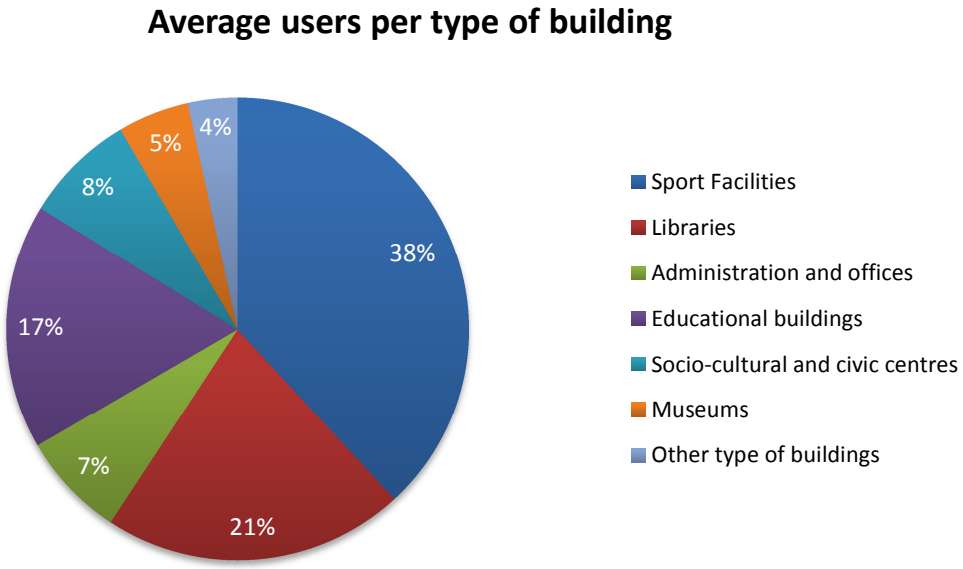

FIGURE 3 – PERCENTAGE SHARE OF AVERAGE USERS PER DAY PER TYPE OF BUILDING

Further to the users of the buildings it is important to distinguish between the occupants of the building and the visitors. Some types of buildings tend to have a larger amount of visitors, while other might only have their staff and a negligible amount of visitors. It is important when targeting behavioral changes to know if a building fits one of the two descriptions or if it sits somewhere in the middle in order for the implementation to be as successful as possible.

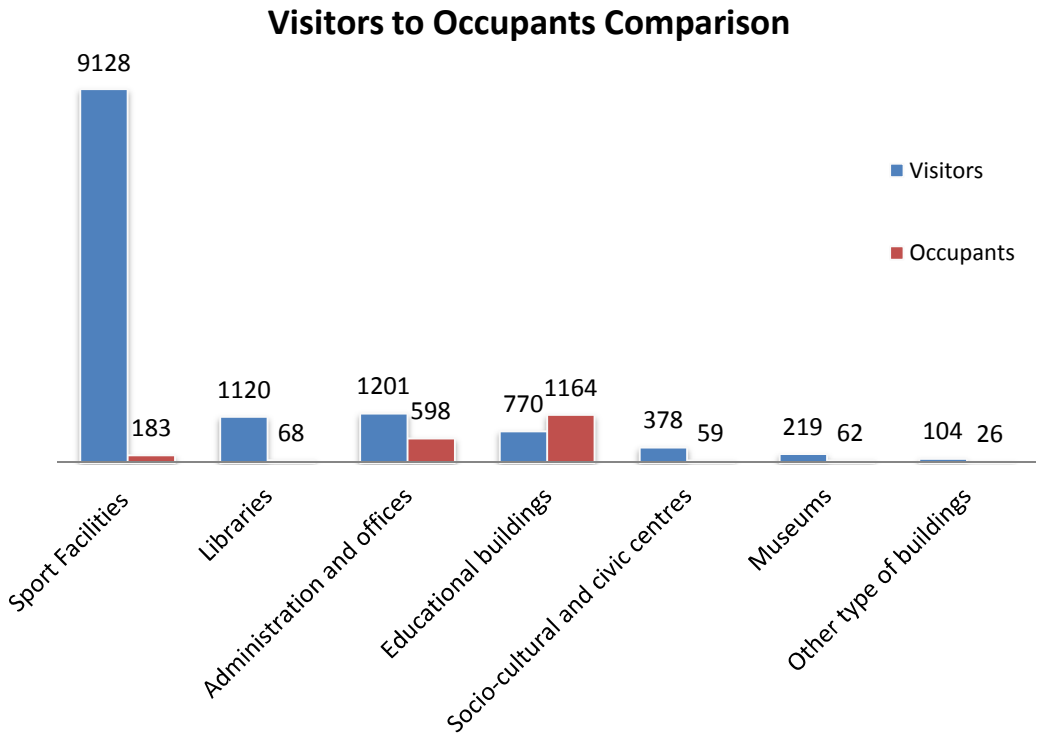

FIGURE 4 - VISITORS TO OCCUPANTS COMPARISON FOR THE VARIOUS BUILDING TYPES

The overall number of visitors compared to the occupants on each type of building is demonstrated at Figure 4. The

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sport facilities top the list with the most visitors and number of users in general. Administration offices and educational buildings come behind. It is notable that only the educational buildings appear to have more permanent occupants than visitors. The Figures 5-11 below demonstrate the relationship in percentages of the visitors to occupants' ratio.

FIGURE 5 - SPORT FACILITIES VISITORS TO OCCUPANTS PERCENTAGE SHARE

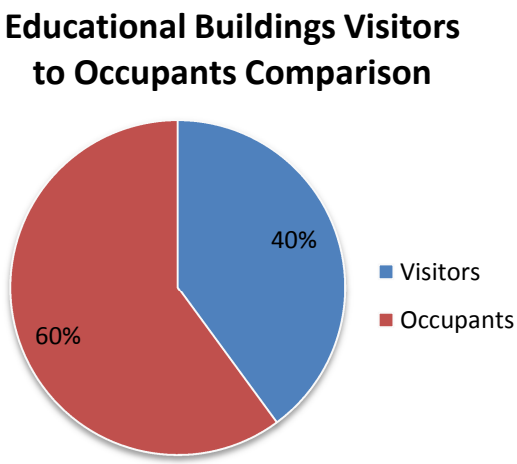

FIGURE 6 - EDUCATIONAL BUILDINGS VISITORS TO OCCUPANTS PERCENTAGE SHARE

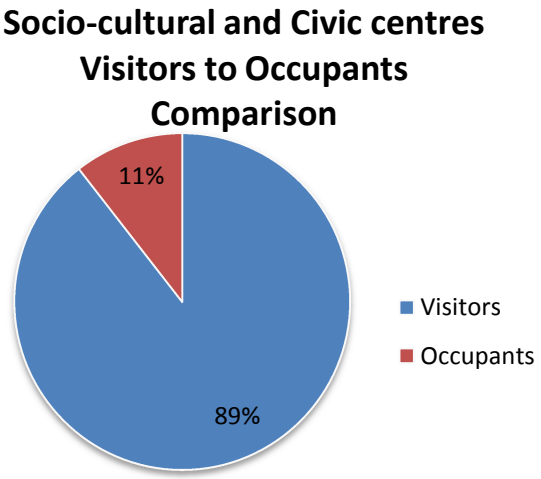

FIGURE 7 - SOCIO-CULTURAL AND CIVIC CENTERS VISITORS TO OCCUPANTS PERCENTAGE SHARE

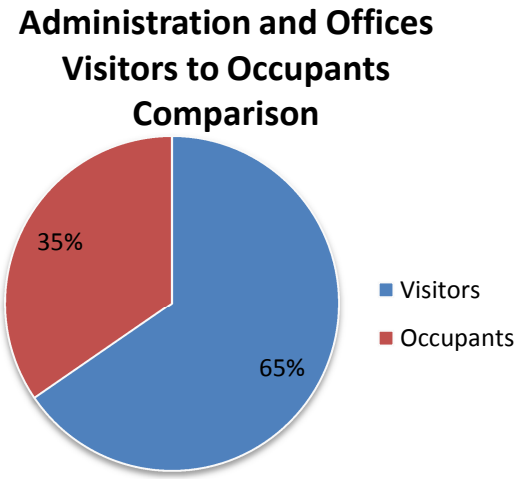

FIGURE 8 – ADMINISTRATION AND OFFICES VISITORS TO OCCUPANTS PERCENTAGE SHARE

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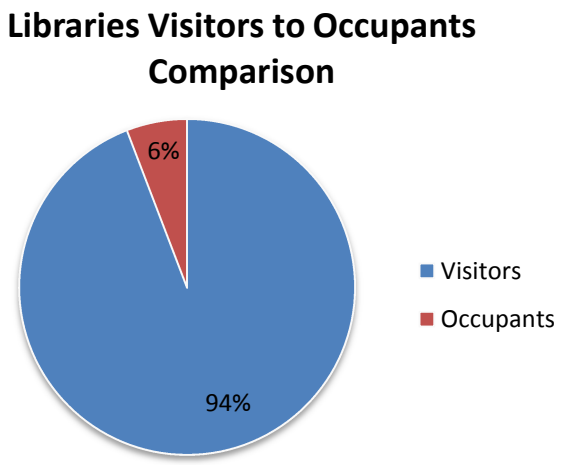

FIGURE 9 – LIBRARIES VISITORS TO OCCUPANTS PERCENTAGE SHARE

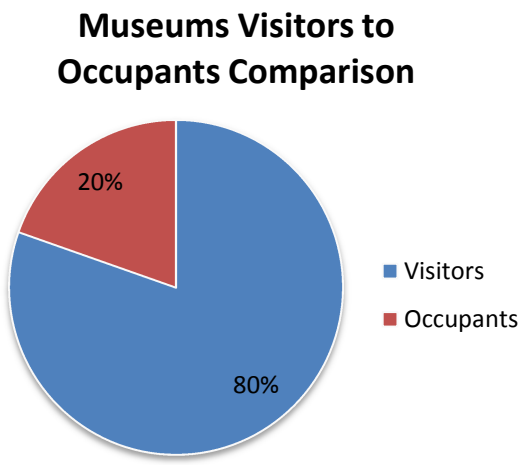

FIGURE 10 - MUSEUMS VISITORS TO OCCUPANTS PERCENTAGE SHARE

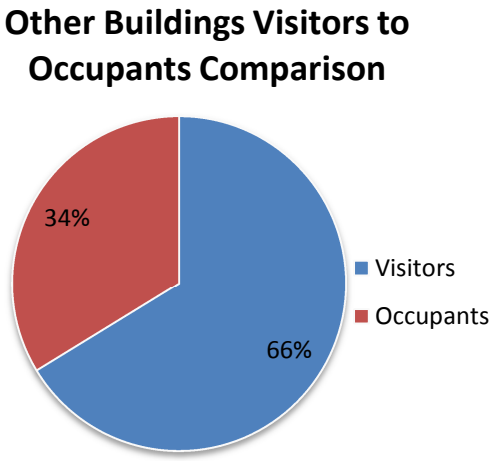

FIGURE 11 – OTHER BUILDINGS VISITORS TO OCCUPANTS PERCENTAGE SHARE

From the above figures 5-11 we can identify the three types of buildings and therefore three kinds of strategies to follow in implementing the 50/50 methodology. The buildings with the least permanent users and more visitors are the sport facilities, the socio-cultural and civic centers, the libraries and the museums. The buildings with mostly permanent users are the educational buildings and the buildings with a shared amount of permanent users and visitors are the other types of buildings along with the administrations and offices.

Whilst the buildings with the largest amount of permanent users and the ones that have a balance between the two can take more hands on actions in implementing the EURONET 50/50 max project methodology, the buildings with more visitors will need to find different ways to integrate the 50/50 methodology and tend to find it harder to educate their users on the projects objectives, especially the ones dealing with unique visitors everyday like museums.

Another important factor that needs to be taken into consideration when implementing the 50/50 methodology, is the time the users spend in the buildings. Some of the visitors may spend less time in the buildings to have an effect on the energy profile than others. The permanent users can therefore have a much bigger effect even though they might have a small percentage of the total users of the building, as in the case of the administration buildings, where the visitors are double the permanent occupants and are expected to spend little time in the building and have no activities that will consume energy, although frequent visitors will more likely increase the heating demands of the

building.

In contrary the sport facilities visitors have a direct effect on the energy use of the facilities since therefore with 98% of the people using the facility being visitors, the project should focus on communicating the 50/50 methodology to those users.

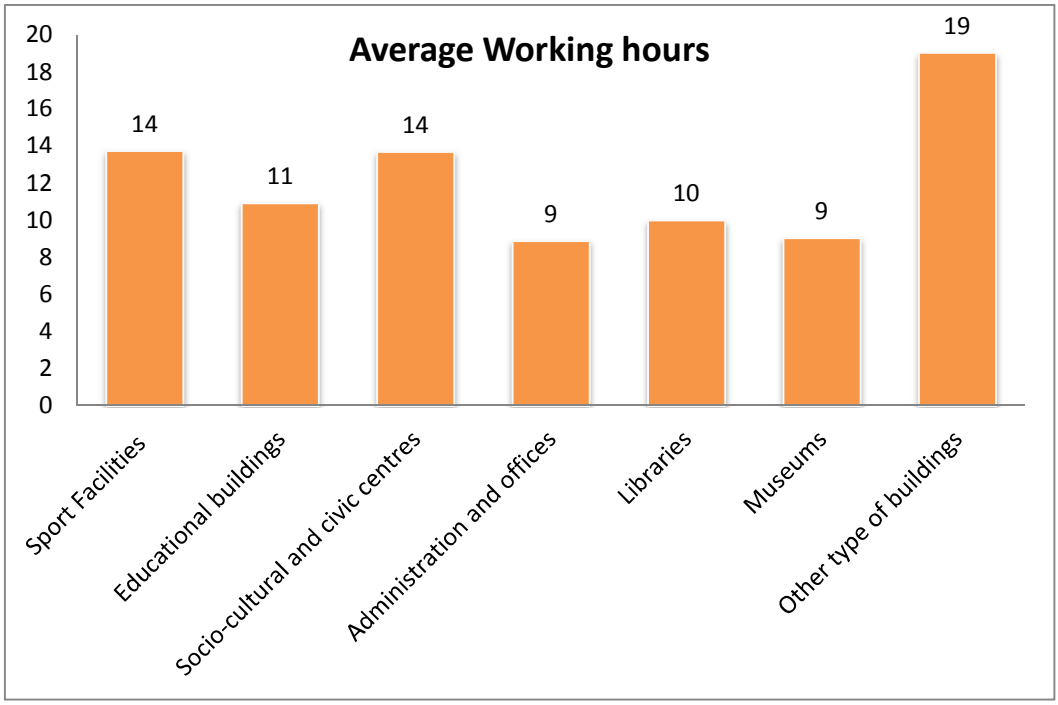

FIGURE 12 - AVERAGE WORKING HOURS PER DAY PER TYPE OF BUILDING

From Figure 12 we can deduce that not all the buildings are working the same hours. The other types of buildings had some buildings working 24 hours and average 19 hours per day. We therefore don't expect those buildings to have a constant amount of visitors through the whole day and therefore the permanent users are the ones that we would expect to target for changing their energy behavior. Some other facilities like the sport facilities that have 14 working hours are expected to have various groups of visitors that use the facilities for a given amount of time and are renewed every 2hours. In the implementation it is important to approach all those groups that could be of any age and the methodology may need to be adjusted specifically or generally to appeal to all of them.

The area of the buildings also gives an indication on how manageable is for the energy team to implement the 50/50 methodology. Large areas may also mean that the energy team does not have access in all the areas of the premises as well as that the information to the users done with printed material (stickers, notes etc) has some extra cost.

The sport facilities as seen in Figure 13 cover the largest average area of the buildings (39%) that are implementing the 50/50 methodology and therefore it is expected that they will find some difficulties in implementing the 50/50 methodology. Museums come second but with their use being totally different, they will not need much information to be displayed to the visitors therefore the size of that kind of facility shouldn't make a great difference on the results.

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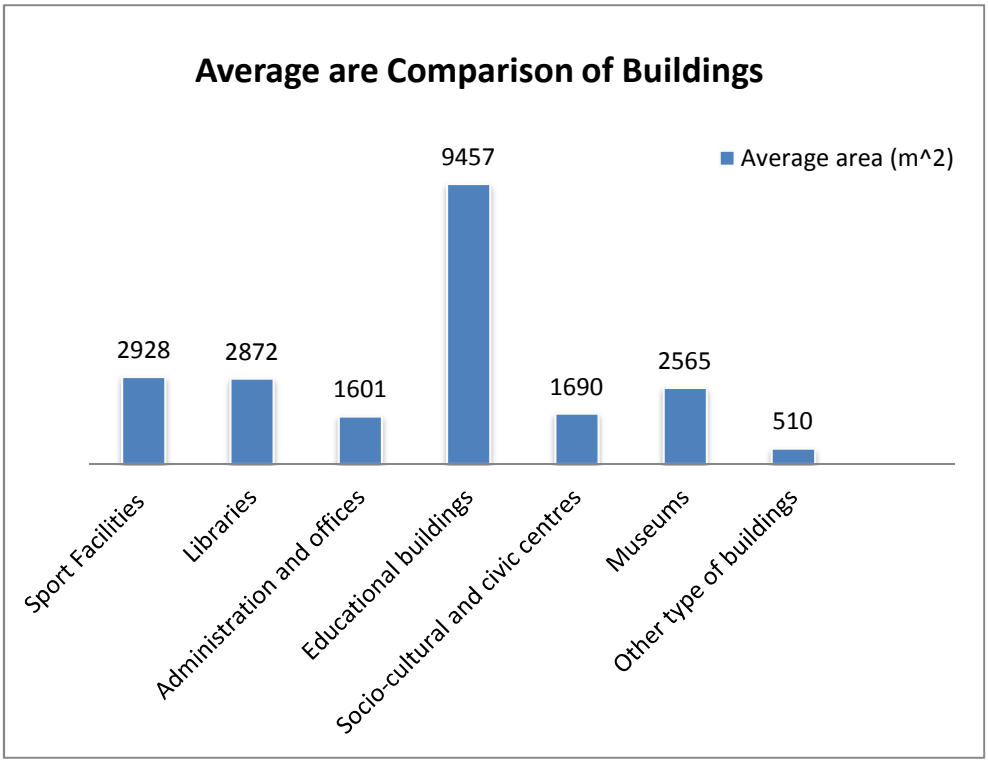

FIGURE 13 - AVERAGE AREA PER TYPE OF BUILDING

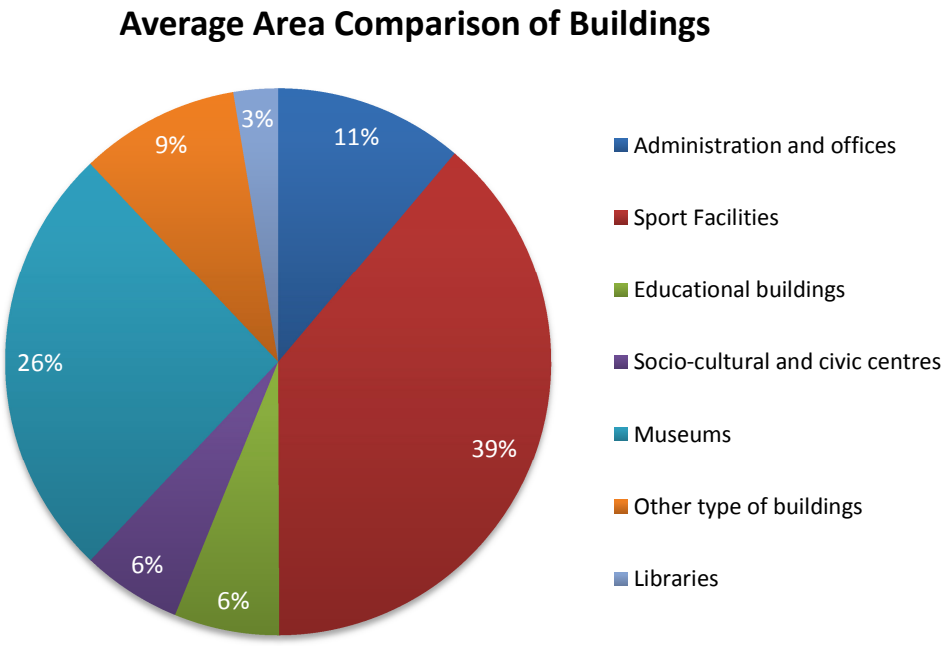

FIGURE 14 - AVERAGE AREA PERCENTAGE COMPARISON PER TYPE OF BUILDING

The public authorities have a very important role to play in the smooth implementation of the 50/50 methodology. They are the ones that manage the energy bills of the buildings and are more interested in the results of the 50/50 methodology. Also they are the ones to invest in more energy efficient equipment and overall their opinion is the one that matters the most. Their involvement also matters as the users tend to look up to them and follow their lead.

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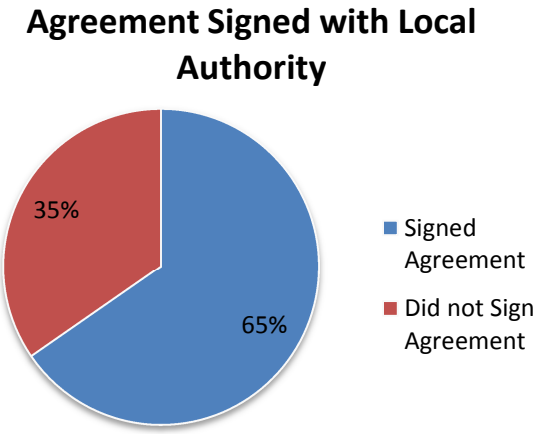

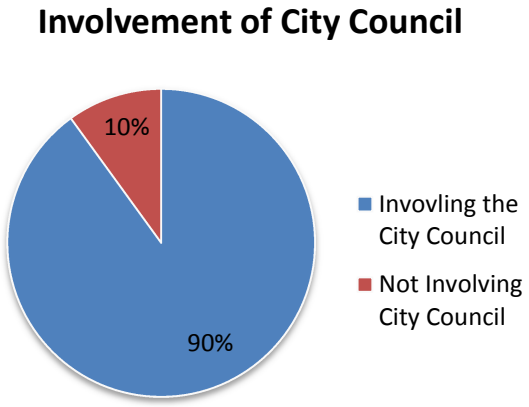

FIGURE 15 - SIGNED AN AGREEMENT WITH THE LOCAL AUTHORITY

FIGURE 16 – THE LOCAL AUTHORITY IS INVOLVED IN THE ENERGY TEAM

65% of the Energy Teams of the EURONET 50/50 max project as indicated by Figure 15 have found it useful to sign an agreement between the local authorities, the users of the building and the partner of the EURONET 50/50 max project. This was done to make sure that the local authority is aware of the project and is involved, but also to make sure that the building will get the 50% of the money savings from the local authority.

Having a good working relationship with the local authority, as well as getting them as much involved as possible benefits both and this is strongly implied by Figure 16 since 90% of the buildings involve in their Energy Team a member of their City council. They can be of great help when pushing things to happen and they can easily disseminate the results to the decision makers so that the implementation is better and is adopted to other facilities as well. Some of the buildings that did not involve the City council are themselves the city council and therefore are already part of the Energy Team.

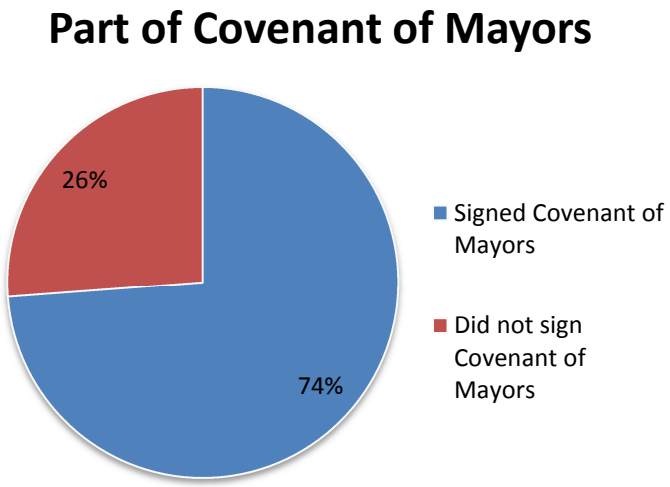

FIGURE 17 – PERCENTAGE OF BUILDINGS THAT ARE ALSO PART OF THE COVENANT OF MAYORS

The implementation of the 50/50 methodology becomes a lot easier and faster when the local authorities are part of the Covenant of Mayors and a SEAP is already in action. A number of the steps can be avoided by buildings since they would have an already good working relationship with the local authorities with regards to energy efficiency and

will also have the Energy Team ready with a lot of background knowledge on the buildings energy systems. The 74% of the buildings are from local authorities that have already signed the Covenant of Mayors and the buildings are way ahead in the implementation compared to the ones that have not.

Moreover, the involvement of the city council in the energy team can have very positive effects in the motivation of the building users, since they can be pretty occupied with their day to day tasks and not give enough time to the implementation of the 50/50 methodology. Figure 18 summarizes the involvement levels of the city council and the building users and the amount of information provided to the visitors of the facilities. From the figure we can deduce that most of the city councils had a high involvement in the implementation of the project. The occupants of the buildings mostly had a medium involvement with six buildings having low involvement. This may be due to lack of incentives or time to deal with the projects requirements. The information to visitors wasn't at the expected levels with no facility indicating a high information level to the visitors. The information provided to the visitors does imply some cost in order to produce the material and facilities were reluctant to spend much in informing the users on behavioural changes.

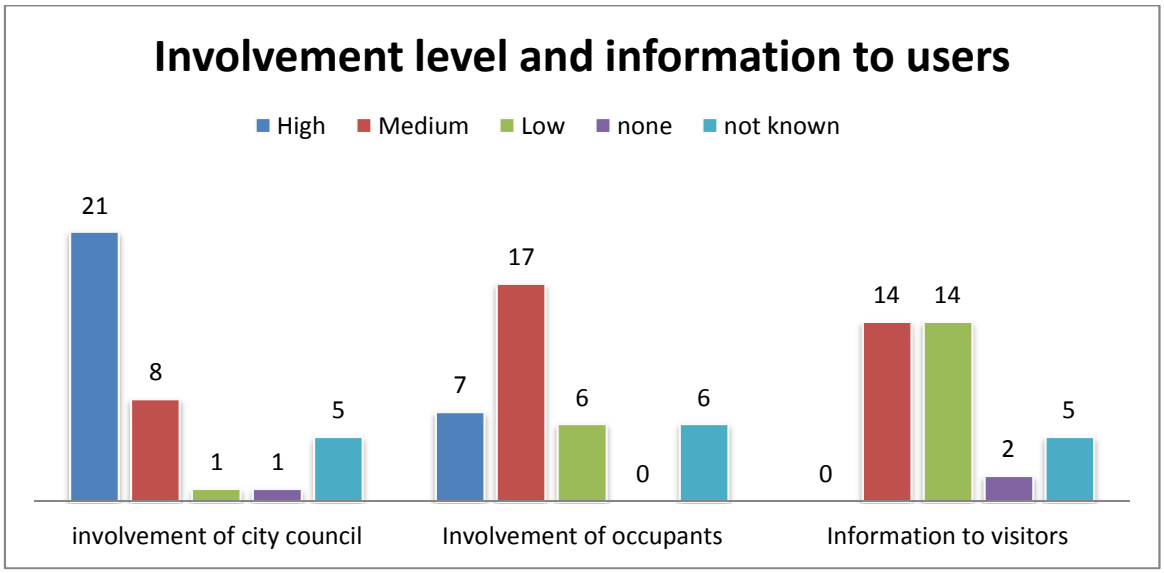

FIGURE 18 - INVOLVEMENT LEVEL OF CITY COUNCIL AND BUILDING USERS AND INFORMATION TO VISITORS

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3 SAVINGS RESULTS ANALYSIS

With the implementation of the 50/50 methodology in the non-school public buildings the results were very encouraging since 85% of the facilities have managed to save energy in either heating or electricity. The energy savings total in **624MWh** of electricity and **894MWh** of heating (district heating, natural gas, heating oil and biomass). The energy savings made by each individual facility implementing the EURONET 50/50 max project are presented in the Annex of this report (Table 11).

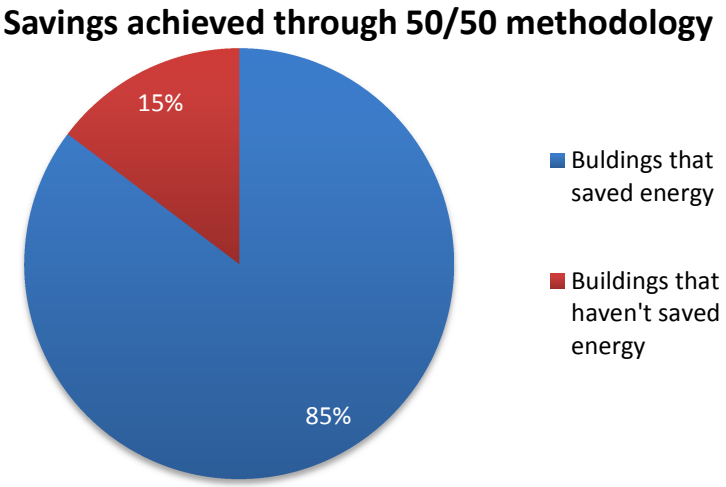

FIGURE 19 - PERCENTAGE OF BUILDINGS THAT SAVED ENERGY COMPARED TO THOSE WHICH HAVEN'T

From the resulting savings achieved, as seen in Figure 19, 85% of the non-school public buildings have managed to save in either electricity or heating.

The percentage of savings for all types of facilities are presented in Figure 20 where we can deduce the results of which types of buildings managed the biggest percentage of savings and in what type of energy. From the resulting graph it is realized that all types of facilities have managed to make savings.

Administration and offices along with the educational buildings have managed a positive percentage on average for both heating and electricity. Libraries and sport facilities are the only ones that on average haven't saved energy in heating although the -0.46% that sport facilities averaged in heating savings is a very small percentage and could be considered negligible. Museums and other types of buildings haven't managed on average to make savings in electricity. The educational buildings have the best results on the overview of all facilities

The biggest percentage in electricity savings comes from the Escola Bressol, an educational building in Spain that uses only electricity and has managed to reduce the electricity bill by **28.64%**. The largest heating savings come from the Grzybowska sport facility in Poland with **44.71%** amounting to 228MWh of heating.

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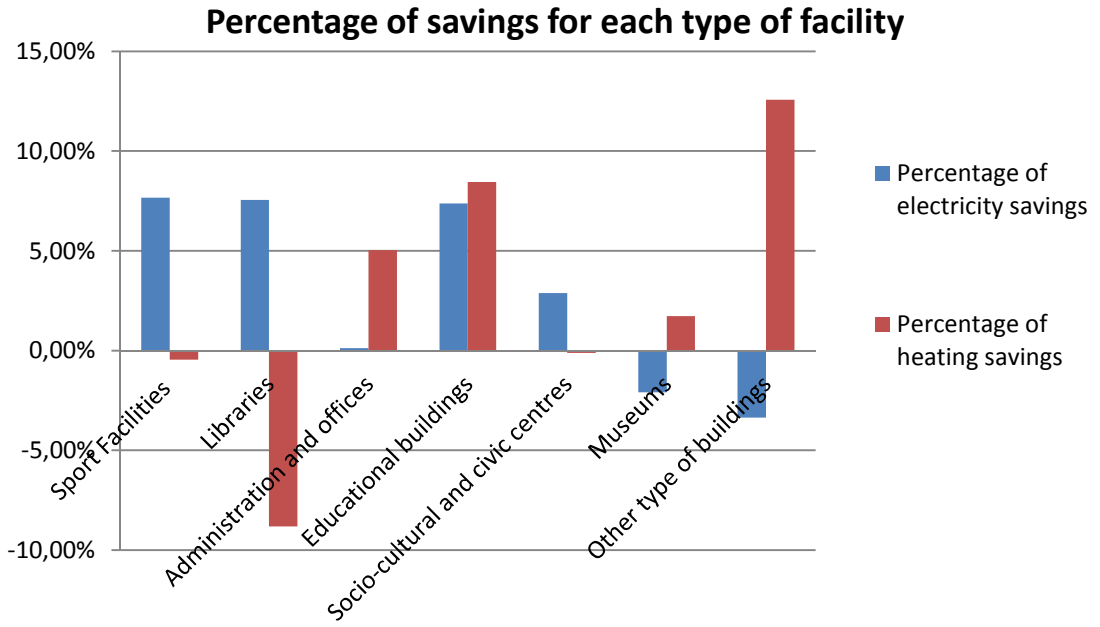

FIGURE 20 - PERCENTAGE OF SAVINGS FOR TYPE OF FACILITY

The type of heating that the non-school public buildings use varies and includes biomass, heating oil, natural gas, district heating and electricity from the grid. Figure 21 shows the energy mixture used for heating by the non-school public buildings. A large percentage of the facilities (31%) use electricity for their heating needs, whereas the biggest percentage of the facilities (33%) use district heating, with natural gas coming third with 28%.

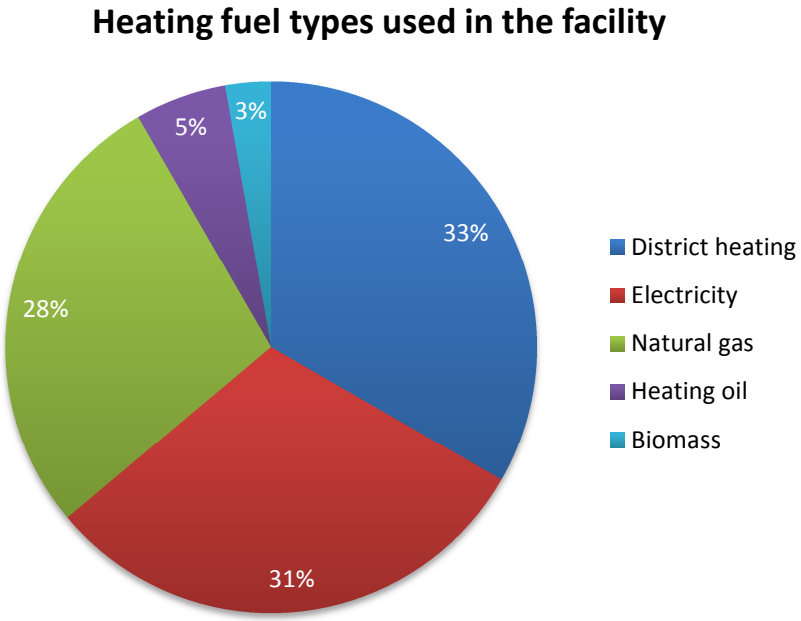

FIGURE 21 - DIFFERENT TYPES OF HEATING FUEL USED BY THE FACILITIES AS A PERCENTAGE

The heating fuel types for each type of facility are presented in figures 22-28. In general the type of fuel depends also on the country the facility is placed. Some countries that are in the project have no access to district heating or natural gas and therefore heating oil and electricity from the grid are the only options. Only sport facilities and libraries do not use electricity for heating in any of the examined buildings and this is mainly due to their large area where electrical

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heating devices are not effective.

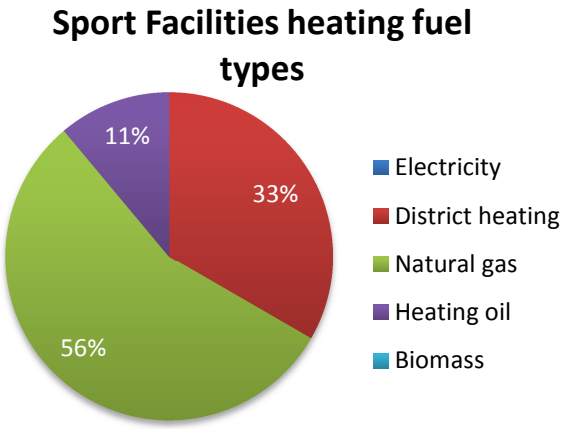

FIGURE 22 - SPORT FACILITIES HEATING FUEL TYPES PERCENTAGE

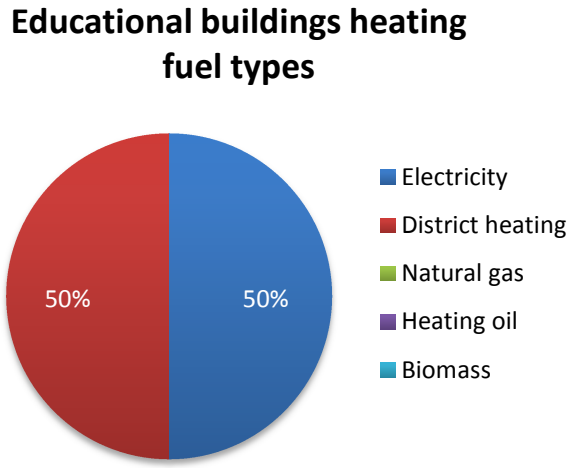

FIGURE 23 - EDUCATIONAL BUILDINGS HEATING FUEL TYPES PERCENTAGE

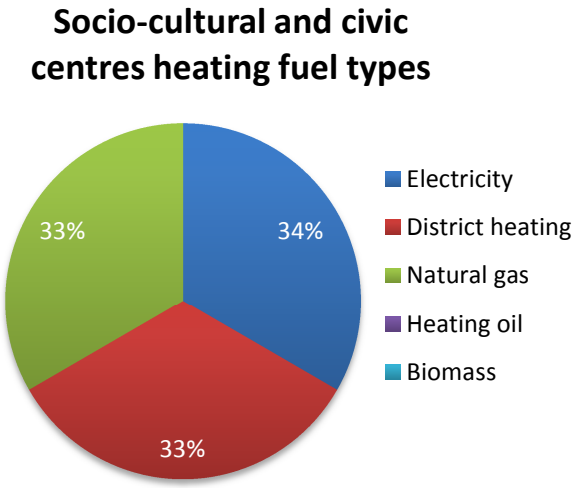

FIGURE 24 - SOCIO-CULTURAL AND CIVIC CENTERS HEATING FUEL TYPES PERCENTAGE

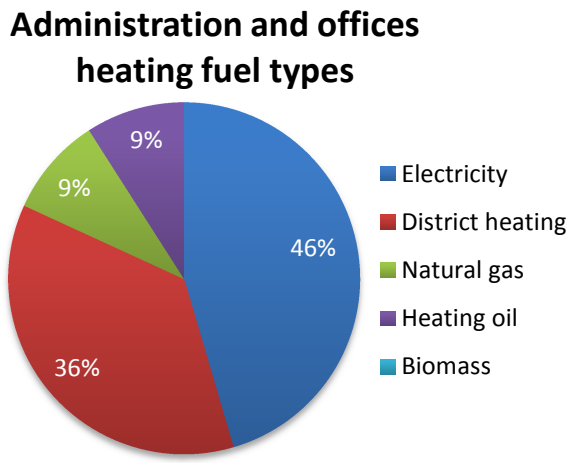

FIGURE 25 – ADMINISTRATION AND OFFICES HEATING FUEL TYPES PERCENTAGE

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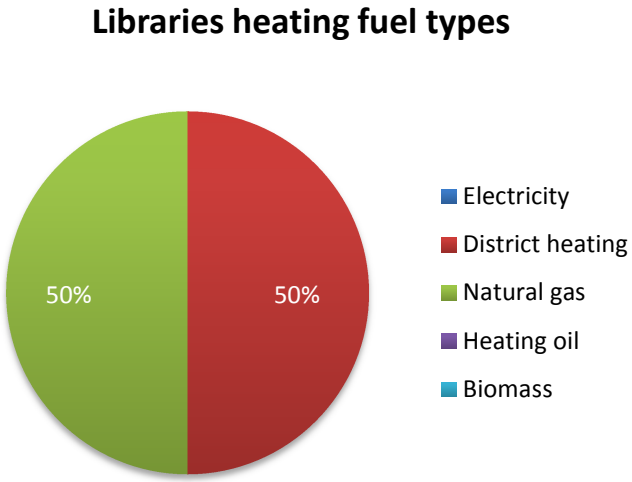

FIGURE 26 – LIBRARIES HEATING FUEL TYPES PERCENTAGE

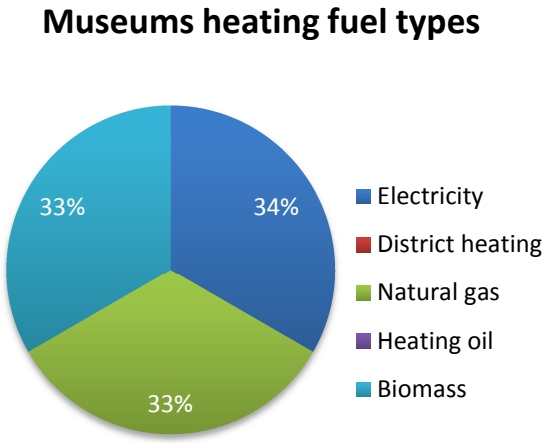

FIGURE 27 - MUSEUMS HEATING FUEL TYPES PERCENTAGE

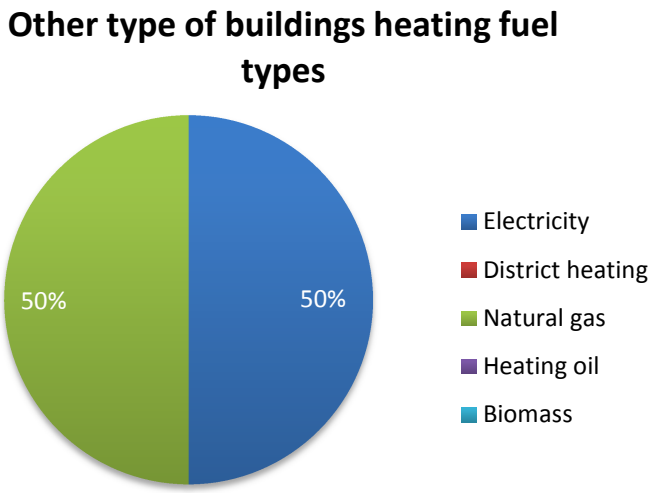

FIGURE 28 – OTHER BUILDINGS HEATING FUEL TYPES PERCENTAGE

The 85% of the public buildings implementing the 50/50 methodology have managed to save energy, either by saving in electricity, by saving in heating, or by saving in both. The 42% of the facilities managed to save electricity and since as seen in Figures 22-28 above, a number of the facilities use electricity for heating, this number also represents part of the heating. 22% of the facilities have saved in heating (either than electricity) and 22% have managed to save in both electricity and heating.

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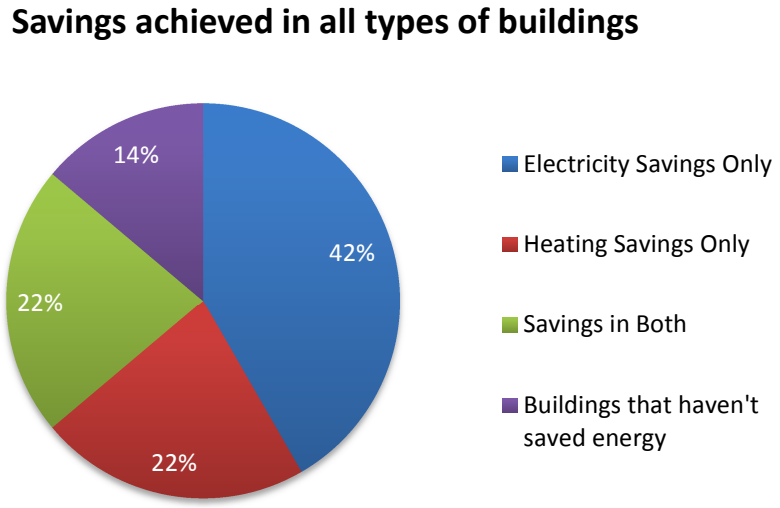

FIGURE 29 - ENERGY SAVINGS ACHIEVED FOR ALL THE NON-SCHOOL PUBLIC BUILDINGS

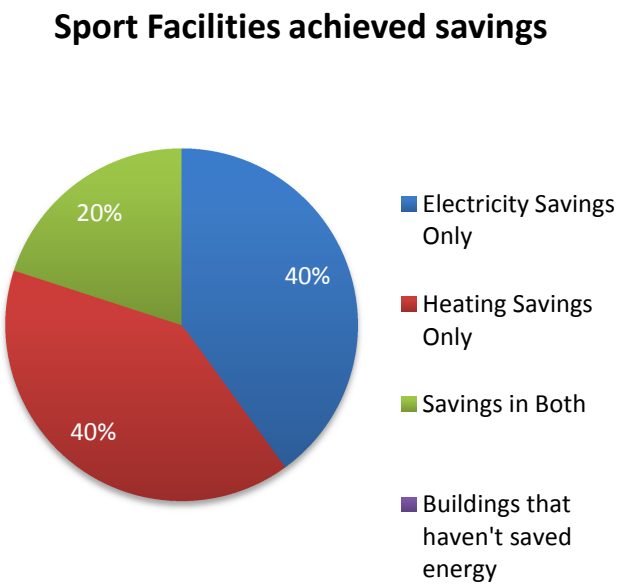

FIGURE 30 - SPORT FACILITIES ACHIEVED SAVINGS

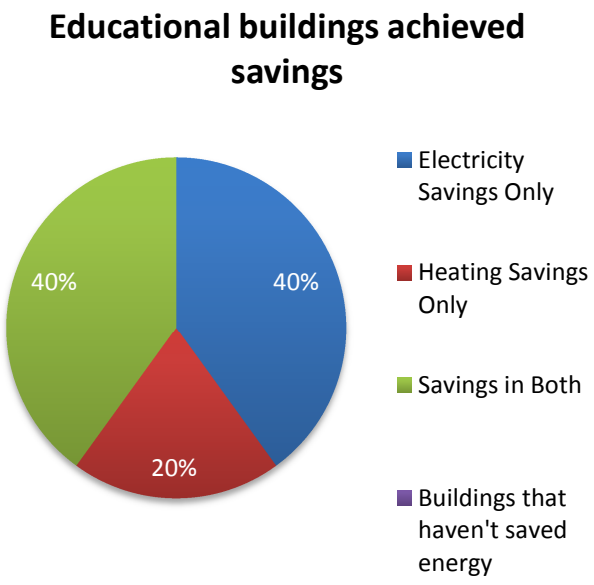

FIGURE 31 - EDUCATIONAL BUILDINGS ACHIEVED SAVINGS

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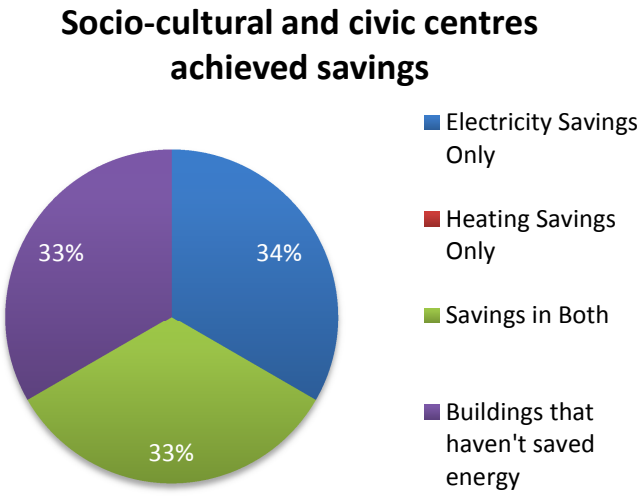

FIGURE 32 - SOCIO-CULTURAL AND CIVIC CENTERS ACHIEVED SAVINGS

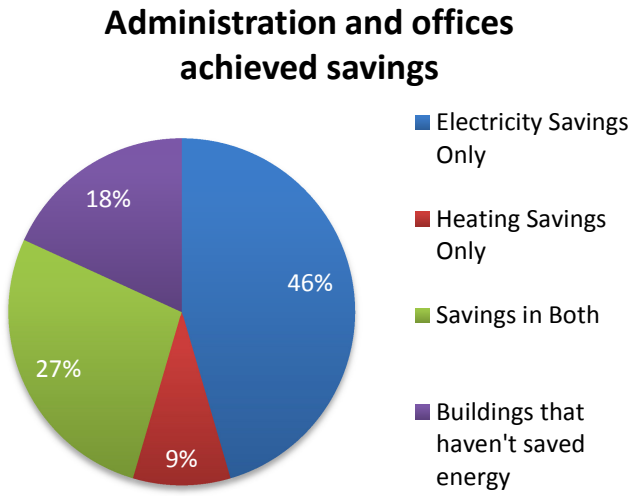

FIGURE 33 – ADMINISTRATION AND OFFICES ACHIEVED SAVINGS

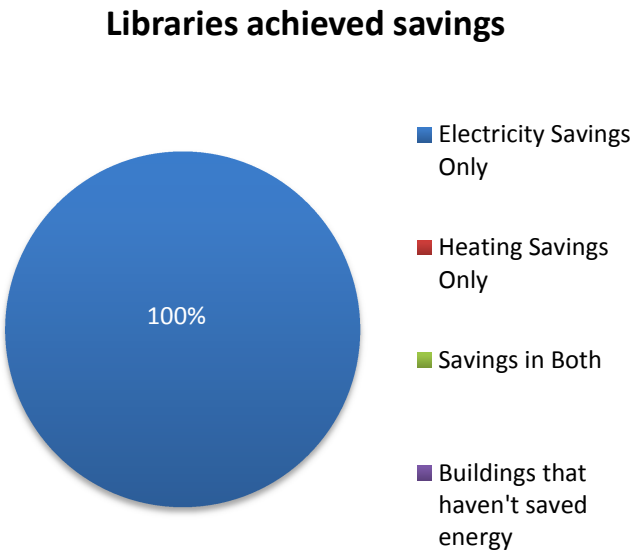

FIGURE 34 – LIBRARIES ACHIEVED SAVINGS

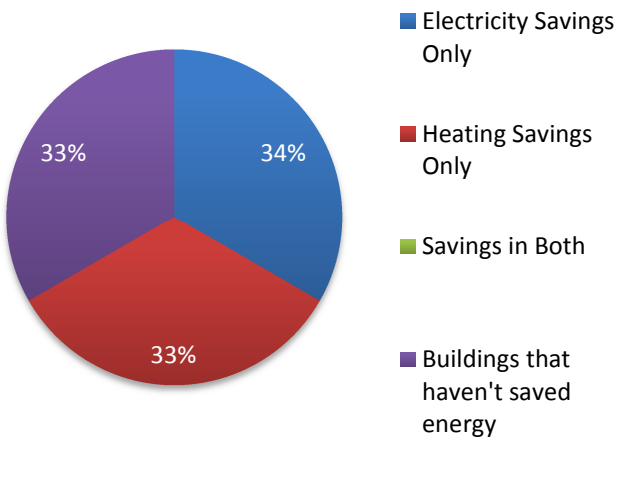

FIGURE 35 - MUSEUMS ACHIEVED SAVINGS

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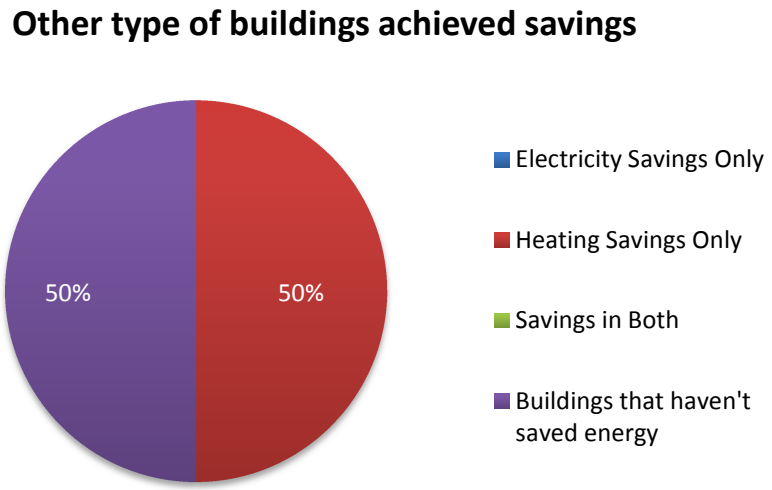

FIGURE 36 – OTHER BUILDINGS ACHIEVED SAVINGS

Figures 30-36 show more analytically the savings achieved in electricity, heating or both and the facilities that didn't manage to save energy as a percentage. From the results we deduce that all types of facilities managed to save energy. It is evident from the results that electricity savings are much more easier to achieve than heating savings, since all of the facilities (except from the other buildings which consist only from two buildings) have a bigger percentage of electricity savings, but, as mentioned above, the electricity is used for heating in some cases (31%, Figure 21). All of sport facilities, educational buildings and libraries, managed to save energy.

The method the EURONET 50/50 max project is communicated to the users of the building and the involvement of key parties in the energy team are some key components in a successful implementation. Figures 37 and 38 show the amount of involvement from the city council and building occupants, as well as the level of information given to the visitors. From the graphs we can say that the facilities that saved compared to those that didn't save energy don't have a great difference in the manner in which they tackled the implementation of the project.

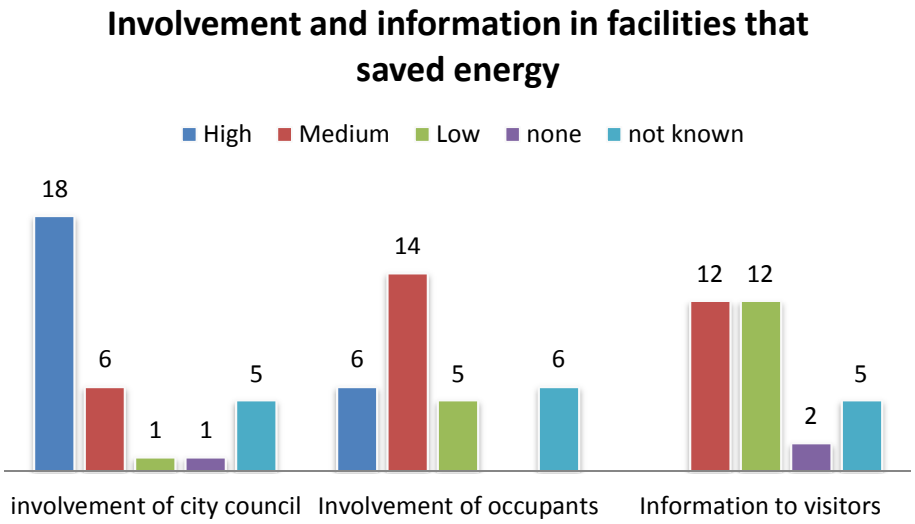

FIGURE 37 -INVOLVEMENT AND INFORMATION IN FACILITIES THAT SAVED ENERGY

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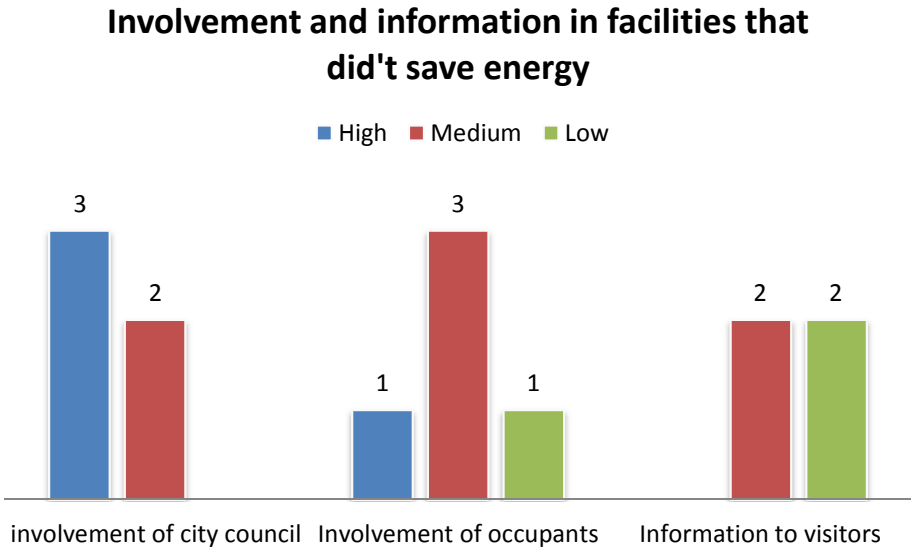

FIGURE 38 -INVOLVEMENT AND INFORMATION IN FACILITIES THAT DIDN'T SAVE ENERGY

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4 SELECTED PUBLIC NON-SCHOOL BUILDINGS PER PARTNER

DIBA (BARCELONA PROVINCICAL COUNCIL)

The implementation of the EURONET 50/50 max project by DIBA is being carried out at 11 non-school public buildings. These buildings include 7 sport facilities, 2 educational buildings, 1 socio-cultural and civic centre and 1 library. DIBA has started the implementation in public buildings in the beginning of the project as an experienced partner from EURONET 50/50. The list of the buildings implementing the 50/50 methodology in Barcelona can be seen at Table 3 below.

TABLE 3 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY DIBA

	Building name	Type of building	Municipality
1	Pavelló Esportiu, La Gamba	Sports facilities	Vilafranca del Penedès
2	Pavelló Poliesportiu	Sports facilities	Súria
3	Escola Bressol	Educational buildings	Santa Coloma de Cervelló
4	Camp mpal de futbol Mariano	Sports facilities	Sant Boi de Llobregat
5	Centre de promoció econòmica	Educational buildings	Viladecans
6	Piscina Municipal	Sports facilities	Mataró
7	Centre Cívic Francesc Macià	Socio-cultural and civic centres	Terrassa
8	Poliesportiu	Sports facilities	Vacarisses
9	Pavelló Municipal	Sports facilities	L'Ametlla del Vallès
10	Pavelló Municipal	Sports facilities	Vilanova del Vallès
11	Biblioteca Marta Marta	Libraries	Cornellà de llobregat

Municipal Swimming Pool of Mataro

One of the buildings implementing the 50/50 methodology is the Municipal swimming pool of the Mataro municipality. The facility uses district heating to cover for the heating demands. The area of the building is 2108.94m^2 and it has about 3500 visitors per week. The building includes a café-bar, changing rooms, a fitness room, a stretching room, a sauna and the pool with dimensions 25x12m. The steps 1-4, 8 and 9 have been completed by the Energy Team. They have signed an agreement between the different departments of the City council and since they are the City council, they are directly involved with the implementation. The energy audit was not fully carried out but monitoring is being carried out by the facility.

The implementation of the 50/50 methodology in the facility is running for 26 months and the facility has managed to save **23,549kWh of electricity** during that time, but has not saved in heating energy. One of the best practices was the presentations about the EURONET 50/50 max project made to the various teams using the swimming pool.

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Marianao Football Field

The facility of the Mariano football field is mainly used by the Marianao Poblet football club and the main activities that are carried out are related to football. The facility uses natural gas to cover its heating demands. The team that uses the facility has 22 teams and 250 players. Its facilities include a 90x65m football field with artificial grass and artificial lighting, 6 changing rooms for players and 1 for referees and technicians, a bar, 3 offices, 2 storerooms and one room with technical systems. Furthermore its stands can accommodate 800 spectators. All the steps of the 50/50 methodology have been implemented. The agreement has been signed and it was furthered to a four years agreement. The City council has leaded the implementation and helped the Energy Team through the project implementation. The energy audit was the basis for developing the action plan and the information to the users was done through posters and occasional information on good practices. The board of directors and the maintenance staff are the ones carrying out the information sessions. One of the biggest problems faced by the facility was the fact that users come for a short time to the facility since they mainly use the training area.

The facility runs the project for 26 months and they have managed to save **39.038 kWh of electricity** but no savings were made in the consumption of Natural Gas. The dissemination of the results has been done by mail to all the users. One best practice of the facility was to turn on only 1/3 of the floodlights during the training sessions.

Rojas Feliu Nursery

The Rojas Feliu nursery has a useful area of 461,92m^2 and is a one floor building with not many different areas of use. All the steps have been carried out by the Energy Team and the City council has taken the implementation very seriously, changing all the lighting of the building to LED. The person involved from the City council is actively taking part at the meetings and carries out the energy saving calculations. The Energy Team but mainly the Barcelona Provincial Council have found the energy audit very useful since they can reflect on the poor interior and exterior element of the installation and moving forward avoid the same mistakes. The Energy Team tried to involve the families as well but the response wasn't always promising. Most of the dissemination of both the project and the results has been carried out through mail and various activities to raise awareness. The behavioural changes are although limited due to the young age of the users and therefore no further

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improvement is expected in energy behaviours, even though initially the implementation was easy and the changes visible. The savings from January 2014 to April 2014 have been close to **2.000kWh** equating to 496Kg of CO_2 emissions saved.

Josep Fàbrega i Tort Sports Centre

This facility operates for 10-11 hours per day and has an area of 2.112m^2. The building has two floors and a basement and includes changing rooms, the court, a gym, offices, a bar and toilets. Steps 1-5 have been completed and steps 6-8 have been initiated. The Energy Team has found it difficult to reach out to the users since they are short time visitors. The agreement with the City council is that the returns should be reinvested into more energy efficient equipment and the City council was strongly involved in the energy audit, the meetings, the energy tour and the calculation of the energy savings. The energy audit was useful into developing the action plan and identifying the zones that actions are needed by the Council. The information sessions have been carried out to explain mainly to the trainers who are the end users about the project, with the presence of the coordinators.

President Macià Social Centre

This social centre has an area of 1.602,96m^2 and is located in the Terrassa area. The building uses electricity for heating. The steps for the implementation of the EURONET 50/50 max project have all been carried out successfully. The manager of the building is the City council so the Energy Team felt no need to sign an agreement. The staff of the building have helped with proposals and have all been very receptive of the project. The energy audit has been done by the staff of the building and helped a lot with the development of the action plan, as well as with the investment of the savings since it has all been reinvested in improving the lighting and kitchen equipment. The dissemination was done by posters and other graphical material. The users seemed to find it difficult to change their habits into turning off the lights when leaving their offices.

The implementation of the project in the building is being done for 30 months and savings achieved rose to **15,538kWh** of electricity savings. The best practices from this building include a lot of support from the maintenance team. Also they re-evaluated the areas that they use for each activity. For instance, they used to do yoga classes in the conference room (with all lights on). They moved this activity in a small classroom, with less lighting. They also have divided into sections the lights of one corridor and now they can choose which lighting they need and keep the extra lighting off.

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Vacarisses Sports Centre

This is a sports facility covering 2.417,3m^2 and hosting around 200 visitors per day and using heating oil for the heating demands of the building. The implementation steps have been completed up to step 5. A lack of involvement from the facility's managers meant that the implementation has progressed slower than expected for the facility. An agreement was signed between the facility and the local authority and the municipal energy manager has helped develop the energy audit and develop the action plan, although the audit was not presented to the energy team yet. The savings from the project are planned to be spent in making the building more energy efficient.

The facility has been running the EURONET 50/50 max project for 26 months and has managed to save **57,764kWh of electricity** and **60,279kWh of heating oil**.

Can Calderon

This administration building has an area of 3.767m^2 and is the municipal service for the econimic development of the city. The building uses electricity from the grid to cover its heating demands. All the steps have been completed for this facility. The agreement has been signed by the building and the municipality to ensure that the savings will be returned to the building. The members of the Energy Team include members of the Environmental department of the municipality as well as the buildings maintenance department. A specialized external company was used in order to complete the energy audit and the results of the audit have been taken into account and been published to the users of the building during the information sessions. The users have also agreed with the results and are happy that some of the actions they have already proposed in the past years will be taking place in the framework of the project. The cleaning staff were also involved in the information sessions.

The facility is implementing the project for 27 months and the savings resulting from the implementation rise to **42,184kWh of electricity** equating to 11,64 tons of CO_2 emissions saved and **3.740€.** The Energy Team is planning in investing the money saved in an energy bank they want to set up. Some of the best practices involve a protocol to ensure that all light are off when there are no classes and have also changed the schedule of the climate system for heating and cooling.

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PNEC (ASSOCIATION OF MUNICIPALITIES POLISH NETWORK "ENERGY CITIES")

PNEC is another partner that was member of the initial EURONET 50/50 project and therefore has started the implementation with the beginning of this project. The buildings involved by PNEC are 3 administration and offices, 5 sport facilities and one childrens home. The Table 4 below is a list of all the non-school public buildings implementing the 50/50 methodology.

TABLE 4 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY PNEC

	Building name	Type of building	Municipality
1	City Hall	Administration and offices	Bielawa
2	Administration & office building	Administration and offices	Bydgoszcz
3	City Hall	Administration and offices	Ciechanowiec
4	Chldren's home of J. Korczak	Other type of buildings	Lublin
5	Sports center "ACTIVE WARSAW" - Polonia	Sports facilities	Warszawa
6	Sports center "ACTIVE WARSAW" -"Rozbrat-Jutrzenka"	Sports facilities	Warszawa
7	Sports center "ACTIVE WARSAW" - Szczęśliwice	Sports facilities	Warszawa
8	Sports center "ACTIVE WARSAW" - Inflancka	Sports facilities	Warszawa
9	Sports center "ACTIVE WARSAW" - Grzybowska	Sports facilities	Warszawa

UVA (UNIVESRISTY OF VAASA)

The University of Vaasa is implementing the 50/50 methodology in one Library, the Vaasa City Library. UVA have also been partners to the first EURONET 50/50 and therefor have started their implementation in the beginning of the project.

Vaasa City Library

The Vaasa City Library is open for everyone and its use is free of charge, accomodating 950 visitors per day with an area of 7.435m^2. The facility uses district heating to cover for the heating demands. All the steps have been completed with the exception of the energy audit which wasn't completed due to the lack of budget by the project, however the City of Vaasa has indicated that they will execute a full technical energy audit which is planned in autumn 2015. An Agreement was signed with the City council and they have also been involved through their facility management department which also monitors the energy consumption monthly for the facility. The staff members of the building have been informed through various sessions carried out several times during the project. The information to the public that use the library came through a photo exhibition regarding energy use, a drawing contest for the children with regards

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to energy saving and open information sessions regarding the energy projects in Vaasa.

The facility is currently running the 50/50 methodology for 26 months and has managed to save **170.23MWh of electricity** but managed no savings in district heating. Some of the best practices include more efficient settings to the automatic lightning control, more efficient use of computers (including customer computers) as well as purchasing energy efficient computers only, education of the personnel about how to save energy and decreasing the use of additional radiators.

CRETE (REGION OF CRETE)

CRETE is implementing the EURONET 50/50 max project in 6 administration buildings.

TABLE 5 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY CRETE

	Building name	Type of building	Municipality
1	Region of Crete Building 1	Administration and offices	Heraklion
2	Region of Crete Building 2	Administration and offices	Rethymno
3	Region of Crete Building 3	Administration and offices	Chania
4	Town Hall	Administration and offices	Hersonisos
5	Town Hall	Administration and offices	Oropediou Lasithiou
6	Adele Building	Administration and offices	Rethymno

Adele Building (Region of Crete)

This is the Financial Department building of the Rethymno Municipality. It has an area of 1080m^2 and accommodates a total of 35 employees. The implementation of the program in the building has been embraced by both the users of the building and the Local City Council, with one member of the Council being an active participant in the Energy Saving Group. Steps 1 and 3 to 9 have been conducted seamlessly, despite a relatively short time of actual implementation (several months). Signing of a commitment agreement was not deemed necessary and was not carried out. The energy audit revealed some significant problems regarding the levels of energy consumption in the building. Altering the energy saving behaviour of the building's regular users is a challenging on-going process, however the users of the building have shown great adaptability. This is greatly demonstrated by the first encouraging results, despite the brief time of implementation, that show savings of **2932 kWh** in electricity consumption and **1.35 tons** in CO_2 emissions. These promising initial results have motivated the energy saving team to work harder on communicating the EURONET 50/50 max energy saving message and planning additional energy saving interventions like replacing all the traditional building lamps with energy saving ones.

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Former Town Hall of Municipality of Hersonisos

This is a municipal building mainly housing offices used for administrative purposes. It is comprised of a basement area (748m2) , a ground floor (675m2) and a first floor (751m2). Regarding the implementation of the EURONET 50/50 MAX program, steps 1 and 3-6 of the methodology were conducted efficiently. Signing of a commitment agreement (as instructed by step 2) did not take place, without this impairing the actual implementation in any way. Steps 7 and 9 of the energy saving methodology are currently under way but have not been completed yet, due to the short time of actual implementation (a few months). The users of the building were informed about the program using multiple communication channels (e-mails, word of mouth) and they were prompted to fill in the program questionnaire. The local Mayor , who is a member of the Covenant of Mayors , has also been quite supportive of this endeavour. Recent energy consumption measurements are currently under evaluation by the designated Energy Group in order to further plan subsequent actions based on the methodology provided. For this reason, the behavioural change of the building's users with respect to energy consumption cannot be assessed yet.

Directorate of Public Health and Social Care Building – Regional Unit of Rethymno

This building (referred in the table as "Region of Crete – Building 2") is housing offices used for administrative services, occupying a useful surface area of 260m^2. All steps of the EURONET 50/50 MAX methodology, except from the second step of signing a commitment agreement (which does not affect the actual implementation process), have been conducted. However, due to the short period of implementation (a few months) there is work to be done regarding informing the users of the building more thoroughly about the program and evaluating any potential meaningful energy saving results. An initial rough estimate coming from the local program manager, based on raw data, mentions potential energy savings of about 15% compared to previous years. Despite this, it is still early days to deduce any conclusive results. Work on the program is on-going and information will be updated as more data is collected along the way.

KSSENA (Energy Agency of Savinjska, Šaleška and Koroška Region)

KSSENA is another partner that started at the beginning of the project the implementation. The public buildings implementing the 50/50 methodology include one Administration and office building, one socio-cultural and civic center and one museum. The Table 6 below shows the buildings the project is implemented in.

Table 6 - List of non-school buildings implemented by KSSENA

	Building name	Type of building	Municipality
1	Občina Velenje	Administration and offices	Velenje
2	Kulturni dom Velenje	Socio-cultural and civic centres	Velenje
3	Muzej Vrbovec	Museums	Nazarje

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Velenje Town Hall (Občina Velenje)

Velenje municipality is the fifth largest municipality in Slovenia. The town hall consists of mainly administration offices and employs 120 people. The building has a useful area of 2947m2 and accepts about 150 visitors per day. The 50/50 methodology is being implemented in the facility for 28 months and all the steps have been carried out except step 2 (because they are the city council) and step 9. The users of the building were mostly informed by the use of stickers, posters and brochures as well as attending information sessions organised by KSSENA. 2 information/training sessions were carried out for the caretakers and city councils, one information session with educational centres and city councils and one additional information session with principals. Municipal staff attended all these sessions. The facility has managed to save a total of **62,686kWh** of electricity, although no savings were made in district heating.

Cultural Centre Velenje (Kulturni dom Velenje)

The Velenje cultural centre is the main cultural venue in Velenje and is visited by approximately 42,000 visitors per year. It has an area of 2527m^2 and uses district heating to cover the building's heating demands. The building consists of 2 event halls and a number of offices. Through the year different cultural, theatrical, musical and school events are held in the facility. The 50/50 methodology is carried out for 28 months in the facility and all the steps have been carried out except step 2 and 9. Step 9 was mainly avoided because the facility didn't manage to save energy through the implementation period. The information of the users was done through e-mails, posters, brochures, stickers and leaflets. The building users participated in one information session and an additional consultation was carried out by KSSENA regarding the energy system.

The Vrbovec Museum Nazarje

The Vrbovec museum is a forestry and timber museum situated in a 13th century castle and was established in 2000 by the Community Council and is open to the public since 2001. The museum has an area of 310m^2 and uses biomass to cover for the heating needs. The EURONET 50/50 max project is being carried out for 28 months in the facility and all the steps except step 2 have been carried out. The users were informed with the use of brochures, leaflets, stickers and posters. The employees were also informed during the information session for the caretakers and city council. The savings were communicated to the users through e-mail.

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KREA (KAUNAS REGIONAL ENERGY AGENCY)

KREA are implementing the EURONET 50/50 max project in a library of the Municipality of Kaunas.

Vincas Kudirka Public Library

The facility is a public library with an area of 184m^2 and uses natural gas to cover for the heating demands. The implementation of the EURONET 50/50 max project is running for 12 months and all steps have been completed. The information to users was done face-to-face and through leaflets. Two information sessions were organised for all the project participants including both the schools and the non-school buildings representatives. The results were communicated to the users with word of mouth. The facility has managed to save **194 kWh of electricity**.

ZAGREB (CITY OF ZAGREB)

ZAGREB are implementing the EURONET 50/50 max project in two non-school public buildings, a Museum and a socio-cultural and civic centre. The Table 7 below shows in which buildings the 50/50 methodology is implemented.

TABLE 7 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY ZAGREB

	Building name	Type of building	Municipality
1	Narodno sveučilište Dubrava	Socio-cultural and civic centres	Zagreb
2	Hrvatski prirodoslovni muzej	Museums	Zagreb

Croatian Natural History Museum

The Croatian Natural History Museum is the central national institution which collects, professionally and scientifically analyses and presents its holdings, which testifies to the development of nature and man in the Croatian region. It has an area of 3.585m^2 and accommodates around 100 visitors. The steps that have been undertaken are 1-6 and 8 while step 7 is under development. An agreement has been signed with the local authority and there is a constant contact with the City's office who also are monitoring consumption and are helping with the calculation of the savings. The information on the project is disseminated by e-mails and one information session has been conducted. Due to the old construction of the building

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all the equipment needs to be upgraded and the money saved by the project will be used for purchasing more energy efficient equipment. The savings that have resulted with the implementation of the 50/50 methodology rise to **79.622kWh**, saving 15.49 tons of CO_2 emissions and **€4.744,45.**

Dubrava Cultural Centre

One of the biggest cultural institutions in Zagreb, the Dubrava cultural centre has an area of 900m^2 and accomodates over 100.000 people per year. The steps 1-6 and 8 have already been implemented and steps 7 and 9 are currently under development. The building has signed an agreement with the local authority and the local authority provides

expert support to the Energy Team helping them find optimal solutions and answers to any questions arising. The results of the energy audit served as a starting point to monitor the effects and consider the ways to save energy. The building employees have all participated to the meetings and two information sessions have been carried out. The energy savings since the implementation of the project rose to **8.115kWh**, saving 3.67 tons of CO_2 emissions and therefore **€1.083,07** which will be spent in improvin the buildings energy efficiency.

RMS (Riga Managers School)

RMS is implementing the 50/50 methodology in three non-school public buildings which are all educational building (kindergardens). The Table 8 below shows in which buildings the EURONET 50/50 max is implemented.

Table 8 - List of non-school buildings implemented by RMS

	Building name	Type of building	Municipality
1	Pirmsizglitibas iestade Liesmina (kindergarten)	Educational buildings	Liepaja
2	Pirmsizglitibas iestade Delfins (kindergarten)	Educational buildings	Liepaja
3	Pirmsizglitibas iestade Kristiga (kindergarten)	Educational buildings	Liepaja

Liesmina Kindergarten

The Liesmina kindergarten is an educational building that accommodates 170 children daily. The building has an area of 921m^2 and uses district heating to cover the heating demands. The EURONET 50/50 max project is implemented in the facility for 24 months and all nine steps were taken. The results achieved in the facility were analysed each month and two information sessions were held for the workers and parents. The facility has managed to save **3,266kWh of electricity** and **36,850kWh of district heating**. Some of the best practices done at the facility include flexible use of their premises, depending on the weather in the estates of the building had a different temperature, collective lessons for children and general staff meetings were held in those buildings, which require less energy for heating and sometimes changed children walking mode.

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Delfins Kindergarten

The Liesmina kindergarten is an educational building that accommodates 310 children and also includes an indoor swimming pool. The area of the building is 2774m^2 and it uses district heating to cover for the heating demands. The facility has been implementing the EURONET 50/50 max project for 24 months and has carried out all the steps of the project. Special attention during the energy audit was given to the swimming pool. The results of savings for every month are analysed and the dissemination of the results was done with a letter to the head of the kindergarten by the Liepaja municipality and the results were further discussed with the teachers during meetings and addressed to the parents of the students. The facility has managed to save **63,708kWh of district heating** although no savings were made for electricity.

Kristiga Kindergarten

The Kristiga kindergarten is an educational building that accommodates 270 children. The area of the building is 1867m2 and it uses district heating to cover for the heating demands. The facility implements the EURONET 50/50 max project for 24 months and all the steps have been taken during the implementation. The facility uses a data logger and an employee of the facility has been given the responsibility of taking the measurements every month. The information is being communicated to the workers through meetings, informing also the parents for every positive result achieved. Two information sessions were carried out and another was done to the parents of the children interested in learning about the energy saving in the facility. The results of savings for every month are analysed and the dissemination of the results was done with a letter to the head of the kindergarten by the Liepaja municipality and the results were further discussed with the teachers during meetings and addressed to the parents of the students. The facility has managed to save **1,218kWh of electricity** and **10,531kWh of district heating**. One best practice done at the facility was the introduction of the system of "traveling logger" (recording temperature, humidity and CO2). Each logger was installed within a week of each room of the building. After that, with the staff working in these areas, buyout liability for ventilation mode and the temperature setting on the radiators, the results were discussed.

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TOP ENVI TECH (TOP-ENVI TECH BRNO)

TOP ENVI Tech is implementing the 50/50 methodology in one administrational building.

Municipal authority of Velké Opatovice

The Municipal authority of Velké Opatovice is an old castle of the 18th century. The building has signed an agreement with the local authority and a councillor from the municipality is helping in the implementation of the project. The information to the users has been carried out in their normal meetings and two information sessions have been carried out. The facility has an area of 540m^2 and uses district heating to cover for the needs of heating. The implementation of the EURONET 50/50 max project is carried out for 24 months in the facility and all the steps were undertaken. The facility has managed to save **67,744kWh of district heating** savings but no electricity savings were recorded.

AFE (FLORENCE ENERGY AGENCY)

The Implementation of the EURONET 50/50 max project by AFE is being carried out in two non-school public buildings, one museum and one sport facility. The Table 9 lists the facilities implementing EURONET 50/50 max in Italy.

TABLE 9 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY AFE

	Building name	Type of building	Municipality
1	San Marcelino Sport and Swimming Pool	Sport facilities	Florence
2	Bardini Museum	Museums	Florence

San Marcelino Sport and Swimming Pool

The San Marcelino sport and swimming pool has an area of 5.000m^2 and is a sport activities building. The facility implements the EURONET 50/50 max project for 24 months and all the steps have been undertaken. The facility uses natural gas to cover for its heating demands. The energy audit highlighted the need of correct use of the facilities by its visiting users. A cover was also purchased to avoid heat loss during winter from the pool. The agreement was signed with the local authority although the local authority is using an independent manager to manage the pool and therefore are not engaged in the energy Team. The users have been informed about the project using brochures. The facility has managed to save **41,000kWh of electricity** and **185,652kWh of natural gas**.

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Bardini Museum

It is an old classic building in the centre of Florence with an area of 3.800m^2. The facility uses electricity from the grid to cover for its heating demands. The local authority is both the owner and the manager of the museum therefeore is directly involved in the implementation of the project and have also signed the agreement with AFE and the building. The information to the users and visitors is done by a brochure-game and the permanent staff have been informed in their general meeting. The facility implements the EURONET 50/50 max project for 18 months and has managed to save **2,100kWh of electricity**.

CAA (Climate alliance Austria)

CAA is implementing the EURONET 50/50 max project in the City Hall of Jundenburg which is an administration office.

Judenburg Town Hall

The Judenburg town hall is an administration building with an area of 3,406m^2 that uses district heating to cover for the heating demands of the facility. There are 60 users of the facility and for the implementation of the project all recieved a thermometer to control the temperature in their rooms, accompanied with instructions on how to use the thermostat. The facility implements the 50/50 methodology for 24 months and all the steps were undertaken. The biggest problem faced by the facility is the right temperature of the thermostats since everyone has a different idea on what is the optimal temperature to be used. The results of the project have been communicated to the users and will be publishe in the environmental report. The facility has managed to save **2,257kWh of electricity** and **43,673kWh of district heating**.

DIHU (Province of Huelva)

DIHU is implementing the 50/50 methodology in one educational building, the Sustainability department of the University of Huelva. The department has an area of 7.500m^2 and its main activities are educational. No steps of the methodology have been completed besides step 3 which is already done by the University. An agreement has not been signed with the City council and the City council is not involved in the Energy Team. The Energy Team has held 5 meetings with DIHU and the information sessions have not been successful due to the low attendance.

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CEA (CYPRUS ENERGY AGENCY)

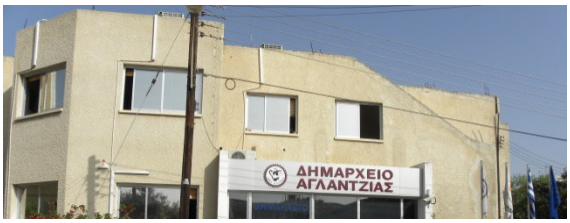
CEA is implementing the EURONET 50/50 max project in three non-school public buildings, two administration offices and one multipurpose building. The Table 10 below shows the buildings the 50/50 methodology is implemented.

TABLE 10 - LIST OF NON-SCHOOL BUILDINGS IMPLEMENTED BY CEA

/	Building name	Type of building	Municipality
1	Aglantzia Town Hall	Administration and offices	Aglantzia
2	Strovolos Town Hall	Administration and offices	Strovolos
3	Nicosia Multipurpose Building	Other type of buildings	Nicosia

Aglantzia Town Hall

The Aglantzia Town Hall is an administration office building with an area of 868.36 m^2 that has 33 permanent users and around 100 visitors per day. The steps 1-8 have already been implemented and since the facility is running the 50/50 methodology for 10 months, step 9 will be implemented once the 12 months are reached. The facility is run by the local authority, the agreement has been signed and members from the board of management are actively involved with the Energy Team. The information material including brochures and stickers have been handed out to the users of the building. One information session has been carried by CEA to the users of the building. The facility uses only electricity to cover for the heating demands and has managed to save **1,432kWh of electricity** for the months of implementation.



Multipurpose Building of Nicosia Municipality

The Multipurpose Building is an old classic building with an area of 645.28m^2 and it is being used for providing support to vulnerable citizens of Nicosia, accommodating people from all age groups. The steps 1-8 have already been implemented and since the facility is running the 50/50 methodology for 10 months, step 9 will be implemented once the 12 months are reached. The facility is run by the local authority, the agreement has been signed and members from the board of management are actively involved with the Energy Team. The Energy audit is still on-going and information material has been handed out to the users of the building. One information session has been carried by CEA to the users of the building. The money saved from the project will be reinvested at the building for better energy efficient equipment. The facility has not managed to achieve any savings for the time of the implementation of the project.

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Strovolos Town Hall

The Strovolos Town Hall is an administration office building with an area of 6.500 m^2 that has 33 permanent users and around 100 visitors per day. The steps 1-8 have already been implemented and since the facility is running the 50/50 methodology for 10 months, step 9 will be implemented once the 12 months are reached. The facility is run by the local authority, the agreement has been signed and members from the board of management are actively involved with the Energy Team. The Energy Team of the facility was already formed as part of the SEAP and the users are already familiar with actions for energy saving. The energy audit is still on-going and information material has been handed out to the users of the building. One information session has been carried by CEA to the users of the building. The facility has not managed to achieve any savings for the time of the implementation of the project.

EAV (Energy Agency of Vysocina)

EAV is implementing the 50/50 methodology in one non-school public building, which is listed as 'other types of buildings'.

Stonarov Care Centre

The facility provides accommodation and nursing services for elder people and has an area of 375 m^2. The facility is implementing the 50/50 methodology for 14 months and all steps have been already implemented. EAV cooperates with Municipality Stonařov which fully supports the activities of the project. Some small investments to upgrade of outdated equipment were performed (non-functional thermostatic heads…). The building is insulated and change of windows and doors was provided so the last step to energy efficiency before the project was to change behavior of buidling users. This is finding difficult to change the habits of the elderly, but we managed to do that. We made many workshops with elderly about indoor environment, acceptable temperatures in their apartments and ways to save energy. The facility has achieved savings of **8,156kWh of natural gas**.

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CONCLUSION

The implementation of the EURONET 50/50 max project has been very successful in the non-school public buildings since 85% of the facilities have managed to save in either electricity, heating or both. The achieved savings rise to **624MWh of electricity** and **891MWh of heating**.

From the results we can deduce that all types of buildings have the potential in saving energy through behavioural changes with making very little or no investments. The involvement of the local authorities has been key to the implementation of the project since most of the partners have used the agreement and personnel from the local authority into the energy team (90%). This gives motivation to the users as well as a reassurance that the savings will be shared with the facility.

The type of heating used has not presented any limitations since all types of heating manage to save energy, although the biggest savings come from electricity in terms of percentage with 42%. It has also been evident that buildings that have the largest area, like sport facilities, have the biggest potential in energy saving.

The task of changing the energy behaviours of users that are not children has been deemed as a difficult task and this was one of the main problems faced by facilities like the Stonarov Care Centre which is an elderly people retreat and deals mainly with people of the third age as its users. The most positive results come again from educational buildings since they have managed to get a positive average percentage on both heating and electricity savings by more than 7%.

The facilities have all undertaken the steps of the 50/50 methodology although some skipped some parts that were considered unnecessary like step 2 (signing a commitment agreement) if the building was a town hall, or step 5 (energy tour) which was at some facilities carried out during step 4 (energy audit) by the energy team and the caretakers. Also step 9 was sometimes avoided when there were no positive results to present to the users.

To conclude with, the EURONET 50/50 max is a methodology that if followed correctly will result into savings and will have a further benefit in informing the users of buildings on how they can improve their energy behaviour both at work and at home. The results of the savings were very encouraging and local authorities should find a way to include the methodology in their SEAPs since with little or no investments they can get very promising results and can further invest the money saved into more energy efficiency projects.

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ANNEX

TABLE 11 - SAVINGS ACHIEVED BY EACH INDIVIDUAL NON-SCHOOL PUBLIC BUILDING

N°	Name of the organisation	Building's name	Energy sources used in the building	Electricity savings		Heating savings	
				kWh	%	kWh	%
1	DIBA	Camp municipal de futbol Marianao (Sant Boi de Llobregat)	Electricity, Natural gas	39,308	27.49%	-46,239	-33.87%
2	DIBA	Can Calderon. Centre de promoció econòmica (Viladecans)	Electricity	42,184	10.93%	-	-
3	DIBA	Centre Cívic Francesc Macià (Terrassa)	Electricity	15,538	17.26%	-	-
4	DIBA	Centre Vallès. Formació d'adults (granollers)	Electricity, Natural gas	44,239	16.31%	-	-
5	DIBA	Pavelló de Vacarisses	Electricity, Heating oil	57,764	22.36%	60 279	7.76%
6	DIBA	Pavelló esportiu La Gamba (Vilafranca del Penedès)	Electricity, Natural gas	-1,838	-1.57%	13,989	19.70%
7	DIBA	Pavelló municipal (L'Ametlla del Vallès)	Electricity	N/A	N/A	N/A	N/A
8	DIBA	Pavelló municipal (Vilanova del Vallès)	Electricity	N/A	N/A	N/A	N/A
9	DIBA	Pavelló Poliesportiu (Súria)	Electricity, Natural gas	-5,113	-7.64%	3,211	1.46%
10	DIBA	Piscina municipal (Mataró)	Electricity, District heating	23,549	4.50%	-156,132	-14.46%
11	Zagreb	Hrvatski prirodoslovni muzej, Croatian Natural History Museum	Electricity, Natural gas	-1,846	-0.95%	107,270	16.62%
12	Zagreb	Narodno sveučilište Dubrava, Dubrava Cultural Centre	Electricity, Natural gas	17,275	23.66%	17,320	5.16%
13	CAA	Rathaus Judenburg - City hall of Judenburg	Electricity, District heating	2,257	0.91%	43,673	5.37%
14	CEA	Aglantzia Town Hall	Electricity	1,432	1.94%	-	-
15	CEA	Strovolos Town Hall	Electricity	-650	-0.12%	-	-
16	CEA	Nicosia Multipurpose Builfing	Electricity	-3,734	-6.43%	-	-
17	KSSENA	Dom kulture Velenje/Theater Velenje	Electricity, District heating	-24,748	-32.28%	-27,851	-5.39%

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N°	Name of the organisation	Building's name	Energy sources used in the building	Electricity savings		Heating savings	
				kWh	%	kWh	%
18	KSSENA	Muzej Vrbovec/ Museum Vrbovec	Electricity, Biomass	8,107	81.48%	-4,494	-13.15%
19	KSSENA	Občinska stavba Mestne občine Velenje	Electricity, District heating	62,686	19.23%	-155,833	-29.01%
20	EAV	DPS Stonařov	Electricity, Natural gas	-6	-0.29%	8 156	12.57%
21	AFE	Museo Stefano Bardini Bardini Museum	Electricity	2,100	2.65%	0	0.00%
22	AFE	Piscina San Marcellino San Marcellino swimming pool	Electricity, Natural gas	41,000	7.43%	185,652	11.51%
23	DIHU	Aula de Sostenibilidad Universidad de Huelva / Sustainability Department. University of Huelva	Electricity	N/A	N/A	N/A	N/A
24	KREA	Kauno apskrities viešoji biblioteka, Panemunės filialas (Vincas Kudirka Public Library, a branch of Panemunė)	Electricity, Natural gas	194	2.51%	-2,842	-14.57%
25	PNEC	Dom Dziecka im. Janusza Korczaka (Children's home of J. Korczak)	Electricity, District heating	N/A	N/A	N/A	N/A
26	PNEC	Budynek Urzędu Miejskiego w Bielawie Plac Wolności 1	Electricity, Natural gas	2,618	1.73%	2,514	1.20%
27	PNEC	Urząd Miasta, ul. Sielanka (City Hall, Sielanka str.)	Electricity, District heating	-902	-4.22%	-2,172	-1.41%
28	PNEC	Urząd Miejski w Ciechanowcu (City Hall in Ciechanowiec)	Electricity, Heating oil	187	0.41%	28 142	16.76%
29	PNEC	Stołeczne Centrum Sportu AKTYWNA WARSZAWA - Ośrodek Grzybowska (Sports center "ACTIVE WARSAW" - Grzybowska)	Electricity, District heating	-77,944	-75.29%	228 405	44.71%
30	PNEC	Stołeczne Centrum Sportu AKTYWNA WARSZAWA - Ośrodek Inflancka (Sports center "ACTIVE WARSAW" - Inflancka)	Electricity, District heating	N/A	N/A	N/A	N/A
31	PNEC	Stołeczne Centrum Sportu AKTYWNA WARSZAWA - Ośrodek Polonia (Sports center "ACTIVE WARSAW" - Polonia)	Electricity, District heating	85,788	12.38%	N/A	N/A
32	PNEC	Stołeczne Centrum Sportu AKTYWNA WARSZAWA - Ośrodek Szczęśliwice (Sports center "ACTIVE WARSAW" - Szczęśliwice)	Electricity, Natural gas	- 24,075	-7.91%	16,374	7.31%
33	PNEC	Stołeczne Centrum Sportu AKTYWNA WARSZAWA Ośrodek "Rozbrat-Jutrzenka" (Sports center "ACTIVE WARSAW" - "Rozbrat-Jutrzenka")	Electricity, District heating	38,705	11.99%	-20,170	-3.05%
34	CRETE	Adele Building	Electricity	2,932	10.34%	-	-
35	CRETE	Hersonisos Town Hall	Electricity	523	1.54%	-	-
36	CRETE	Region of Crete - Building 2	Electricity	156	4.32%	-	-
37	RMS	Kristiga pii, Kindergarten Kristiga	Electricity, District heating	1,218	1.49%	10,531	2.83%
38	RMS	Delfins pii, Kindergarten Delfins	Electricity, District heating	-15,263	-10.22%	63,708	8.46%

N°	Name of the organisation	Building's name	Energy sources used in the building	Electricity savings		Heating savings	
				kWh	%	kWh	%
39	RMS	Liesmina pii, Kindergarten Liesmina	Electricity, District heating	3,266	6.03%	36,850	14.06%
40	TOP-ENVI Tech Brno	Moravské kartografické centrum Velké Opatovice, Zámek č. 14, 679 63 Velké Opatoviceu	Electricity, District heating	-500	-1.49%	67,744	37.29%
41	TOP-ENVI Tech Brno	Úřad města Velké Opatovice, Zámek č. 14, Velké Opatovice 679 63	Electricity, District heating	- 201	-0.49%	52 980	23.15%
42	University of Vaasa	Vaasan Kaupunginkirjasto, Vaasa City Library	Electricity, District heating	170,234	12.59%	-46,500	-3.06%