TRAINING OF COMMUNITY/CONDOMINIUM FACILITATORS

Task 3.4 Training of community/condominium facilitators with training program and materials

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Authors	Daniela Luise, Giovanni Vicentini

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Project partners	Main contact person	E-mail
Città di Padova	Daniela Luise Giovanni Vicentini	luised@comune.padova.it vicentinig@comune.padova.it
Università Commerciale Luigi Bocconi	Edoardo Croci Annamaria Bagaini	edoardo.croci@unibocconi.it annamaria.bagaini@unibocconi.it
SINLOC	Andrea Martinez	andrea.martinez@sinloc.com
SOGESCA srl	Marco Devetta	m.devetta@sogesca.it
Forum per la Finanza Sostenibile	Alessandro Asmundo	asmundo@finanzasostenibile.it
Climate Alliance	Masha Tarle	m.tarle@climatealliance.org
Municipality of Timisoara	Ella Sipetan	ella.sipetan@primariatm.ro
Energy Agency of Plovdiv Association	Milena Agopyan	milena.agopyan@eap-save.eu

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1. OBJECTIVES OF THE TRAINING COURSE

The training course is aimed at providing some basic skills to play the role of "**facilitator**" in the urban environment.

The facilitator, established by the PadovaFIT Expanded project, must be able to actively promote the implementation of energy requalification interventions in private buildings and must combine technical skills with methods and techniques of communication and conflict mediation.

He/she must be able to manage and guide the decision-making processes underlying the renovation projects of the existing building stock.

The goal of the course is also to select a candidate, among the people whose passed the final examination, for a professional collaboration in the framework of the PadovaFIT Expanded project. In the case of the Municipality of Padova the candidate will support the Energy Desk. This is an already existing service provided by the Municipality and addressed to citizens, condominium managers, professionals, and companies, completely free of charge. It offers information and technical advice services on the following topics:

- *how to reduce energy consumption in one's own home and save money on bills,*
- *which technologies to choose for energy efficiency measures and the production of energy from renewable sources,*
- *how to benefit from existing forms of tax incentives and how to finance interventions.*

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2. THE TRAINING COURSE IN PADOVA

2.1. ATTENDEES

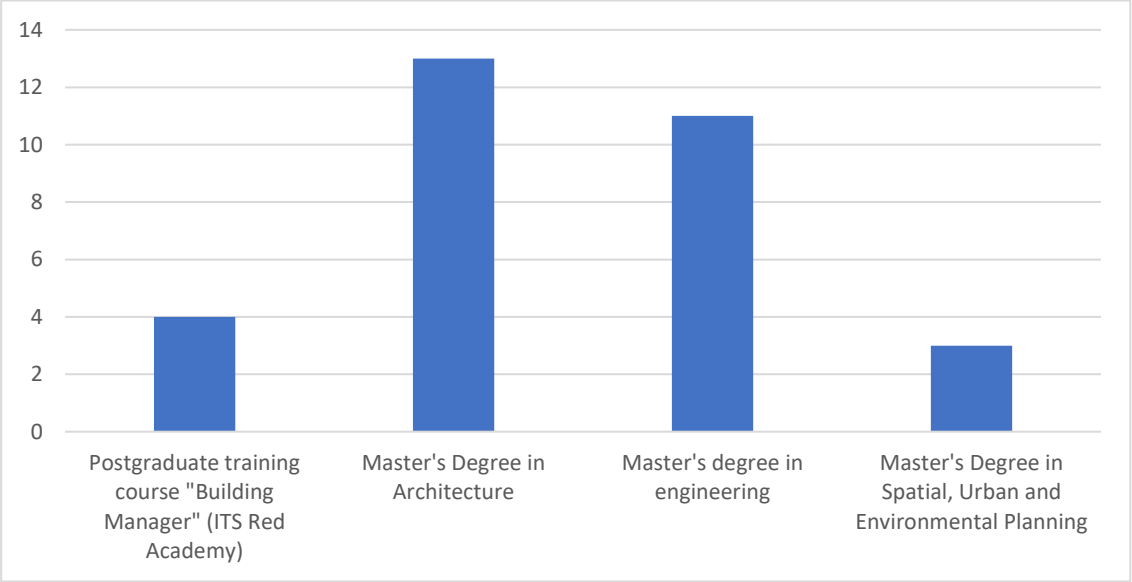
The training course was addressed to:

- *graduates of the post-diploma high-level training courses "Energy Manager 4.0" and "Building Manager" organized by ITS Red Academy,*
- *graduates from the master's degree courses in Engineering, Architecture and Land Planning.*

The training program was exclusively dedicated to Under 35s.

The course was attended by 31 people, mainly architecture and engineering graduates, as illustrated by the following chart.

Number of participants by qualification



Participants ranged in age from 23 to 36 years, as displayed in the following chart.

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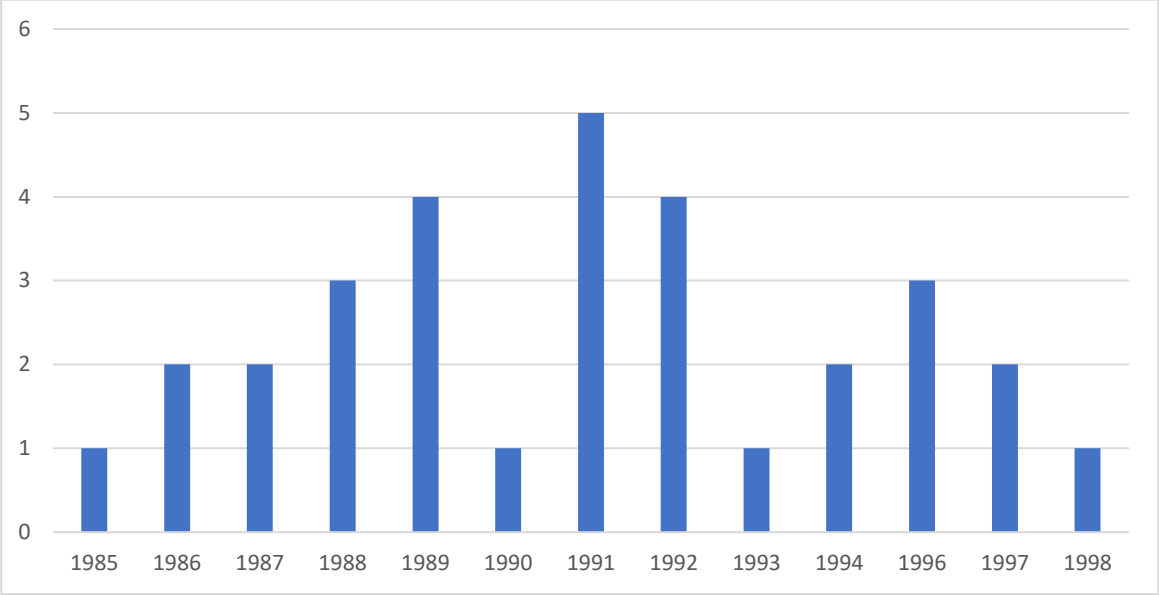
Number of participants by year of birth



Registration for the training course was managed by the Municipality of Padova through a Google form, in which some basic information had to be entered to assess the actual possession of the participation requirements (age, qualification). All the information collected has been managed by the Municipality of Padova in compliance with the rules on the processing of personal data.

2.2. EXTERNAL PROMOTION OF THE TRAINING COURSE

The widest possible visibility to the training course was given by communicating the initiative both through web portals of local offices and organizations and by including the relevant information in some newsletters.

In particular, the course was publicized in the web portal of the Municipality of Padova, but also in the web pages and newsletter of the municipal information desk specifically dedicated to young people (Progetto Giovani), through the website of the professional associations of architects and engineers and, finally, through the social media channels of the Municipality of Padova.

Through various communication channels, information was provided about the target group of the course, how it would be implemented and how to apply for participation.

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Informambiente Padova
28 maggio ·

+++Corso di formazione gratuito su temi energetici con possibile collaborazione di natura professionale con il Comune+++

Il Settore Ambiente e Territorio del Comune di Padova
organizza un corso di formazione gratuito per "Facilitatori territoriali per la promozione degli interventi di riqualificazione energetica nel patrimonio edilizio privato", erogato nell'ambito del progetto europeo PadovaFIT Expanded (https://www.padovanet.it/.../progetto-europeo-padovafit...).

✅ Il corso, interamente online e della durata di 29 ore, è rivolto a laureati under 35 in ingegneria, architettura e pianificazione territoriale e a diplomati in corsi di alta formazione per Energy Manager o Building Manager organizzati da ITS Red Academy.

✅ Il corso inizia giovedì 17 giugno 2021 e si conclude, con un esame finale, il 29 luglio 2021.

✅ Tra coloro che concluderanno positivamente il percorso formativo, il Comune selezionerà un candidato per l'avvio di una collaborazione professionale a supporto delle attività dello Sportello per il Risparmio Energetico.

✅ La scadenza per la presentazione delle domande di partecipazione è fissata al 14 giugno.

Per tutte le informazioni utili si rimanda alla pagina dedicata 👇
https://www.padovanet.it/.../corso-di-formazione-%E2%80...

A post on FB managed by the Informambiente Office to promote the training course

Modalità di svolgimento

Il corso di formazione si svolge interamente online, attraverso la piattaforma Webex. Sono previste 12 lezioni in modalità sincrona, della durata complessiva di 29 ore, organizzate in fascia preserale.

Il corso inizia giovedì 17 giugno 2021 e si conclude, con un esame finale, il 29 luglio 2021.

Al superamento dell'esame finale, il Comune di Padova selezionerà un candidato per l'avvio di una collaborazione professionale a supporto delle attività dello **Sportello per il risparmio energetico**.

Presentazione della domanda: modalità e tempi

Per iscriversi al corso di formazione è necessario:

- compilare l'**apposito modulo online**;
- inviare una copia del proprio curriculum vitae e di un documento d'identità in corso di validità all'indirizzo email **padovafit@comune.padova.it**.

L'iscrizione deve essere effettuata entro il 14 giugno 2021.

Information provided by the Municipality of Padova on the training course (municipal web page)

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2.3. PROGRAM

The training course took place entirely online, using the Webex platform. The course covered 11 days (from 17 June 2021 to 29 July 2021) for a total duration of 29 hours and ended with a final examination (in presence, at the premises of the Municipality of Padova). The course was organized in the late afternoon (usually from 5.30 pm to 7.30 pm). A Certificate of Attendance has been issued to participants who have passed the final examination and fulfilled the attendance requirements (at least 80%). Each training module was conducted by one or more trainers, subject-matter experts. The training course has been scheduled as follows:

Date/Time	Module	Trainers
Thursday 17/06/21 4.30 pm - 5 pm	**1 - Introduction to the aims of the training course** -The PadovaFIT Expanded project -The role of the neighborhood/condominium facilitator -The training program	**Municipality of Padova** D. Luise
Thursday 17/06/21 5 pm - 5.30 pm	**2 - Privacy and data processing** -Procedures for accessing the documentation -Management of privacy and data processing	**Municipality of Padova** G. Vicentini
Thursday 17/06/21 5.30 pm - 7.30 pm Tuesday 22/06/21 5.30 pm - 7.30 pm	**3 - Carrying out and assessing an energy audit** -Differences between Energy Performance Certificate (EPC) and energy audit -Data collection/request -EPC assessment -A prefeasibility assessment of interventions	**SOGESCA srl** L. Sinigaglia
Thursday 24/06/21 4.30 pm - 7.30 pm Tuesday 29/06/21 4.30 pm - 7.30 pm	**4 - Methodologies for conflicts facilitation and mediation** -Decision-making processes -Conflict prevention and management -Organization and management of the condominium assembly	**“Sestante” cooperative of Venice** A. Tosi
Thursday 01/07/21 5.30 pm - 7.30 pm	**5 - Energy renovation of buildings: economic assessment** -Financial sustainability of interventions -Financial support schemes and tax incentives existing in Italy -Credit transfer and invoice discount mechanisms	**SINLOC SpA** F. Piovanello L. Trevisan
Tuesday 06/07/21 5.30 pm - 7.30 pm Thursday 08/07/21 5.30 pm - 7.30 pm	**6 - Superbonus 110% and other incentives** - From legislation to practice	**Divisione Energia srl** L. Tardiolo

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Date/Time	Module	Trainers
Tuesday 08/07/21 4.30 pm - 7.30 pm	**7 - The building in the urban context: principles of sustainable urban regeneration** -Designing eco-friendly neighborhoods (IUAV) -Energy communities (Coop. È Nostra)	**IUAV University of Venice** F. Magni **"È Nostra" cooperative** C. Bartolomeo
Thursday 15/07/21 4.30 pm - 7.30 pm	**8 - Check-up and support to households in energy poverty** -Energy poverty and vulnerability -ASSIST and TED model, management, and behavioral solutions to reduce energy expenditure -Support to households in energy poverty	**AISFOR srl** M. Varvesi
Tuesday 20/07/21 5.30 pm - 7.30 pm	**9 - Energy renovation of buildings: assessment of the economic-financial sustainability of interventions** -Energy performance contracts (EPC) -Indicators to assess the economic-financial sustainability of interventions	**SINLOC SpA** G. Fregonese
Thursday 22/07/21 5.30 pm - 7.30 pm Tuesday 27/07/21 5.30 pm - 7.30 pm	**10 – Communicating energy savings and energy efficiency** -Communication: what it is and how it works -Communication skills of the neighborhood facilitator -Tools and methods to communicate energy saving and energy efficiency -How to prepare an effective communication plan for an apartment block/neighborhood	**ENEA** A. Disi
Thursday 29/07/21 5.30 pm - 7.30 pm	**Final examination [in presence]**	**Municipality of Padova**

2.4. TRAINERS

As said in the previous paragraph, in addition to the representatives of the Municipality of Padova, the other trainers belong to an Italian University and companies and associations dealing with the topics of the training courses. Here below a brief description for each organization/company to which the trainers belong to.

2.4.1. SOGESCA srl

SOGESCA srl is an engineering company specialized in the environment, energy, and occupational safety sectors. It provides its expertise to public and private bodies at local, national, and international level.

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SOGESCA works in the field of management systems (quality, environment, safety, energy, traceability, food safety, etc.), energy diagnoses and environmental audits, energy efficiency project development, due diligence, permits, integrated water, waste and energy design and management, product certification, etc. SOGESCA is also an Energy Service Company (ESCo) authorized to acquire and manage Energy Efficiency Certificates (White Certificates). It is an expert in energy planning and has developed more than 80 Sustainable Energy Action Plans (SEAPs) under the Covenant of Mayors. It also offers services in building energy certification; energy management, pricing and contracting; corporate and municipal energy plans; energy diagnostics and audits; energy management systems; design and engineering; training and financing (opportunity screening, incentives, and soft finance). In the field of safety, SOGESCA supports its clients, offering services for the implementation of occupational safety management systems, food safety management systems, certification of traceability of supply chains and controlled supply chains, training, and financing.

2.4.2. “Sestante” cooperative of Venice

The “Sestante” cooperative of Venice was founded in 2000 by its members who, noticing the risk of a weakening of the bond between the younger generations and their territory, decided to invest their experience in projects concerning environmental education and sustainable tourism, with the intention of contributing to the knowledge and enhancement of the Lagoon of Venice. Currently educators, psychologists, trainers, and naturalistic guides working in “Sestante” offer different experiences and professional skills, which are integrated in the common aim of cooperating to the social, cultural, and environmental development of the territory. Its main areas of activity can be summarized as follows:

- *consulting to local authorities in participatory planning processes,*
- *training for adults (educators, teachers, instructors, environmental guides, public administration personnel, companies),*
- *educational paths in the environmental field for the enhancement and discovery of the territory,*
- *courses and workshops in schools of all levels in the field of education to good practices of social relations, affectivity, non-violent management of conflict, active citizenship,*
- *animations and workshop activities in various areas (toy libraries, summer entertainment programs, etc.),*
- *excursions along itineraries and routes in the environment,*
- *excursions along alternative itineraries for groups of different sizes, according to the logic of responsible and sustainable tourism.*

2.4.3. SINLOC SpA

SINLOC SpA is a consultancy and investment company that operates throughout Italy and is active in Europe on EU projects. It is involved in promoting local development through consultancy and feasibility studies, direct investment in Public Private Partnership projects and promoting access to and effective use of European funds. It provides consultancy services to different types of operators: public administrations, enterprises, non-profit sector, financial institutions. SINLOC's activity is developed through three main instruments, within the different sectors of intervention: service advisory, equity investment and fund management. In the field of service advisory, it provides support to public enterprises, administrations, financial institutions, and foundations that want to identify the most suitable methods for implementing their infrastructure and local development projects. It verifies the feasibility of projects by highlighting criticalities, strengths, risks, and opportunities and then defines the most appropriate way to implement them. SINLOC ensures continuous monitoring of the project during implementation and management, identifying corrective strategies where necessary. In the field of equity investment, it provides support, through the provision of

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expertise and financial resources, to companies and groups of companies whose ultimate objective is the design, implementation, and management of a local infrastructure project, often originating from public procurement procedures. SINLOC offers complete support to the investment process through services of economic and financial planning, risk assessment and allocation, provision of capital and shareholder financing, support to the SPV in the negotiation and closing of commercial contracts and financing contracts with banks, monitoring and budgeting, program management, support to the eventual disposal of the SPV or a portion of it. Lastly, in the field of Fund management, it provides support to Public Administrations and Financial Institutions (Regional Financial Institutions, Banks, SGRs, SCAFs, etc.) whose objective is the creation and management of financial investment instruments with territorial and/or sectoral focus. SINLOC's role is that of technical advisor to the financial instrument, providing the fund manager in the structuring of the investment vehicle, in the search for initiatives, in the preliminary evaluations to support investment decisions and in the related preliminary procedures, as well as in the subsequent active monitoring of the portfolio.

2.4.4. Divisione Energia srl

Divisione Energia srl deals with the promotion of environmental sustainability in homes, companies, and public spaces, promoting virtuous behaviors aimed at improving the efficiency of the processes and technologies used. Divisione Energia deals both with the design of interventions, as a technical study and as an Energy Service Company (ESCo), and with communication and awareness raising to promote a more conscious use of resources, respecting society and the environment. As an ESCo, Divisione Energia is specialized in finding financial resources, drawing up the energy diagnosis, feasibility study and design, implementing the intervention and supporting the client in all operational and post-intervention phases. The company is UNI 11352 certified and has access to the mechanism of white certificates or Energy Efficiency Certificates sold on the market managed by the GSE. Moreover, Divisione Energia offers design services and practices for the installation of photovoltaic panels; thermographic analysis services; architectural design services and works management; lighting engineering verification services; technical assistance services for fire prevention practices; energy certification services for buildings; consultancy services for access to tax incentives (thermal account 2.0 and tax deductions); installation services for electric car charging stations; design services for the sizing of flues.

2.4.5. IUAV University of Venice

The Planning Climate Change research group of IUAV University of Venice recognizes the spatial planning as part of the complex and dynamic set of relationships between man and nature. Planning Climate Change is composed of young researchers with different skills and experiences and performs theoretical and applied, innovative and multidisciplinary research. The consolidated experience of group’s researchers, with different and complementary specializations, guarantees them the possibility to provide an integrated and synergic vision of spatial planning. The research group’s main feature is the ability to coordinate and manage all phases of research and project, from the initial design up to the implementation. The research group works with several organizations, professionals, and technicians to deal with the complexity and the multidisciplinary nature required by the research topic.

2.4.6. “È Nostra” cooperative

“È Nostra” is a non-profit cooperative electricity supplier that sells to its members only renewable electricity from photovoltaic, wind and hydroelectric plants with a guarantee of origin. “È Nostra” was established as a user cooperative in 2014 as part of the EU RESCoop20-20-20 project, aimed at promoting the acceptability

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of renewables. Today the cooperative has about 8.000 members, including cooperators and subsidizers, who share the desire to mitigate their ecological footprint through conscious choices, reduce their consumption, use shared renewable energy, and contribute to the energy transition. “È Nostra” purchases energy only from sustainable companies and plants, favoring production realities linked to local communities and promoting the growth of the share of energy from renewable sources in the national energy mix. It offers its members services of energy efficiency, implementation of photovoltaic systems and monitoring of consumption for their reduction. “È Nostra” currently sells renewable energy produced by renewable energy plants through bilateral contracts with producing companies. To close the circle between production and consumption, “È Nostra” has decided to invest in the design of its own collective plants. The cooperative is developing its own projects for plants to produce energy from renewable sources directly participated by citizens: thanks to the investments of its members, 2240 kW of new renewable power are planned. Moreover, “È Nostra” offers energy services to its members in the fields of energy efficiency, provision of photovoltaic systems and replacement of boilers with heat pumps. The cooperative assists its members in the design and realization of turnkey projects, through technical inspection, planning of the projects, authorization procedures and practices for connection, realization of the works, testing and commissioning, application for incentives, and a 2-year guarantee on installation. “È Nostra” offers assistance services for access to state incentives, also proposing to its members and those who intend to become member, a procedure for approaching the “110% Superbonus”[1].

2.4.7. AISFOR srl

AISFOR srl is a training and research company that works to enhance human and technological resources to build and strengthen knowledge and capacity building. It was established in 2005 with headquarters in Rome. It is structured in two main areas: Innovation & Development and Training. Within the innovation and research sector AISFOR deals with:

- *context analysis (market analysis, national / European policy, etc.), questionnaires / user surveys,*
- *social research (behavioral analysis, promotion of social inclusion, direct support to people in vulnerable situations),*
- *communication (conferences, information/awareness campaigns, website creation and content management, social account management, etc.).*

2.4.8. ENEA

ENEA is the Italian national agency for new technologies, energy and sustainable economic development, a public law body aimed at research, technological innovation, and the provision of advanced services to enterprises, public administration, and citizens in the fields of energy, environment, and sustainable economic development. Since its foundation in the 1960s, its strengths have been applied in research, technology transfer and technical and scientific assistance to companies, associations, territories, central and local administrations: also, for this reason, unlike other research bodies, the institutional reference is the Ministry of Economic Development. The areas of specialization are: energy technologies (renewables, storage, smart grids) where the Agency is also the coordinator of the National Energy Technology Cluster; nuclear fusion

[1] The 110% Superbonus is an incentive measure, introduced by the Italian "Relaunch" decree-law of 19 May 2020, which aims to make houses more efficient and safer. Under the Superbonus mechanism, works can be carried out at no cost to all citizens.

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and safety (where the Agency is the national coordinator for research); energy efficiency (with the National Agency for Efficiency); technologies for cultural heritage; seismic protection; food safety; pollution; life sciences; strategic raw materials; and climate change. Among the emerging issues, ENEA supports the production system and public authorities (Ministry of Environment and Ministry of Economic Development in particular) in the transition towards circular economy and resource efficiency.

2.5. TRAINING MODULES

2.5.1. MODULE 1 - Introduction to the aims of the training course

During the first lesson, the main highlights of PadovaFIT Expanded project were illustrated, with a special focus on the creation of a *One-Stop-Shop* in the City of Padova and the replication of the model in the cities of Timisoara (Romania), Smolyan and Vidin (Bulgaria). Was explained that the *One-Stop-Shop* (OSS) consists in a tool/mechanism aimed at the energy requalification of buildings, transparent and easily accessible to end users (citizens), with an innovative structure (specific business model). In fact, the OSS should be able to advise and provide technical support and dedicated financial tools. It was illustrated how the OSS could support citizen to access incentive schemes and financial incentives currently available in Italy (i.e., Superbonus 110%). The OSS should be run by a facilitator who has the following main characteristics/skills:

- *he/she is mainly a technical figure, with specific skills in managing building renovation projects,*
- *he/she knows methods and techniques of effective communication and conflict mediation,*
- *he/she relates directly to the final clients (citizens who are homeowners, tenants, etc.),*
- *he/she can manage and orientate the decision-making processes underlying energy requalification projects in buildings,*
- *he/she is a figure that is not generally identified in the market but is established and promoted by the PadovaFIT Expanded project (and its predecessor PadovaFIT).*

After this preliminary introduction on the focus of the training course, it was presented the program of the course and its objectives.

2.5.2. MODULE 2 - Privacy and data processing

This lesson was mainly aimed at providing participants with the basic information necessary to manage personal data (of possible users and of people they may meet at public events) in accordance with current European legislation. In particular, the participants have been provided with the following information:

A. *What data are collected? Personal identifiable information (name, surname, e-mail address, telephone number, etc.).*
B. *How are data collected? Using or viewing the Helpdesk website, through cookies; submitting voluntary feedback by e-mail or responding to a survey; in presence: by filling out a registration form.*
C. *How will the data be used? To send emails about services that may be of interest to the users; to invite the user to events related to the services of the Energy Saving Desk; for possible sharing with third parties.*
D. *How are they stored? Place of storage / precautions taken; archive time [until or for].*
E. *What are the user's rights in terms of data protection?*
    a. *Right of access: right to request a copy of transmitted personal data.*

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b. *Right of rectification: right to request correction of inaccurate or incomplete information.*
c. *Right to erasure: right to request deletion of personal data.*
d. *Right to restrict processing of personal data: right to request to restrict the processing of personal data.*
e. *Right to object to the processing of personal data: right to object to data processing.*
f. *Right to data portability: right to request transfer of data to another organization.*

F. *Management of cookies [possible, only for websites]. They collect standard information about access to web pages and visitor behavior.*
G. *Contact. Insert references (email, phone number, etc.) for any questions from users on privacy policies, data management, exercise of any of their personal data protection rights.*

2.5.3. MODULE 3 - Carrying out and assessing an energy audit

In the framework of this lesson the items illustrated were:

- *the Energy Performance Certificate (EPC) and energy audit,*
- *the data collection/request,*
- *the EPC assessment,*
- *a prefeasibility assessment of interventions.*

First, the trainer clarified what is meant by the "**energy performance**" of a building. It is an annual amount of energy consumed or expected to be consumed to meet the various energy needs of the building with standard building use (winter air-conditioning; summer air-conditioning; mechanical ventilation; domestic hot water production). The trainer then explained that Energy Performance Certificate (EPC) provides information on the amount of energy required to ensure adequate living comfort and on the quality of the building; assigns an energy class to the building; suggests the most technically and economically viable measures to improve the energy efficiency of the building. Then, the trainer explained the current Italian legislation on matter: when it is obligatory to produce an EPC and how long it lasts.

It was then clarified what an **energy audit** is. According to the law provisions, it is a systematic procedure aimed at obtaining adequate knowledge of the energy consumption profile of a building or group of buildings, industrial or commercial activity or installation, or public or private services, to identify and quantify energy-saving opportunities from a cost-benefit point of view and to report on their results. From a practical point of view, the energy audit is a technical document which identifies opportunities for energy savings in terms of costs and benefits of the intervention. It identifies the measures to reduce energy expenditure and the return on investment, as well as possible improvements in the building's class and in the energy certification system and the motivation for the choice of the plants to be implemented. The audit should be addressed at both the building and the energy power plants. The Energy Audit starts with an assessment of the consumption of energy from bills, for each energy source used. After the necessary data is collected, the energy model is developed, considering the actual use of the building and the actual operating profile of the users, until a maximum deviation of ±5% from the actual energy consumption is achieved. In this way it is possible to allocate the consumption of services and losses to the various components of the building envelope, so that the most technically and economically advantageous energy requalification measures can be identified. To draw up an Energy Performance Certificate and an energy audit it is important to correctly request and collect data. So, the trainer explained which essential and not essential data should be collected. The final part of the lesson was dedicated to the illustration of the different pages that make up an EPC. Finally, the trainer, after some concrete examples, explained that the difference between EPC and energy audit is that EPC is based on a standard calculation, while energy audit is carried out considering real conditions.

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A prefeasibility assessment of interventions is carried out by drawing up a study that examines the provisions of the Italian decree regulating the 110% Superbonus, firstly analyzing whether the building in question meets the basic requirements to qualify for the Superbonus and, secondly, identifying the characteristics of the building envelope and installations. After that, a thermo-technical project is drawn up and, using a specific software, the relevant calculations are carried out, which are necessary to assess the situation. This analysis leads to the assessment of the energy class of the entire building before the intervention. Subsequently, energy refurbishment scenarios must be defined and analyzed and cost estimates formulated.

2.5.4. MODULE 4 - Methodologies for conflicts facilitation and mediation

The first part of the lesson was dedicated to the effectiveness of the communication. Here below some important topics on the matter. In the interpersonal communication process, there are two main actors: the one who speaks (**sender**) and the one who listens (**receiver**). The sender can transmit the message through two channels:

- *with words: verbal language,*
- *with gestures, mimicry, gaze...: non-verbal communication.*

Understanding the message is an essential aspect of communication. Talking in our living room or in our superior's office are two different situations that prescribe different messages: this is called the CONTEXT in which communication takes place. The CONTEXT tells us how we should communicate our ideas or intentions, with what kind of words and in what form (CULTURAL CODES PRESCRIBED BY THE CONTEXT). There are also other cultural codes indicated by the culture to which they belong. Each people use a language and non-verbal conventions to communicate, which define the cultural codes. In other words, THE CODE is a tool used to translate and make the message understood. In the process of communication, ideas, feelings, emotions are continuously transmitted. When we transmit content, it takes on different meanings in relation to the tone of voice, the mode of expression, the relationship between the subjects, the context in which it takes place, etc. There are two types of messages:

- *the CONTENT which communicates "what is being transmitted",*
- *the PSYCHOLOGICAL MESSAGE which is the product of the relationship between the content, the feeling transmitted and the context in which the action takes place. This "message" indicates to the receiver how the message is to be understood/interpreted.*

Feelings are often conveyed through non-verbal expression, as this is the most immediate and spontaneous channel for expressing our feelings and emotions. If we put two weights on the scales:

- *in the first there is WHAT I SAY: i.e., the content of the message,*
- *in the second there is HOW I SAY IT: tone of voice and non-verbal communication.*

The second would weigh 13 times more than the first (7% of words VS 93% of manner). Thus, it can be said that the message transmitted produces an effect on the receiver. The first effect relates to the feeling that 'hits the gut' of the receiver, which may be quite different from what the person speaking intended to convey. The listener will react according to the psychological message received and the feeling that struck him, using in turn a specific content, and returning a psychological message. The return message is called feedback. The roles of the sender and receiver are exchanged causing continuous feedback.

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Feedback given at the wrong time or in the wrong way can have an effect that can range from useless to negative for the person receiving it. Therefore, acquiring the ability to give and receive effective feedback can be very important.

Effective feedback is:

- *descriptive and non-evaluative, it serves to focus on what the "person does" rather than what the "person is",*
- *focuses on the feelings felt by the person who has experienced a behavior and is sending the feedback,*
- *is specific rather than generic,*
- *is directed towards a modifiable behavior,*
- *is required rather than imposed,*
- *is given at the right time,*
- *is verified to be sure that the communication was clear,*
- *should be useful for both,*
- *does not ask why.*

Some basic questions not to be missed:

- *What context am I in?*
- *Who are my interlocutors?*
- *What are our roles?*
- *What time do I have available?*
- *Does what I am about to say really serve a purpose?*

Then, the trainer focused his presentation on the topic of the "**group**". The group is a collection of people interacting with common goals, with interdependent roles, with common norms and with a common perception of their own unity. In the sociological perspective, the presence of an objective datum (purpose, social status...) is sufficient to define the existence of a group. In the psychological dimension, the group exists to the extent that its members perceive it as such. The group is a system within which different elements interact in a continuous process of retro feeding. The various elements interacting with each other define the 'culture' of a group, which will determine the way in which relations between members are managed and decisions are taken. The elements that interact in the formation of culture are:

- *NEEDS: the needs that the members of the group wish to satisfy,*
- *VALUES: the goals introduced by people that guide their behavior,*
- *NORMS: the explicit or implicit rules of behavior that must be followed by the members of the group to satisfy their needs,*
- *STATUS: the social position occupied by a person on a scale of positions,*
- *ROLE: the set of rights and duties held by those who occupy a given position of status, in relation to others who are in lower or higher positions,*
- *ATTITUDES: the inner predispositions, fixed and lasting, towards objects, people, and contexts,*
- *BEHAVIOUR: the concrete and observable actions of the members of a group,*
- *REWARD SYSTEM: the system of rewards and punishments that the members of a group hold in relation to each other and that the group uses to maintain its culture. The culture of a group represents the fruit of a process of interaction between people within a context and is useful because it represents a way of saving energy in the process of satisfying needs, indicating the appropriate behaviors that individual members must put into action.*

The **decision-making** within a group is determined by the culture of the group. There is no such thing as the 'correct' decision-making mode, but it is important that the members of the group are aware of the decision-making mode they tend to act in and can assess its effects in terms of both opportunities and negative consequences. The decision-making patterns that are most often implemented can be simplified as follows:

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- *decision by authority,*
- *decision by forced minority,*
- *decision by majority: vote and/or consultation,*
- *decision by consensus,*
- *decision by unanimity.*

Culturally we tend to identify people working together with a working group situation, but there is a substantial difference between WORKING GROUPS.

WORKIN GROUP – MODEL 1: this occurs when each person has the task of carrying out a part of the work correctly. The product of the work is simply the sum of the products of the individual members of the group: it is individual work carried out in a group (assembly line model).

WORKING GROUP – MODEL 2: Individuals can influence what others and the group are producing; group members interact with each other, and each person has the power to influence others and the group. The pivotal process that indicates that group work is taking place is collective decision-making.

The next topic illustrated by the trainer was on how to **conduct a meeting**. When we talk about meetings we are basically referring to "A GROUP OF PEOPLE WORKING TOGETHER TO REACH A GOAL". If we want to deepen the meaning of this definition, we can select it as follows:

A GROUP OF PEOPLE *socio-emotional dimension: related to everything concerning the subjects, the "WHO"*	**WORKING TOGETHER** *Dimension of the method: related to what concerns the organization of work, the "HOW".*	**TO REALIZE A GOAL** *Dimension of the task: related to "WHAT" the job produces*
• *characteristics of people: motivations, personality, needs, skills, informal roles, ...* • *characteristics of relationships* • *climate and culture of the group*	• *rules of operation of the group* • *formal roles* • *operational procedures* • *working group techniques* • *leadership style*	• *objectives to be achieved* • *expected results* • *products*

It is easy to see how the three areas influence each other: a task that is too difficult or ill-defined can cause problems in the socio-emotional area because it leads to tension, demotivation, real or presumed manipulation. On the other hand, a climate of mistrust or ineffective communication can affect productivity; finally, procedures that are too rigid or formal can discourage discussion and paralyze creativity. Practically, the area in which it is possible to intervene with the greatest chance of success is that of method, in the sense that through appropriate processes and techniques centered on "how we work" it is possible to influence aspects such as communication, the expression and legitimization of dissent, participation, levels of trust, the correctness of decision-making procedures, etc. Broadly speaking, we can identify four **types of meetings** with different purposes and characteristics:

1. *INFORMATIVE: information is presented through reports, conferences, etc. The number of participants is an irrelevant variable. Communication is mainly one-way. No specific group management skills are required, but it is important to structure the message clearly and comprehensively using visual aids: slides, etc.*
2. *CONSULTATIVE: participants are asked to express opinions, proposals, information, feedbacks useful for making decisions, drawing up plans. In this case a high number of participants tends to discourage participation (possibly work in subgroups).*

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3. *ELABORATIVE: more complex form of meeting as it can include planning, analysis, verification, processing, problem solving and discussion in general.*
4. *DECISION-MAKING: consequent to the elaborative one, it is very significant for the working group as it represents the formal moment of the collective decision and therefore also the most delicate as it has to do with the processes of influence and power management. The number of participants is a very important variable.*

All four types of meetings may be held at the same meeting, at different times or under different agenda items. One aspect to be emphasized is the type of psychological attitude required of people in the four situations: in the information meeting a "receptive-passive" attitude is required in the sense that people listen and ask questions for clarification. In the consultative situation people provide input but have no direct responsibility for the decisions that will be made because of the consultation. In the elaborative meeting and to an even greater extent in the decision-making meeting, the group is asked to take direct responsibility for the work being done. The agenda represents the project and the program of the meeting: it is project in the sense that it should be drawn up as preparation for the meeting itself; it is program in the sense that it defines its course in precise terms. Tips for conducting a meeting: first, the following questions should be asked.

Meeting objectives:

- *are clear?*
- *shareable?*
- *achievable?*

Scheme of the meeting:

- *have you studied the problem?*
- *are the knots be solved and the important points be stressed clearly?*
- *have you established the priorities and essential objectives to be achieved?*
- *have you thought about the method and order of action?*
- *have you thought about how to fix the goals achieved and the decisions taken (do it yourself, have someone do it on the blackboard, have the secretary do it...)?*
- *did you consider the characteristics of the participants and how to deal with individuals and group interaction?*
- *did you foresee what the obstacles might be to the smooth running of the meeting, whether of an organizational or interpersonal nature?*
- *will there be breaks?*
- *have you prepared a guide or outline of the meeting: objectives, duration, names and origin of participants, important points, essential objectives, possible problems in conducting the meeting, procedure, opening, possible conclusion, method of conducting the meeting, order of interventions, documentation and aids available?*
- *who will be your secretary?*
- *who will coordinate any follow-up of decisions taken?*

Opening speech and start of work:

- *have you prepared it?*

Timing:

- *did you calculate whether you have enough or too much time, and what will you decide during the meeting if you realize that you have too little or too much time?*

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Documentation:

- *has the documentation been distributed to participants before the meeting?*
- *has the documentation to be distributed at the meeting been prepared?*

Illustrative material:

- *schemes, graphics, brochures, photos ... do you need them? If yes, are they ready and checked?*
- *does any participant have to or could bring any illustrative material? Which ones? Is it useful? If essential, is it ready? How does this fit in with the time available? Means and logistics: -Is the room booked?*
- *are there enough seats?*
- *is the environment comfortable (air conditioning, noise, interference, chairs, etc.)?*
- *are the necessary visual and audiovisual aids (flipchart, computer, video projector, interactive white-board...) available? Do they work?*
- *paper, pens, and other materials .... are they available?*

Participants:

- *were they notified of the place and time?*
- *did they have all the necessary information?*

In managing a meeting, the coordinator must be able to choose the type of intervention to be put into action, calibrating it in relation to the different situations.

Clarifying intervention serves to clarify the concepts expressed or the connection between the various contributions.

Exhortative intervention: it aims at increasing the level of "investment" of the participants with respect to the objectives set. For example: in a moment of impasse, the coordinator can stimulate the group by pointing out that within the group there are the resources needed to find the solution, or he can retrace the path taken up to that moment, highlighting the "conquests" achieved and the effort and skills that have been put into action to achieve them.

Summary intervention: serves to take stock of the situation. Necessary when the team is moving from one work segment to another.

Provocative intervention: it is a stimulus intervention that the coordinator can use when the group has crystallized. It is characterized using irony, paradox, or complete silence in response to questions.

Dramatizing intervention: functional to "lighten" a situation of extreme tension that is degenerating without any real reason.

Reflective intervention: personal contribution of the coordinator to the analysis of what is happening to promote moments of reflection on the group itself.

“Stopping" intervention: useful for re-establishing order in communication in relation to content and methods.

Reinforcing intervention: intervention to support a part of the group or individual participant when the coordinator feels that he or she is unable to participate in the discussion on an equal footing with the others (only put in place if it is felt that the situation cannot evolve on its own).

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It may be appropriate and effective to implement a mixture of the above interventions.

THE CHARACTERISTICS OF AN EFFECTIVE MEETING:

- *the aims are clear and shared by all,*
- *the desired results are achieved,*
- *the agenda is clear, well prepared and achieves consensus among all participants,*
- *the type of meeting is known clearly and in advance,*
- *roles are clear,*
- *all participants have had the opportunity to prepare adequately for the meeting,*
- *the environment is appropriate and the atmosphere "supportive",*
- *the power management and decision making are made explicit,*
- *the leader is perceived as fair and impartial,*
- *real problems are addressed openly and "used" in advance,*
- *the meeting is effective,*
- *power management and decision making are made explicit in advance,*
- *the leader is perceived to be fair and impartial,*
- *participants are involved and "used" to the maximum,*
- *tools and expertise are used to support the work of the group,*
- *heterogeneity and expression of different points of view are encouraged,*
- *everyone feels responsible for the success of the meeting,*
- *at the end of the meeting there is an evaluation of both "WHAT" was produced and "HOW" it was produced,*
- *the group expresses clearly how it will proceed (who does what and when).*

In meetings, participants deal with an enormous amount of information, and it is important for all to be able to keep an eye on the data being always produced. Personal notes do not fulfil this task as they only record what is significant for the writer and therefore represent only a partial perception. To overcome this limitation, it is possible to use a very simple and effective tool: the group memory, which consists of large sheets of paper hung on the wall on which the various contributions produced by the group are written. Alternatively, if you have an interactive whiteboard or video projector, you can write them down on a PC. Some tools that can help in managing meetings are:

- *the poster,*
- *the psychological contract,*
- *brainstorming,*
- *the cause-effect diagram.*

THE POSTER. A very useful and cost-effective tool in managing a working group is the poster. It allows the group to compare notes and focus on the same object; provides a record of the progress of the group's work and it makes it easier for the parties to enter a dialogue and to avoid everyone going on with their "own notes in their own notebooks" (with the question of whether we all understood the same thing). In addition, seeing everything written down stimulates creativity and lateral thinking, allowing you to explore innovative hypotheses! Some tips:

- *when writing down what others have said on the board, always ask for confirmation of the wording of the thought,*
- *write legibly and large enough to let whose are taking part to be able to read,*
- *if possible, keep posters of the various stages of the work carried out hanging in the classroom (awareness of the steps taken and the possibility of being able to visually retrieve what has emerged so far at any time).*

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THE PSYCOLOGICAL CONTRACT. The psychological contract facilitates the launch of a working group. For this reason, it is useful to spend some time in the definition of the "psychological contract" to allow participants to share the path they are about to undertake. How to do it.

- *Briefly present the complete work program.*
- *Bring out the expectations of the participants and compare them with the planned objectives:*
    - *propose an activity that allows the participants' expectations of the proposed work to emerge, for example after this experience I would feel satisfied if ...from this experience I would like to leave out ... I feel attracted by ... expected problems ...,*
    - *compare, together, the expectations that have emerged with the objectives of the pathway that you want to undertake and check which ones can be satisfied, and to what extent, and which ones cannot,*
    - *allows the participants to ask each other for guarantees regarding the proposed work, relational methods, ...,*
- *Agree on times and schedules together.*
- *Clearly define the path, the way of working, the theme (content) of the work that the group will undertake immediately.*

It is useful for:

- *with respect to the work proposal, sharing with the participants: what steps will be taken, the objectives, the expected results and the effort required,*
- *enabling participants to ask for mutual guarantees regarding the working method and create a constructive relational climate,*
- *comparing expectations and objectives to define the possibilities and limits of the path, thus avoiding useless frustrations and/or disappointments,*
- *defining and sharing working methods and times,*
- *creating the premises for the subsequent work.*

BRAINSTORMING. Brainstorming is a technique for coming up with creative solutions to problems. It is a tool already used by many facilitators. The original aim of brainstorming is to identify 'possible solutions to a specific, mostly simple problem'. Because of this, it helps to foster the expression of individual and group creativity and to overcome certain inhibitions about expressing one's opinion. It can also be useful in overcoming existing power and leadership structures within the group and discouraging a defensive attitude towards the ideas expressed. The ideal group should not exceed 15-20 people. To encourage expression, it may be useful to have participants sit side by side in a circle to reinforce the mental attitude that one is facing a problem of common interest. The presence of a facilitator is necessary.

- *Present the initial problem in a clear and simple way. It may be useful to write an open sentence on a poster or on the blackboard to stimulate expression and help maintain the focus of the discussion. For example: for me participation is ... in this experience I would not like to ...*
- *Set a time limit for the meeting.*
- *Ask participants to express "The first idea that comes to your mind" and in rapid sequence and association the others.*
- *Make participants respect the rules: suspend judgement, make room even for absurd hypotheses, do not comment.*
- *Encourage the expression of original and creative ideas.*
- *Encourage participants to elaborate variations on the ideas expressed by others.*
- *Welcome any ideas expressed.*
- *Encourage to work dynamically and quickly (keep the pace).*
- *Encourage playful and contagious enthusiasm.*
- *Write down all the ideas expressed on the blackboard or poster board (mentioned in the first point), so that they are visible to everyone and can be used for further elaboration.*

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After an initial "round table", to stimulate reinterpretation of the ideas expressed, it could be useful to collect the key ideas by transcribing them on a blackboard/board into homogeneous groups - giving them titles - dissecting the central ideas, expressing further considerations. Rewriting the proposals can help the group to recognize a tangible sign of collective effort, reduce the tendency to repeat themselves and help stimulate new ideas. One possible way of choosing the final proposal could be to score the various ideas and choose the one with the highest score. Exploration of the feasibility and effectiveness of the brainstormed result will only take place in a concluding phase or after the fact. Brainstorming enhances the most creative ideas, in the belief that even imaginative proposals will be interesting and useful in identifying the final solution. In fact, they will be subjected to a process of progressive refinement and reworking by the group, transforming the most unrealistic and fanciful ideas into feasible proposals.

THE USE-EFFECT DIAGRAMM (FISHBONE SPIN): HOW TO INDIVIDUATE THE CAUSE OF A PROBLEM. The herringbone diagram is a useful tool in the design phase as it allows the causes of a problem to be analyzed. The application is very simple, and the result is achieved very quickly. It is very effective in teamwork but also very useful for the individual designer as it creates, in a short time, a clear map of the causes of the problem to be tackled by highlighting the most important ones. How to do it.

- *Detect the problem you want to solve and write it on the right side of a board.*
- *Draw a horizontal line from the left side to the point where the problem has been written (main line).*
- *Draw oblique lines starting from the main line. Each line will correspond to a category of causes.*
- *From these "spines" the various second level causes will branch out, third level .... To facilitate the initial reflection, we propose the following categories: organizational-management factors; cognitive-informational factors; value factors (principles and values); factors linked to direct advantages and conveniences; economic factors.*
- *Identify the causes.*
- *Select the most important ones and those on which to intervene.*

The next topic presented was the **CONFLICT**.

Conflict is a dimension of human existence that runs through people's lives. It has neither negative nor positive connotations. Conflict belongs to the life of every human being. The tendency is to keep the micro-conflict hidden (especially if it affects us in some way). The cultural drive is ambivalent: on the one hand, we are driven to interpret conflict as a negative and strongly connotative event for the parties involved and, on the other hand, we are driven to act in a conflictual way. How can this cultural model be undermined? What alternative culture to propose? The cultural model proposed by "conflict management" describes conflict as a "communicative failure" between two or more people to which it is not always possible to find a solution (as opposed to the positivist paradigm, which inspires the cultural model of "conflict resolution", according to which all human problems are scientifically approachable and therefore scientifically solvable). The figure who can facilitate this process is the facilitator, whose role is not to resolve the conflict but to accompany the parties in their search for a way out. The resolution of the conflict can only be found by those who have 'opened' it. The mediator is equidistant and 'equivocal' to the parties. He does not side with any of the parties but at the same time supports all of them. His position is not one of neutrality, as neutrality implies emotional distance, but of closeness to the states of mind of the parties involved.

Conflict by its nature increases in vigor and strength. It starts very 'small', sometimes from trivialities, from which the parties lose contact as the conflict situation develops. In the initial phase, the parties are still able to manage the conflict themselves. We can speak of self-management of the conflict. The ability to get out of it will be directly proportional to the ability/willingness of the parties to negotiate. The ability to negotiate lengthens the self-management phase of the conflict and prevents it from degenerating. In the second phase of the conflict the parties lose the ability to manage the conflict: "it is the conflict that manages the parties!". In this phase the solution proposal of one of the parties does not facilitate the negotiation but accelerates the

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escalation of the conflict. A third party is needed to find a way out. At this stage, the conflicting parties are like gorillas beating their chests to show their destructive power but not yet acting. If a third party does not intervene, we enter the "armed phase of the conflict". The sole objective of the conflicting parties is the destruction of the other party. The facilitator's intervention is no longer sufficient in this phase. In this phase a coercive intervention is needed, which does not pretend to be decisive, but should have the sole purpose of lowering the tension of the conflict and bringing it back to phase 2 so that a facilitator can intervene to help the parties to regain the ability to self-manage the conflict. If the conflict escalates the facilitator has to de-escalate it, so his task will not be to ask what the solution is, but where is the conflict to make it "de-escalated". The objective will not be to arrive at the formalization of an agreement but to recreate the conditions for the parties to sign the agreement.

2.5.5. MODULE 5 - Energy renovation of buildings: economic assessment

The trainer introduced the topic by pointing out that the evaluation of energy efficiency investments follows the same logic and the same economic and financial principles as any other investment, with some specificities to be highlighted. Establishing the factual status and the consumption baseline is the first step in evaluating the project, also from an economic and financial point of view. To calculate historical consumption, the following aspects need to be considered:

- *the definition of historical consumption must be based on real consumption data of the buildings in question, either from utility bills or from meter readings,*
- *consumptions should be associated with a defined pattern of use (considering any uninhabited/unused units),*
- *consumptions should be associated with the climatic conditions of the period in question, using then the Day Degrees measured in the same years (the use of Standard Values tends to lead to distortions in the estimations).*

For a more accurate measure of economic savings, the current value of energy prices should be used rather than the historical value. The definition of the project status and the potential savings must be carried out in the same conditions with respect to the baseline arrangements, with corrections being made, if necessary, in the event of any changes.

- *The cost savings estimation may also include an estimation of the possible minor or major costs associated with maintenance and repair works because of the measures. In this case, however, these minor costs should be considered separately, so that they do not bear on the calculation of actual energy performance.*
- *The business plan is a tool that makes possible to calculate several useful indicators to verify the sustainability, bankability, and profitability of an investment. In energy efficiency projects, the development of a business plan is rather simplified, as it is sufficient to define a few variables (investment cost and expected savings) to obtain a measure of the value of profitability.*
- *The main indicator of investment economic assessment, the simplest and easiest to calculate, is the payback time, which represents the number of years needed to pay back the investment. It provides an immediate indication of the consistency of the investment, to be compared with the time expectations of the investor, but it does not consider the time value of money and does not provide an indication of "how good" an investment is. The indicator cannot be used to compare different investments (a 5-year payback investment is not necessarily "better" than a 10-year payback investment).*

From a financial point of view, the most useful indicator for evaluating an investment and comparing it with others is the Internal Rate of Return (IRR), which represents the average annual rate of return on the operation. The IRR represents, on average, the annual rate of return on the investment. To calculate the IRR, it is necessary to draw up a forecast of the project's cost-effectiveness over a defined period (e.g., 10 years).

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The Net Present Value (NPV) then represents the sum of the project's capital expenditure, discounted to a defined value (capital cost). Mathematically, the IRR is calculated iteratively as the rate of return that reduces the Net Present Value of the project to zero. To evaluate the IRR and calculate the NPV, it is necessary to identify the cost of capital, which is partially subjective and not universal. The cost of capital represents the average yield on the market for an investment of comparable risk to the one being valued. It is a concept of opportunity cost, which represents what an investment alternative to the risk factors would yield on the market. If the IRR is greater than the cost of capital, then the Net Present Value is positive, and the project is therefore financially viable. If, on the other hand, the IRR is lower than the cost of capital, this means that the investment in the valuation is less profitable than other investments available on the market with the same level of risk, so that the NPV is negative, and the investment is not profitable. In the case of borrowing, it is necessary to differentiate between the profitability of the project and that of the investor by calculating the relevant indices. The IRR of the project is calculated on the project's cash flows that do not consider the financial structure. The project's NPV is calculated on the project's cash flows using the WACC as a discount rate. The shareholder's IRR is calculated on the shareholder's cash flows. Shareholder's NPV is calculated based on the shareholder's cash flow, using the cost of capital as a discount rate. Although limited, technical risk factors can affect the profitability of an energy efficiency project and should be considered in a careful assessment. There is always a risk, compared to the project plans, that because of the interventions, profitability may be negatively affected by:

- *lower energy performance than expected,*
- *higher investment costs due to unforeseen extraordinary maintenance requirements.*

For large projects, it is important to consider and evaluate the risk to have "worst case" information. In conclusion:

- *the first step in the economic evaluation of an energy efficiency investment is a correct and accurate calculation of the baseline values and an accurate definition of the conditions under which the baseline was calculated (day rates and usage factors),*
- *the economic and financial evaluation of investments should not be limited to the payback period and should consider more consistent and comparable indicators such as IRR and NPV,*
- *the IRR must be compared with an opportunity cost of the resources invested, which is calculated in a proportional manner and in any case aligned with the investor's expectations of profitability,*
- *the IRR and NPV profitability indicators are purely financial instruments, which assess the suitability of an investment project only under the profile of its profitability in relation to risk,*
- *in his assessment, the investor may also consider other non-financial factors, parameters or indicators that may influence his judgement of the advantages in terms of cost-benefit considerations (e.g., increased comfort, increased value of the property, etc.),*
- *the estimations of the energy savings achievable because of interventions should always be precautionary and consider that there are always technical risks that may affect energy performance.*

2.5.6. MODULE 6 - Superbonus 110% and other incentives

During this module it was explained what the 110% Superbonus consists of and how it works. In fact, it is a benefit, foreseen by Italian law with a specific limited duration, which can be used for energy saving measures in buildings. The benefits granted can take different forms: discount on the invoice, tax deductions, etc., which vary according to the building’s characteristics, typology of interventions and the potential beneficiaries. The trainer explained some possible interventions using concrete examples.

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2.5.7. MODULE 7 - The building in the urban context: principles of sustainable urban regeneration

2.5.7.1. Designing eco-friendly neighborhoods

In Europe, 74% of the population lives in cities. Cities and local governments in the broadest sense can play an important role as laboratories for experimenting with new policies for adapting to climate change. The topic of sustainable cities is also recognized in the 2030 Agenda that dedicated to it the Objective 11: to make human settlements inclusive, safe, durable, and sustainable, according to the following priorities:

- *reducing the negative effects of the environmental impact of cities, in terms of air quality and waste management,*
- *providing access to sustainable, safe, and convenient transport systems,*
- *promoting inclusive and sustainable forms of urbanization, based on a participatory and integrated approach to urban planning,*
- *ensuring universal access to safe and inclusive green public spaces.*

Then, during this module, the trainer explained the role that cities play in pursuing sustainable development objectives, the relation between cities and climate and how it is possible to move from bioclimatic architecture to resilient urban regeneration. The trainer presented some case studies: the neighborhood approach and the comparison of eco-neighborhoods. In particular, he underlined that the system of production/distribution of goods that has dominated the last 60/70 years may not be the only one, and certainly not the most efficient. In fact, between the post-war period and 2000, urbanization increased by 400% and the population by 27%. In just a few years, we went from an Italy made up of people without space to a reality without people. It has been built at a rate of land consumption of 8 square meters per second, and there are a lot of empty and/or unused areas in Italy, such as: unmanned railway stations, unfinished public works sites, former factories and warehouses, buildings confiscated from the mafia, unused church property, etc. To move towards a new development of cities, therefore, it is necessary to identify a new conception of the city and of living, in which the participation and involvement of communities is fundamental. The aim is to use spaces according to a cultural, creative, and innovative vocation (place-based approach). Then the trainer started presenting the main climatic hazards for cities. In fact, the potential occurrence of a physical or natural or human-induced event may cause deaths, injuries, or other health impacts, as well as damages and loss to property, infrastructure, livelihoods, service provision, ecosystems, and environmental resources. For example, the temperatures increasing may cause some of the following climate hazards: heat waves, droughts, changes in rainfall patterns, heavy rainfall, sea level rise, increase in extreme events.

For the Mediterranean region, it is estimated that the impacts for cities could be: more frequent extreme hot temperatures, less rain and reduced rivers, increased risk of drought, increased risk of biodiversity loss, increased risk of forest fires. In addition, on the socio-economic level: there may be more competition for water, greater need for water for agriculture, more difficult energy production, more energy needed for cooling, more people dying from high temperatures and more likelihood of contracting diseases caused by insect bites. Mitigation and adaptation actions can be implemented to respond to climate change impacts.

Mitigation measures are a prevention strategy that acts on the causes of climate change. They aim to reduce greenhouse gas emissions from human activities to halt or slow their accumulation in the atmosphere.

Adaptation measures are a strategy to tackle the effects of climate change.

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They aim to limit the vulnerability of environmental and socio-economic systems to the negative effects of climate change, reduce the damage caused by current and future impacts and take advantage of any opportunities that may arise. One of possible response to climate change is provided by bioclimatic architecture. The "climatically responsible" building has always been present in the history of mankind, as can be seen from the traditional architecture of extreme-limit regions, as well as from the formal and technical elements that have become established in the traditional heritage of our region - the portico, the roof terrace, the wind vents, the in-situ systems for cooling or heating water or air from outside, etc. Today, bioclimatic architecture is understood as the architecture that can control all climatic parameters and environmental values, using natural cooling systems, integrated solar protection and ventilation systems, and technical devices for the controlled use of natural light in the interior of the building.

The term **'bio architecture'** was coined by a national association - the National Institute of Bio architecture - in 1987. It brings together the themes of ecological architecture and green building. The objective of bio-architecture is to bring the building into a correct relationship with its surroundings, in any natural and anthropic environment, expanding the ecological vision based on historical and anthropological considerations. In short, bio-architecture combats typological uniformity, advocates osmosis with the outside world, suggests the use of natural materials, proposes low construction indices, and supports the protection of individual population centers over larger-scale solutions. Bio-Architecture is linked to science, but also to all those disciplines, not recognized by the official scientific world, which have provided cultural and knowledge-based molecules suitable for solving design and environmental problems. Paradoxically, it can be said that construction responses to different climatic conditions are simpler when these conditions are extreme and do not vary appreciably throughout the year (constantly cold climate, constantly dry climate, constantly wet climate). On the other hand, in limited areas, such as the Mediterranean, where the seasons vary from cold to hot, structural solutions must be able to respond appropriately to the conflicting needs that change throughout the year.

To define the elements to be considered in the project, the necessary climatic characteristics must be recorded. The knowledge of climatic data makes possible to develop the most appropriate design strategies and identify constructive solutions for passive control of the indoor microclimate and to assess the levels of aggression of atmospheric agents on the enclosure surfaces. The elements to be considered in the planning/design of interventions are:

- ***Air temperature and humidity****. Air temperature together with high humidity and ventilation determines the comfort level perceived by the user. The temperature trend shows the daily seasonal temperature fluctuations, with reference to the average temperature for heating and cooling of the indoor environment: day/night summer/winter. Reporting the daily temperature and humidity values to the Givoni bioclimatic chart, both appreciate the comfort levels and identify which parameters need to be addressed to ensure acceptable thermal and hygrometric conditions. Recognition of climatic features necessary to guide design/planning.*
- ***Solar radiation****. Total solar irradiation (MJ/m^2) is a measure of solar input in terms of energy. This parameter is important, for example, in conjunction with data on the state of the sky, for the dimensioning of photovoltaic solar systems. This data is tabulated by UNI as solar radiation on the horizontal and vertical plane for different orientations.*
- ***The state of the sky*** *is one of the meteorological factors influencing the air temperature and the amount of solar energy reaching the ground. A clear sky state produces strong thermal excursion during the day, favoring the passage of a large amount of solar radiation during the day and the phenomenon of irradiation during the night. Awareness of the annual frequency of sunny days (as opposed to short or full days) can indicate the greater or lesser availability of a site for solar energy use, in relation to the expected seasonal gains.*
- ***Wind****. The pattern of winds (frequency in days and speed in meters per second, kilometers per hour or days) may suggest the need to defend the possibility of using these lists for cooling and natural ventilation*

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of the surrounding areas. The relationship between the building fabric and the wind can vary depending on the shape of the buildings and their distribution over the territory.

- ***Modes of heat transmission**. There are three different ways of transmitting heat. Conduction is the transfer of heat/energy through a solid without the presence of matter. Convection is the transfer of heat/energy through a fluid associated with the transfer of matter. Radiation is the transfer of heat/energy that occurs even in the absence of matter, between distant bodies.*

According to the principles of bioclimatic architecture, the building must be able to control the environmental climatic conditions by virtue of its morphological, distributive, dimensional and thermophysical characteristics. In this perspective, the building becomes an element of a larger system. The behavior of the building is influenced by:

- *thermal insulation of the envelope,*
- *thermal capacity of the materials,*
- *transparency of the envelope,*
- *air permeability of the envelope,*
- *building envelope,*
- *building embedment.*

The urban regeneration deals with complex urban problems, adopting multidimensional and integrated strategies that lead to an improvement in the physical, environmental, economic, and social conditions of specific urban areas. An example of urban regeneration is the eco-neighborhood. Eco-neighborhoods are all innovative urban projects that emphasize green building and urban greenery, while also considering public transport, housing density and the socio-cultural mix. Re-creating such realities requires the participation of all actors involved in the process: companies, politicians, construction groups, engineers, architects, entrepreneurs, but also public authorities, energy suppliers and citizens themselves. Sustainable neighborhoods should represent, in addition to an excellent technical model for energy saving, an alternative housing, economic, social, and cultural model where:

- *individual consumption is complemented by low-cost and low environmental impact individual or collective activities (a walk in the park instead of an afternoon of shopping),*
- *some of these activities can be carried out in the open air, thanks to the different types of public space available and thanks to a satisfying built/"natural" environment,*
- *economic investments privilege the sectors of high-tech industries, renewable energy production, research, organic farming, and services,*
- *cultural production, in its different manifestations, is an integral part of the project.*

For example, the Pact for Urban Regeneration promoted by Audis, GBC Italia and Legambiente provides a definition of an eco-neighborhood, shared by the promoters, centered on a series of parameters that must be met to be able to attribute the term "eco" to a neighborhood. An approach that can therefore be defined as normative. An "eco-neighborhood" here means a situation in which several parameters relating to the social, environmental, cultural, and economic dimensions are simultaneously satisfied. An eco-neighborhood is a neighborhood that is in line with the most qualified guidelines for eco-cities and urban regeneration (e.g., Leipzig Charter, Audis Charter) and that therefore:

- *redevelops areas that have already been urbanized and rehabilitates degraded areas, which protects green areas and natural resources present, which replaces obsolete buildings with better ones and with new urban quality, which rebalances the relationship between full and empty spaces, permeable and impermeable soils,*
- *combines a balanced mix of urban functions, productive activities and, social classes which offers proximity services, meeting spaces and green areas, which creates community and a sense of belonging,*

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- *improves and promotes urban, infrastructural, and functional connections between the neighborhood and the rest of the city, contributing to the regeneration of the city as a whole,*
- *defines its functional mix (residence, productive activities, services) and infrastructural endowment (transport, green areas, ...) also in relation to the urban context in which it is inserted,*
- *develops in a strong relationship with public transport nodes with the explicit aim of discouraging and reducing dependence on the car and promoting cycling, walking and public transport,*
- *considers flexibility in the use of buildings and urban layout as a design value for building a city that can easily adapt to changes in society,*
- *considers the issue of management as a node that cannot be left exclusively to the self-organization of future inhabitants and users,*
- *reduces energy waste to a minimum and generates most of the energy it uses from renewable sources and on site,*
- *collects and recycles water and waste, builds rainwater drainage systems, green roofs, neighborhood gardens, permeable areas, and diffuse tree planting, to better adapt to the heat peaks and torrential rains resulting from ongoing climate change,*
- *uses materials, manages construction sites, and schedules future maintenance, adopting criteria of safety, health protection, life cycle analysis and environmental management, ecological and economic efficiency,*
- *is defined and adapted to the specific local situation through participatory and integrated design mechanisms,*
- *submits both the overall intervention and individual buildings to sustainability certification.*

The origin of the eco-neighborhood concept can be divided into three phases.

PHASE 1 - Some authors, such as Souami & Kyvelou, or Losasso & D'Ambrosio, identify three phases in the evolution of the eco-neighborhood phenomenon, between the 1980s and the 2000s. According to Souami, the beginnings of eco-neighborhoods can be traced back to the Eco-villages developed in Europe in the 1980s. They consisted mainly of a small number of buildings, to which others were added over time until they became a real community, located on the outskirts of cities or in rural areas. The developers of these projects were mainly professionals and experts, politically active, members of alternative and ecological movements. Convinced of the importance of eco-friendly development and building, the founders of these early eco-neighborhoods defined both the vision and the building process before choosing the site, which was only decided retrospectively, specifically chosen to host and realize their ideas. These realities, originating from "bottom-up" instances and being the result of a strong idea of community, of the will of a lifestyle based on balance and environmental protection, have remained mainly a distinct and parallel phenomenon to the contemporary eco-neighborhoods, although they have some points in common with the latter.

PHASE 2 - The common feature that characterizes northern European experiences is the intention of public authorities to address the issue of urban growth by linking the principles of sustainability with the design of urban parts capable of constituting more reliable models for the contemporary city.

The first experimental neighborhoods of the 1990s were small, ranging from a few hundred to 3,000-5,000 inhabitants, and expressed an advanced but almost 'peri-urban' condition of sustainability, as in the case of the Ecolonia neighborhood (in Alphen aandenRijn, Netherlands 1989-1993, 300 inhabitants) or Vauban (in Freiburg, Germany, 1997-2008, approx. 5,000 inhabitants).

PHASE 3 – It is characterized by a shift towards the conception of larger and more complex urban parts. The new strategy of public intervention in the first decade of the 2000s focuses on proposing programs for the expansion or regeneration of brownfield sites through districts or urban units of 20,000-25,000 inhabitants, which are in turn divided into smaller sub-units.

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Examples of this third generation of eco-neighborhoods are Hammarby Sjöstad (in Stockholm, Sweden 1999-2017, 26,000 inhabitants), Ørestad (in Copenhagen, Denmark 1997-2025, 25,000 inhabitants) Viikki (in Helsinki, Finland 1998-2020, 17,000 inhabitants, of which Eco-Viikki is one of the constituent parts), VästraHamnen (in Malmö, Sweden 1996-2025, 10,000 inhabitants, of which Bo01 is one of the parts). These eco-neighborhoods examples show innovative and above all widely applied technical solutions: systematic recycling of rainwater, use of solar panels and photovoltaic panels. They retain their experimental character over time, allowing technicians and politicians to test, monitor and correct the choices made. Since the mid-1990s, a new type of eco-neighborhood has been appearing on the scene, differing from its predecessors in that it uses traditional procedures but is based on environmental quality criteria. Eco-neighborhood projects in this phase begin conventionally, on the initiative of local authorities or private individuals, and mobilize ordinary planning, design and construction tools, which are supplemented by technical solutions and practices that are the result of a compromise between the objective of pursuing a more rational use of environmental resources and the available economic and design resources. The main characteristics of eco-neighborhoods are summarized below.

1. ***High population density****. High-density urbanization makes it possible to combat land consumption and urban sprawl, but also to ensure better provision and management of services, as well as more efficient mobility planning.*
2. ***Functional mix****. The eco-neighborhood represents an attempt to overcome modernist zoning by integrating residential functions with compatible work activities, commerce with services, facilities and spaces for education, culture and social relations with leisure and sports facilities.*
3. ***Centrality of public transport and soft mobility****. The urban layout is designed with a focus on public transport and bicycle and pedestrian infrastructures, limiting accessibility to private vehicles. This choice results in greater safety, better use of open spaces and less environmental impact.*
4. ***Pedestrian-friendly****. The aim is to design the settlement in such a way that it is easily accessible to pedestrians and that most places of daily interest are located within a distance that encourages this type of mobility (this is the model of the city of short distances).*
5. ***Architectural and urban design quality****. The techno-morphological quality of the buildings, the variety of types, the care of private, semi-public, and public spaces, the quality of the materials used, and the overall functionality of the project are crucial elements for the success and durability of an urban intervention.*
6. ***Preferred use of sustainable building materials****. The use of healthy, environmentally friendly, reused, recycled and local building materials reduces the environmental impact during the construction and decommissioning phases, increasing the ecological footprint of the building.*
7. ***Safeguarding and promoting green spaces and ecosystems****. The protection of biodiversity and their natural environment, as well as the design of a green system and the strengthening of ecological networks, are focal elements for a high quality of human life and respect for the ecosystem.*
8. ***Energy efficiency****. The adoption of energy-conscious design choices, the use of passive systems, low-energy technologies and high-efficiency supply systems result in reduced energy requirements for buildings and infrastructure.*
9. ***Use of renewable energy sources****. The increasing use of renewable energy sources is a key factor in the ecological footprint and energy sustainability of an environmentally aware settlement.*
10. ***Waste reduction and recycling****. A settlement that is truly mindful of its environmental impact must adopt policies to reduce the amount of waste produced upstream and manage it efficiently downstream so that the waste material resulting from human processes is as small as possible.*
11. ***Efficient use of resources****. This involves designing structures and processes that require less energy and raw materials and can return them to the ecosystem without damaging it or finding new ways to reuse them.*
12. ***Minimization of environmental impacts****. The processes and behaviors that take place within the neighborhood are aimed at reducing their emissions into the air, water, and soil as much as possible, and at avoiding harmful repercussions on the ecosystem.*

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The teacher then illustrated some examples of eco-neighborhoods and compared them with each other. In conclusion, it can be said that the characteristics of an eco-neighborhood, as well as the way in which it is designed and built, take on different forms and relevance depending on the context and the cultural and technical heritage of the place in which it is located. Because new urban regeneration interventions are embedded in specific contexts and seek solutions to the problems of the place and the intentions of the community, the direct consequence is that some aspects become more important than others, reflecting this superiority and the name of the intervention. Ultimately, the concept of an eco-neighborhood can be defined as an urban settlement that seeks a new balance between the needs of the individual and the human community of which it is a part, and the needs and fragility of the ecosystem in which he or she is inserted. It is an urban project that aims to satisfy the living, working, cultural, relational and well-being (understood as a state that characterizes the totality of existence) needs of contemporary man, while respecting and safeguarding the ecosystem, with a view to the sustainability of processes and behavior. This vision also constitutes a wide-ranging approach to the future, capable of guaranteeing the rights and possibilities of future generations in the urban, environmental, and social spheres.

2.5.7.2. Energy communities

The trainer started his presentation illustrating that, according to the Energy Market Report 2020 of the Politecnico di Milano, considering an intermediate scenario of development of Renewable Energy Communities (REC) and Collective Self-Consumption Configurations (CSC), in the five-year period 2021-2025 the two energy configurations would potentially lead to:

- *install around 3.5 GW of PV systems (+1.3 GWh of storage capacity),*
- *involve around 150-300 thousand non-residential customers and over 1 million residential customers,*
- *create around 5-10 thousand CSC configurations and around 20,000 RECs reducing by 4-8 GWh grid losses avoided through instantaneous self-consumption,*
- *reduce CO_2 emissions by about 23 Mton (estimated value 460 mln €/year).*

The energy transition:

- *is democratic, accessible, fair and solidarity-based because no one should be left behind,*
- *it is bottom-up and land-centered because it must respond to the needs and requirements of local communities,*
- *it must encourage widespread production, sharing, instant self-consumption because energy citizens are at the heart of the new energy model in terms of both input and benefits,*
- *it must contribute to increasing the share of renewable energy sources in the energy mix because energy production and consumption are among the main emission factors.*

These concepts originate from the Renewable Energy Directive RED II.

1. *Definition of a renewable energy target of 32% by 2030 (target adjustable upwards in 2023 -38-40%).*
2. *Definition of Renewable Energy Communities or RECs (Art. 22) and Self-Consumers or CSCs (Art. 21)*
3. *Citizens are granted the right to self-produce, self-consume, store, and sell renewable energy.*
4. *The possibility of exchanging energy produced by community-owned plants within the REC is recognized.*

Then, the trainer illustrated how the Italian law has changed in the years. It was then explained the concept of Energy community.

- *A legal entity empowered to produce, consume, store, and sell renewable energy, as well as to exchange it among REC members.*

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- *A combination of natural persons, SMEs, entities, or local authorities (including municipalities) in any form if they are not profit-driven as their primary purpose.*
- *A subject based on open and voluntary participation, controlled by shareholders or members located in the vicinity of the installations, owned by the community.*
- *For private companies, participation in the REC should not constitute the principal commercial or industrial activity.*
- *The primary objective of the REC is to provide community-based environmental, economic, or social benefits to its shareholders or members or to the local areas in which it operates, rather than financial gain.*

The objectives of Renewable Energy Communities (REC) and Collective Self-Consumption Configurations (CSC) are the following:

- *to encourage energy transition and instantaneous self-consumption at local level, also to determine positive impacts on the distribution network,*
- *to model energy withdrawals and injections into the grid, also based on the analysis of quarterly consumption data, to maximize the instantaneous self-consumption of energy produced by photovoltaic systems,*
- *to allocate costs and benefits among the different participants, according to the specificities of the context and the rules established by the CER members themselves,*
- *to collect real data of concrete cases to be shared with the relevant bodies (Arera, Mise, Terna, GSE, RSE, Single Buyer, etc.) to favor a better implementation of the REDII Directive.*

Social and environmental objectives of Renewable Energy Communities (REC) and Collective Self-Consumption Configurations (CSC) are the following:

- *to make the energy transition more desirable and accessible,*
- *to raise awareness among community members about rational energy use to maximize energy savings,*
- *to reduce household energy expenditure, with particular attention to vulnerable consumers, to mitigate energy poverty,*
- *to implement replicable models of widespread production and virtual self-consumption that recognize the role of citizens, SMEs and LAs as protagonists and respond to the needs of the territories,*
- *to build mutually beneficial relationships between stakeholders (municipality, households, community, etc., supply chain actors involved),*
- *to foster the local economy and train local resources in energy management to create job opportunities,*
- *to explore innovative business models for involving local areas,*
- *to trigger collective action on issues such as sustainability and common goods to revitalize the local community and foster inclusion.*

The benefits for members joining the REC are:

- *dedicated withdrawal of energy fed into the grid (value 50€/MWh),*
- *maximum tariff recognized by the GSE, for a period of 20 years of:*
  - *100€/MWh shared if the production plant is part of a collective self-consumption configuration*
  - *110€/MWh shared if the plant is part of a renewable energy community*
- *unit fee for own consumption (refund of transmission tariffs established by ARERA Resolution 318): about 10 €/MWh. TOTAL: about 160-170 €/MWh (gross of operating costs).*

As a result of various economic benefits provided by national legislation, in Italy with REC plants the total benefit is about 168 €/MWh. The main revenues allocated to members of the REC are essentially dependent on the concept of shared energy and the corresponding premium tariff foreseen by the Italian Ministry (110€/MWh out of 168€/MWh total), which is the difference between the energy produced by the photovoltaic plant for one hour and the energy consumed by members of the community for the same hour. This means

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that essentially the benefits of a REC depend on production of the photovoltaic system; the ability of the PV plant to consume the energy during its production. The benefits will therefore be greater when, at the same time as producing the renewable energy, communities use energy during the daytime (perhaps by shifting their own consumption behaviors). How does a REC with an installation on a public building works? The public building uses part of the energy produced by the plant, while the rest of the energy is at the disposal of the REC members for sharing. According to the "incentives" decree of the Italian Ministry, for each MWh of energy consumed at the same time as production, there will be an economic benefit shared between the members of the REC. There are three stages in the implementation of a REC:

1. *the feasibility studies:*
   - *analysis of the context by setting up working groups with the proposer and possible local stakeholders,*
   - *identification of the site(s) suitable for the installation of one or more photovoltaic installations in the energy community and definition of peak power,*
   - *estimation of the number of households and other users (e.g., municipalities and SMEs) potentially eligible for the REC, not including proxy consumption assessments of any municipal utilities,*
2. *model definition, campaign, REC constitution:*
   - *the campaign to launch the energy community with events/information hubs to involve citizens and stakeholders potentially interested in the initiative,*
   - *collection of consumer data from participants (in draft or, if available, quarterly data) and analysis of the approximation of profiles for maximization of self-consumption,*
   - *analysis of the EWC model and provision of business proposal in the energy community based on the adherents' opinions,*
   - *legal support for the preparation of the charter and accompaniment for the establishment of the legal entity,*
   - *support and training of technical officers (e.g.: economic framework, critical points of the project and / or network entry, etc.) and supporting promoters,*
3. *implementation of the photovoltaic system and activation of the REC consists in:*
   - *final and executive planning,*
   - *installation of the plant/photovoltaic system(s),*
   - *testing and commissioning,*
   - *registration of the configuration on the GSE platform,*
   - *support and training of a local service provider (identified among the members of REC) to be able to manage the energy community independently in the short term.*

Finally, the trainer explained the pilot case of social housing "Qui Abito" that is being studied in Padova. This is a collective self-consumption project for residences for the elderly that includes 4 buildings (a total of 84 housing units; central heating with heat pump, no gas; owned by a real estate fund). Each building has a photovoltaic system to serve the condominium uses and a Regalgrid® device to monitor production and consumption. Most of the energy produced by the systems is absorbed by the common uses of the condominium. The final conclusions of the trainer about the topic of REC are the following.

- *The role of territories, SMEs and local authorities is central to the success of the initiatives (it is essential to resolve the difficulties encountered, to support and train those who will manage an REC).*
- *Energy communities are an instrument with considerable potential for regenerating areas, combating depopulation, creating synergies between various SMEs, and combating energy poverty (better situation in relation to energy income).*
- *Regional laws should facilitate the implementation of RECs by making available economic resources, without bureaucratic burdens (e.g., preventive energy balances).*
- *With the implementation of the REDII Directive, there will be a further evolution of the model requiring further information and guidance support.*

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- *The application of the "Superbonus 110%" for the installation of systems up to 20 kWp, where applicable, is certainly a very favorable condition for large direct self-consumption systems; it is necessary to carefully evaluate the increase in power above 20 kWp in conjunction with the requirements for opening the electrical workshop and the changes to the electricity grid in accordance with CEI0-21 ed. 2019.*
- *Aim at extending the perimeter of the RECs at primary cabin level through TA/MT conversion, to allow for the future development of new services (e.g., flexibility services, reduction of committed capacity, lower network management costs, etc.).*
- *It is essential, if not necessary, to obtain quarterly data from CERAL users to set the economic scenarios correctly.*

2.5.8. MODULE 8 – Check-up and support to households in energy poverty

First, the trainer explained what is meant by energy poverty:

- *limited economic resources to pay energy bills,*
- *not enough energy available to meet all basic needs,*
- *social exclusion/marginalization,*
- *inefficient houses - inadequate living conditions.*

The definition of energy poverty is therefore based on the following criteria:

- *income/revenue,*
- *ratio of income to energy expenditure (rule of 10% of income for energy expenditure),*
- *comparison with consumption of similar dwellings/households (mainly used for hidden energy poverty),*
- *difficulties in meeting basic energy needs.*

In Italy there is no formal definition of energy poverty, but two definitions are generally used informally:

- *electricity expenditure is above 5% of one's income and/or gas expenditure is above 10%,*
- *eligibility criteria for the electricity/gas bonus.*

In the report "*A summary of the National and European measures addressing vulnerable consumers and energy poverty*" the table with the (formal/informal/absent) definitions of energy poverty, in all European countries, is given. The term "energy poverty" appears in energy sector documents for the first time in the 2017 National Energy Strategy (NES), which highlights the need to:

- *strengthen energy poverty instruments and reforming the current social bonus,*
- *mitigate energy poverty, specific benefits should be introduced in existing instruments, e.g., in tax deductions, and measures for reducing the energy needs of the poorer population's buildings and for the deep renovation of public housing (social housing).*

In Italy, over the last 15 years, household energy expenditure as a percentage of the total has increased (up to 2013 almost one percentage point). This increase has been greater for less affluent households due to the relative incompressibility of energy consumption. The low elasticity of demand, combined with the difficulty of making the necessary investments to improve the energy efficiency of their homes, suggests the emergence of a phenomenon, also known as energy poverty (EEP), which has been the subject of close attention by the European Commission. According to the European Energy Poverty Observatory (EPOV), adequate heat, cooling, lighting, energy to power household appliances are essential services needed to ensure a decent standard of living and the health of citizens. The access to these energy services enables European citizens to improve social inclusion. Households in energy poverty have inadequate access to these essential energy

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services, due to a combination of high energy expenses, low household incomes, inefficient buildings and appliances, and specific household energy needs. It is estimated that over 50 million households in the European Union live in energy poverty. Energy poverty is a specific form of poverty associated with a range of negative consequences for people's health and wellbeing with respiratory and heart disease and mental health exacerbated by low temperatures and the stress associated with unsustainable energy costs. In fact, energy poverty has an indirect effect on many policy areas, including health, the environment and productivity. Tackling energy poverty has the potential to bring multiple benefits, including less money spent by governments on health, reduced air pollution, greater comfort and well-being, improved household budgets and increased economic activity. In addition to the concept of energy poverty, the concept of 'vulnerability' must also be considered. This is a more undefined concept than energy poverty and does not depend on precise parameters but on living conditions, even temporary ones. This concept is not only linked to the energy market but to the consumer of a good/service in any market (including the energy market). In 2016, the European Commission (DG Justice) conducted a study to further explore the concept of vulnerability. It emerged that Market Analysis / Product Positioning / Advertising / Labelling / etc. are all based on the average consumer, i.e., with an average ability to understand the rules of the market and to choose the most convenient offer / product adapted to their needs. But the vulnerable consumer does not fall into this category and would need greater protection and guidance. A vulnerable consumer is defined as a consumer who, due to socio-demographic characteristics, behavioral characteristics, personal situation, or market environment:

1. *has a higher risk of experiencing negative market outcomes,*
2. *has a limited ability to maximize his/her welfare,*
3. *has difficulty obtaining or assimilating information,*
4. *is less able to purchase, choose or access appropriate products,*
5. *is more susceptible to certain marketing practices (advertising).*

Vulnerability factors can be traced to five different dimensions:

1. *personal and demographic characteristics,*
2. *behavioral characteristics (being confident leads to believing that prices/offers have similar prices/quality/conditions; feeling vulnerable because of the complexity of offers),*
3. *related to the market (not being able to read contract terms and conditions and being out of the markets),*
4. *access (the use of the Internet to search for information has a strong impact on the ability to choose between offers),*
5. *situational.*

Ultimately, people at risk of energy vulnerability/poverty present:

- *low income/income,*
- *high energy bills (also due to medical equipment),*
- *living in inefficient houses (class G)*
- *living in rented houses,*
- *living in a house that is not connected to the gas network,*
- *age between 16 – 24,*
- *live in households with many people,*
- *have health conditions or disabilities,*
- *they have the energy bonus (gas/electricity),*
- *have other financing.*

It has been proven that cold homes have an impact on health.

- *There is a strong association between low temperatures and cardiovascular and respiratory disease.*

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- *40% of excess winter deaths are attributable to cardiovascular conditions and 33% to respiratory conditions.*
- *Children living in cold homes (temperatures below 18° in the bedroom and 21° in other living spaces) are twice as likely to suffer from respiratory diseases. Moreover, cold homes have a negative impact on children's success at school, their emotional well-being, and their determination.*
- *Energy poverty and cold housing have a negative effect on mental health in all age groups.*
- *More than 1/4 of adolescents living in cold homes are at risk of suffering mental health problems compared to 1/20 of adolescents who have always lived in adequately heated homes.*
- *Cold homes increase the incidence of other diseases, such as colds and flu, as well as the symptoms of arthritis and rheumatism.*
- *Energy poverty has a negative impact on dietary opportunities and choices.*

Then the trainer described three project initiatives (SMART-UP, ASSIST and TED) that proposed management and behavioral solutions to reduce energy expenditure (consumption and contracts) and support to energy-poor households. In particular, the results achieved by SMART-UP on a small scale were:

- *tools tested in SMART-UP helped consumers to know more about their consumption (NO significant impact on energy consumption),*
- *tools show better results if they are interactive and easy to use (IHDs Vs. energy diary),*
- *direct assistance through contact with the operator is more effective (After care service Vs. follow-up calls Vs. no human interaction).*

On the other hand, the H2020 ASSIST project, which ran between 2017 and 2020, has tested an innovative model for tackling energy poverty with a holistic approach that can be adopted in different contexts (public-private; social-energy) and is based on a professional figure (TED - Home Energy Tutor) with integrated and enhanced skills on energy poverty issues and the creation of a national TED Network. Currently, there is no TED figure in national/regional directories, and it does not correspond to a "unique" professional profile, but rather to a profile with integrated competences operating in different work contexts. For this reason, ASSIST project intends to train "Domestic Energy Tutors (TEDs)" to aid consumers in situations of poverty/energy vulnerability in their daily energy management. The TED should inform, sensitize, guide, and advise on household energy consumption and consumption behavior. The TED should aid in a personalized way to energy consumers in vulnerable/poor conditions to better meet their basic energy needs. It is important to emphasize that the TED is not a new figure on the market, but an already active operator who can work in different contexts with increased and integrated skills. In Italy, within ASSIST project:

- *122 TEDs were trained (including consumer associations, universities, cooperatives, non-profit organizations, energy advice shops, SECAP municipal counter operators, etc.),*
- *an ICT training and workspace platform of the TED network was created with tools and resources for action,*
- *more than 5,000 people were reached through soft actions (newsletter, virtual counter, Facebook, etc.),*
- *over 600 consumers reached with energy saving of 5.5%.*

2.5.9. MODULE 9 - Energy renovation of buildings: assessment of the economic-financial sustainability of interventions

The purpose of the Energy Performance Contract (EPC) is to guarantee results in terms of energy efficiency. This is an agreement between the municipality and the Energy Service Company (ESCO) whereby payments for energy efficiency investments, supported by the ESCO, are made in relation to the level of energy savings contractually agreed. The ESCO assumes the risk of construction and the risk of availability since the investments made alone are sufficient to maintain the minimum foreseen guarantee. Municipalities do not

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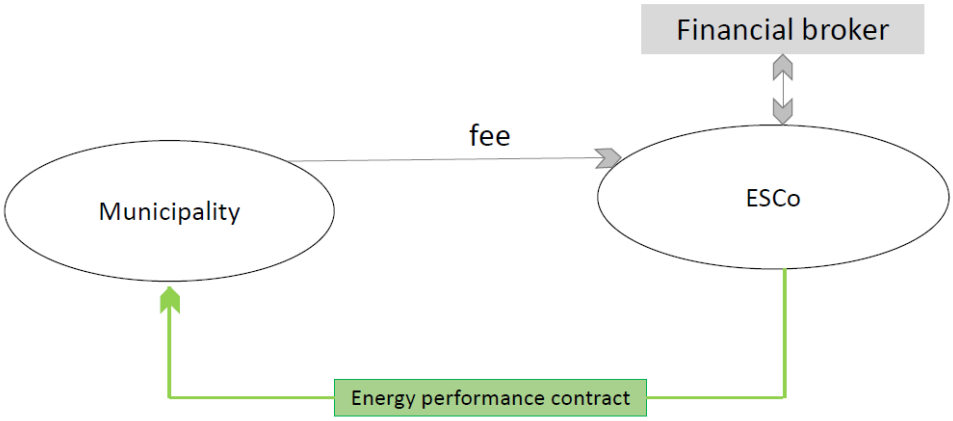
have to budget costs of investment for building and plant efficiency measures, as illustrated in the following figure:



The EPC contract always includes a savings guarantee clause, while there may also be a clause for sharing savings and/or any extra savings.

Guaranteed Savings: the ESCO contractually guarantees savings. Savings more than the guaranteed minimum level may be shared between the parties, and penalties are imposed on the ESCO if the guaranteed minimum level is not reached.

Shared Savings: the compensation for ESCO for the entire duration of the contractual relationship is a share of the guaranteed savings; the owner of the building/contractor has the remaining share of the savings.

The ESCO's obligations consist of:

1. *assessment of economic and financial feasibility of the works,*
2. *design of the works,*
3. *execution of energy efficiency works, upgrading and retrofitting of installations,*
4. *operation and maintenance of works and facilities,*
5. *obtaining the necessary financing.*

The fee due to the ESCO consists of:

- *an "energy efficiency" component, provided that the guaranteed minimum savings are achieved,*
- *an "operation and maintenance" component linked to the historical expenditure incurred by the municipality during the survey period.*

The municipalities will continue to provide their own energy supply. The ESCO can apply for and obtain the energy efficiency certificates or heat account incentives. The EPC contracts provide for several typical contractual clauses to ensure that the effective achievement of the objectives is monitored in time:

- *energy efficiency and energy savings are the main object of the contract,*
- *the EPC contract does not include the supply of the fuel-carrier, and therefore ESCO has no margin on the sale of the fuel and does not have a conflict of interest with the Contractor, who is interested in energy savings,*

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- *the ESCO payment is linked to the actual energy savings achieved (the energy performance measure is not eventual),*
- *penalties for under-performance and awards for over-performance are foreseen compared to the minimum energy savings guaranteed by the ESCO,*
- *the ESCO will be responsible for all activities related to the management and maintenance of the installations to keep them fully functional and efficient throughout the contract period,*
- *the duration of the service is usually 10-15 years to stimulate structural investments, enabling the ESCO to repay the investment made.*

With reference to the energy assessment, for each building the auditor carries out a series of activities to determine the energy consumption of the building, both real and historical, and identifies different intervention mixes with different levels of investment and savings. It starts with the verification of the situation and then it moves on to the collection of historical consumptions, dynamic analysis and the collection of maintenance costs. Depending on the timing of the return on investment, some types of interventions will be of market interest, while those leading to very high savings often requires public incentives or subsidies. In selecting the optimal mix of interventions to be requested from the ESCO it is therefore necessary to foresee and consider all the different variables that, in combination, can determine the sustainability and therefore the attractiveness of the project on the market.

2.5.10. MODULE 10 – Communicating energy savings and energy efficiency

The teacher started describing the communication and interpersonal skills that the neighborhood/community facilitator should possess. Facilitation is the art of guiding people, through processes, towards agreed goals in a way that encourages participation and creativity of all those involved. Therefore, a facilitator:

- *supports individuals within a group in understanding their common goals,*
- *help people move collectively through a process,*
- *structure conversations and apply appropriate group facilitation techniques to keep discussions effective,*
- *encourage participation and get people to propose ideas, thoughts and perspectives that add value,*
- *make all individuals feel like they are in a group with a shared interest.*

Verbal and non-verbal communication, persuasion, empathy and listening skills and emotional intelligence are attitudes that enable a good relationship between the possessor and the environment, creating synergy and harmony between people. The appropriate use of verbal and non-verbal communication determines the ability to communicate one's thoughts clearly and effectively. In fact, the management of tone of voice and gestures, posture and body movements are useful elements to reinforce what we communicate with verbal language and favor the propensity to listen to others. The ability to use both emotional motivations and rational grounds can be useful in convincing interlocutors about adhering to a project or idea, but also about simply accepting a particular point of view. Moreover, empathic skills are particularly relevant in all contexts where it is necessary to implement an effective communication, adapted to the needs of the context and of the interlocutor. Finally, the ability to recognize and manage one's emotions can be used to foster clear, sincere, and respectful communication about the emotions that are present at that given moment. Communication is in fact an exchange of information between two or more entities capable of emitting and receiving signals. Communication is an interactive process in which there is a feedback mechanism (reaction of the other party).

The **context** is particularly important in communication. The context can be:

- *textual, that is purely linguistic,*
- *situational that goes beyond language and comes to life in normal extralinguistic situations,*

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- *cultural in which it is important to assess the cultural background of the receiver to optimize communication.*

The most important component of the context is the place, then there is the relational situation and finally the story. Some tips for good communication:

- *identify the addressee you are addressing,*
- *choose the vehicle for communication,*
- *get used to describing reality objectively, verifying the descriptive coincidence with the user,*
- *make sure the message is received,*
- *compile the message, separating facts from interpretations, sensations, or feelings.*

Tips for preparing for first contact:

- *provide the necessary information, neither too much nor too little. This means that one should always speak with the context in mind, avoiding exaggeration in any sense,*
- *be truthful, give truthful information, as far as you know. One must always tell the truth; if one fails to do so, the conversation loses its primary function, and the principle of cooperation is annulled,*
- *be relevant. The speech, in short, must follow a precise logic,*
- *be clear: one should always be clear and concise when conversing, thus avoiding coarse and ambiguous speech.*

The ability to communicate effectively and to understand the needs of others are among the most useful skills in professional and personal life. Some tips for an effective communication.

Use clear and simple language: always make sure that your interlocutor understands what you are saying:

- *always praise, especially before making an objection: praise is the best tool we must relate to others in a constructive way,*
- *don't be afraid to congratulate a colleague on a job well done, especially if you have a small note to make afterwards,*
- *don't be aggressive and don't criticize; always try to reach an agreement and an optimal solution for you and your interlocutor.*

In the field of effective communication, we must consider what are generally called 'cognitive traps', namely:

- *previous beliefs,*
- *emotions,*
- *incentives,*
- *ability to act,*
- *curiosity,*
- *state of mind,*
- *others.*

Previous beliefs. People tend to move within the boundaries of their acquired beliefs. It is a mental shortcut based on immediate examples that come to a person's mind when he or she evaluates a specific topic, concept, method or decision. It is an unconscious process that influences people's judgements based on the information that is available. For example, the overconfidence is a cognitive error that leads people to overestimate their own qualities and knowledge compared to those of their peers. These individuals then believe that they are more skilled or know more than is true. People tend to put more effort into keeping things as they are and make decisions by asking themselves what they did last time and assuming that what they already did must have been a good idea. To bring a change and overcome acquired beliefs, we need to find common motivations, identify common goals, and leverage emotions.

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Emotions. Arousing emotions helps to communicate one's ideas because emotions are extremely contagious. Very often we modify the emotions of others simply by feeling emotions ourselves. Synchronization is due to the similarity of our brain structures and their reactions. There are differences that make us unique, but we are fundamentally similar.

Incentives. They are linked to the so-called 'law of approach and avoidance'. The law says that we approach people, objects, and events that we think will do us good and avoid those that we think will do us harm. We move towards pleasure and away from pain. Moreover, the expectation of a reward triggers action, while the fear of loss generates inaction. People react to losses more strongly than to gains and try to prevent losses more than they try to make gains.

Ability to act. To influence actions, you must give people the ability to act, to be in control. One way to express control is to be able to make a choice: if I choose the film, I am more likely to like it than if someone else chooses it. The choice is perceived as a reward. Linking choice with reward is a strategic move.

Curiosity. It is important to ask "What makes people want to listen? What do people want to know?". Information is necessary for survival and taking and knowing in advance helps us to make better decisions.

State of mind. When we are threatened, a reaction called stress is triggered. A reaction that we derive from evolution for survival - When we are stressed, we become fixated on identifying dangers. This generates overly pessimistic ideas which, in turn, can make us overly cautious. For example, the ability to make good decisions is a limited resource that can be affected by decision overload and external emotional fatigue.

Others. People are strongly influenced by what they perceive everyone else is doing. It is the behavior of individuals in a group acting collectively without centralized direction. People tend to do what others do. Decisions are influenced by the choices of others but also the visible consequences of decisions. People observe the choices of others but also the consequences of those choices.

2.6. FINAL EXAMINATION

Following the conclusion of the training course for "Territorial Facilitators for the promotion of energy requalification interventions in the private building stock", as initially foreseen by the PadovaFIT Expanded project (task 3.4) a selection took place through the organization of a written test and an oral test, focused on the subjects covered in the 10 modules of the course. The candidates who obtained the five highest scores in the written test were admitted to the oral test. Of the thirteen trainees who expressed an interest in taking part in a final examination aimed at identifying a suitable candidate for a professional collaboration assignment, all fulfilled their attendance obligations (at least 80% of the course duration), a condition for access to the final examination.

The **written test** consisted of 30 multiple-choice questions (3 alternative answers of which only one was correct) and was marked as follows:

- *correct answer: +2*
- *no answer: 0*
- *wrong answer: -1*

The maximum score obtainable for the written test was 60 points. An additional 40 points were allocated to the **oral test**, which, added to the points obtained by the candidates in the written test, determined the final ranking. A short list of six community/condominium facilitators has been finalized.

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3. THE TRAINING COURSE IN TIMISOARA

The course:

- will take place ONLINE in 2022 (due to pandemic conditions),
- will last 30 hours, with daily dedicated sessions of approximately 4 hours –approx 3 working days per week, during maximum 3 weeks, with a program running from 12 am to 4pm,
- will address a MINIMUM NUMBER of 20 people, with an estimation of about 50 people,
- will be addressed mainly to the employees of the Municipality of Timișoara (20 people), but will be also open to others (maximum 30 people responding to the public announcement and complying with the requirements established by the project – CV sent and interview, if necessary),
- will have a program with DEDICATED SESSIONS.

The public announcement will be launched:
- on the website of the Municipality of Timișoara,
- by press release of the Municipality of Timișoara,
- through already existing communication channels, there being interest from design companies, consulting companies, owners associations within the Federation of Tenants of Timisoara, students from the Polytechnic University of Timisoara (profile faculty: Constructions).

The Municipality is going to create a dedicated website and will exploit the existing municipal FB page, where to find materials and relevant announcements or news concerning the One-Stop-Shop (for transparency and easy communication).

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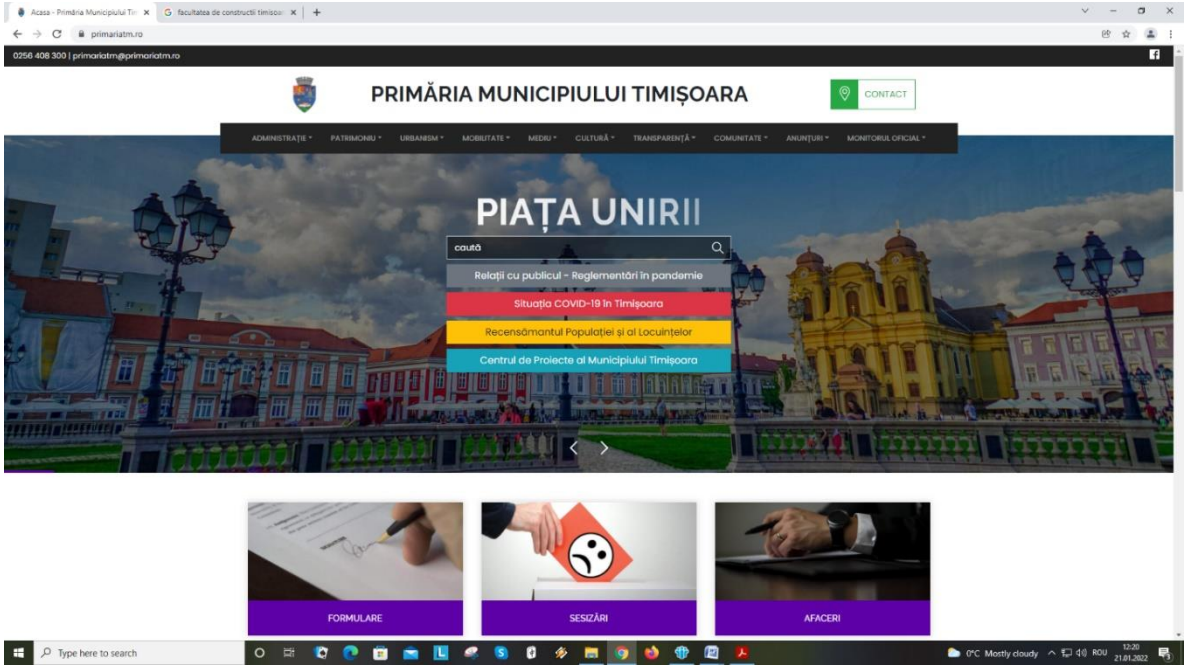

The information will be made available to the Communication Department by the “PadovaFIT Expanded” Project Implementation Team, and will be updated periodically after the completion of the project (November 2022). A person in charge from Office No. 12, Citizens' Information and Counseling Service - Community Relations Department - will have responsibilities in this regard.

To provide the online training course the Municipality of Timisoara will purchase a license for an online meeting platform.

3.1. ATTENDEES

The aim of the training course is to increase the level of information of the following categories of people:

1. **staff of the institution,**
2. **those interested**, which can be:
   - potential intermediaries in the private entrepreneurs market, in this niche segment, which can support by creating a link between:
     - representatives of condominius interested in energy efficiency of their buildings,
     - local public administration,
     - economic operators interested in carrying out works on energy efficiency of buildings,
   - potential candidates for the position within the City Hall of the Municipality of Timișoara in the departaments involved, which would have the advantage of having the necessary knowledge for local government tasks.

In the case of the Municipality of Timișoara, the candidate will support the One-Stop-Shop**.**
This will be a service offered by municipality and addressed to the citizens, condominium administrators, professionals and companies, completely free, and designed to provide multidisciplinary information and to facilitate citizens' efforts through information provided in a single point: from documents required for Urban Certificates, Building Permits, typical applications for the approval of energy efficiency works, to relevant information regarding contact details of technical experts, design companies, architects, site supervision, financial advisory – without incurring any institutional obligation.

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The training course will be carried out:

- with the participation of employees of the Municipality of Timisoara,
- with the possibility of participation of interested citizens who submit their application and CV, after the launch of a public announcement, without representing any subsequent contractual obligation with the Municipality of Timișoara.

The purpose of the training course will be to award a DIPLOMA OF PARTICIPATION, which represents a significant professional advantage:

- for those who already work in the institution and who have responsibilities only in a certain professional sector, without knowing other details from other relevant areas of interest,
- for those who want to mediate citizens / owners' associations in the process of carrying out thermal rehabilitation, facade rehabilitation, energy efficiency. It is intended to be a business card for the niche segment created: the condominium facilitators from Timișoara will facilitate the creation and submission of complete and correct documentation,
- where it is desirable to compete for positions in the departments involved, because the person already knows the procedural details involved in these specific situations and has acquired specific skills.

The Municipality will involve a list of 20 employees of Timișoara Municipality to participate in this training course, from all departments that are targeted by the project objectives, respectively from:
- Citizens' Information and Counseling Service - Community Relations Department (minimum 2);
- Participatory Governance and Neighborhood Management Service - Community Relations Department (minimum 2);
- Owners Associations Department - General Secretariat Department (minimum 2);
- Office of Energy Efficiency Blocks - Technical Directorate (minimum 2);
- Public Buildings Rehabilitation Service, Monuments Department - Technical Directorate (minimum 2);
- Historic Neighborhoods and Monuments Rehabilitation Office - General Directorate of Urbanism and Territorial Planning (minimum 2);
- Urbanism Workshop Department - General Directorate of Urbanism and Territorial Planning (minimum 1);
- Construction Discipline Office - Authorization and Control Department (minimum 2);
- Quality of Life Department - Environmental Protection Service (3 people);
- Project Incubator Directorate (minimum 2).

The Municipality will launch a public announcement to allow those who meet a set of previously established requirements to participate in the course (permissive - but not exclusive):
- level of education - minimum level of high school;
- age between 20 and 55 years;
- technical skills such as using the PC,
- obligation to participate in each session of the course,

Mandatory condition → submission of the participation form + CV + GDPR form).

3.2. PROGRAM

Day 1 – Introduction into the objectives of the training course.
The vision and role of Community / Condominium Facilitators.
Course program and rules.
Coordinator Ella–Anca ȘIPEȚAN – Project Manager, Senior Counselor in Quality of Life Directorate, Environmental Protection Service

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Day 2 – Frequently encountered problems in the relationship with citizens on the topic and purpose of ONE-STOP-SHOP.
Methods of dealing with requests.
Techniques for communication and mediation of conflicts.
Coordinator Domnica–Ioana GEORGIU – Citizen Information Resonsible in EIP, Senior Counselor, Head of Service within the Citizens Information and Counseling Service – Community Relations Directorate

Day 3 – Frequently encountered problems in the situation of performing energy rehabilitation works, building envelope – local administration perspective.
Methods of approaching the demands of energy rehabilitation works, building envelope.
Techniques for communication and mediation of conflicts.
Coordinator Daniela–Sorina POGĂCEAN - Technical Responsible, Senior Counselor within Office of Blocks Energy Effiency

Day 4 – Frequently encountered problems in the situation of performing energy rehabilitation works, building envelope – the perspective of existing technical agents on the market.
Coordinator Cristian–Gabriel CĂRĂBAȘ - Superior Expert (Senior Expert), Senior Counselor in Quality of Life Directorate, Environmental Protection Service
External guests: site supervisors, designers, architects, university professors from the relevant faculties

Day 5 – Frequently encountered problems in the situation of performing energy rehabilitation works, building envelope – the perspective of existing economic operators on the market.
Financing methods.
Coordinator Victor–Cătălin BIRDA - Asistent Manager Proiect, Senior Counselor, Head of Environmental Protection Service – Quality of Life Directorate
External guests: representatives of financial and non-financial institutions

Day 6 – Frequently encountered problems in the situation of performing energy rehabilitation works, building envelope – the perspective of the administrators and the representatives of the owners' associations.
Coordinators from EIP
External guests: FALT representatives, administrators and representatives of owners associations

Day 7 – Q&A, conclusions.
Wide participation.
Handover of Diplomas of Participation: for all participants/trainers.

One-Stop-Shop will act as a link between service providers and final beneficiaries, also functioning as an information center in itself (INFORMATION HUB) through direct communication with existing technical and financial actors in the market.
At the same time, One-Stop-Shop will function as a channeling mechanism for those beneficiaries who wish to access financing through national programs (as far as they are available) and to carry out rehabilitation works through the Timișoara City Hall.
As part of the public administration apparatus, the One-Stop-Shop will have to present a list of accredited/pre-approved private collaborators, with a proven history based on previous experience. These lists will be part of the project result (relevant contact details are requested from competent institutions, eg: State Inspectorate for Constructions, Timiș Chamber of Commerce, Industry and Agriculture, as well as those who are willing to collaborate in the project) and will be made available to the counter within Office no. 12, Citizen Information

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and Counseling Service - Community Relations Department, being updated periodically (once a year or whenever needed) by the person in charge (ONE-STOP-SHOP).
One-Stop-Shop represents the guarantee of an impartial source of information for the final beneficiary, providing officially information and a transparent view of the financial and technical solutions on the market so as to ensure that the beneficiary has access to the best solutions possible for his specific case.
Due to the fact that there is a great reluctance in the collaboration with the public administration from the financial and technical actors in the Timisoara area, One-Stop-Shop gains an important role (it will provide non-existent connections at this time - beneficiaries not having access to accurate, accessible and the whole range of players on the market, they generally have oral information provided by other citizens, personal relationships, etc.) in the opening of the energy efficiency market and rehabilitation works to encourage the market to come up with dedicated products (increasing confidence in the role played by the local public authority will lead to increased fair competition in the field, thus encouraging the whole mechanism involved).
Ideally, One-Stop-Shop can act as a rapid advancement mechanism in the implementation of rehabilitation works through public funding mechanisms and create a critical mass that will lead to a significant change in mindsets towards private players in the market.
Furthermore, One-Stop-Shop may provide to final beneficiaries a step-by-step presentation of the procedures required to access public or private funding, as well as the authorizations required to carry out the work in question.

ONE-STOP-SHOP will be developed as part of the local public administration apparatus, it will be part of Citizen Information and Counseling Service – Community Relations Directorate, practically one of existing counters in Office nr. 12 and it will be dedicated exclusively to this purpose. <u>One-Stop-Shop will provide information and technical advice on certain topics.</u>
There is no danger of duplication of activities given that the other counters only provide specific information on each separate segment, and here will provide specific information for an entire process that considers the ENERGY EFFICIENCY OF ALL PROPERTIES (single-family residential buildings, condominiums, buildings belonging to legal entities). The purpose is to carry out works that benefit the whole city. Thus:

- citizens will be advised with basic informations and their requests will be registered;
- citizens will be advised on the legal, technical and financial aspects of the local multi-annual program to increase the energy performance of buildings or other programs currently in progress;
- citizens will be advised with information on the steps prior to obtaining a building permit, location plans, street nomenclature addresses, clarification of the legal situation in the CF, the obligation to submit documents within the validity period, plot plans, expertise, pictures, historically protected areas, mandatory conditions, etc., and then tabulation if necessary;
- citizens will be advised in case they need the help of specialists in different cases, which require other approaches: claimed buildings, ongoing disputes, uncertain inheritances, properties with land owned by Romanian State/Timișoara Municipality, public or private domain;
- citizens will be advised on the rehabilitation of historic buildings, which involve in addition to the applicable standard legislation and specific legislative constraints;
- citizens will be advised on the conditions of thermal rehabilitation, facade rehabilitation, energy efficiency (energy certification of buildings), green energy, how to reduce energy consumption in the building and save money on bills (citizens will be advised on which technologies to choose for energy efficiency measures and renewable energy production);
- citizens will be advised on how to benefit from existing forms of tax incentives (provided by the local or central public authority) and how to finance interventions (taking into account the different existing and functional options as appropriate at the time: funding programs local/national through financial institutions);
- citizens will be advised on information/list of accredited/pre-approved private collaborators in the technical and financial field, with contact details provided by those who wish to collaborate with One-

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Stop-Shop within this project (a extensive market research has been performed involving technical and financial institutions);

- citizens will receive information materials, standardized forms provided by the project and subsequently updated periodically once a year or whenever needed by the staff at the One-Stop-Shop counter, in collaboration with the departments involved and the collaborating institutions;
- citizens will benefit from direct relations, possible prioritization, with the institutions (existing technical or financial actors on the market) that have expressed their agreement of collaboration in order to achieve the objectives of the project to which we refer.

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4. THE TRAINING COURSE IN VIDIN&SMOLYAN

4.1. ATTENDEES

At the end of the project the pilot Bulgarian municipalities will receive a methodology on how to establish and implement a One-Stop-Shop.

The Bulgarian recovery and resilience plan will provide financing for the establishment and implementation of OSS. At this moment, the municipalities will manage future renovation program in Bulgaria. They have some experience, but there is still a need for training how to implement the renovation actions. The training course was addressed to:

- *municipal experts,*
- *technical players,*
- *building managers and,*
- *citizens.*

The course was attended by 32 people.

Registration for the training course was managed by the Energy Agency of Plovdiv. The invitation for participation was sent to the 50 biggest municipalities in Bulgaria and 13 municipal experts participated on the training.

A second round of the training course is planned for the first half of 2022.

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4.2. PROGRAM

The training course was held in Velingrad, Bulgaria on 29 and 30 November 2021 for a total duration of 18 hours. The course was organized as a two full days training. The training course has been scheduled as follows:

Monday 29/11/2021

09:00 – 09:15	Registration
09:15 – 09:30	Opening
09:30 – 11:00	Development and implementation of the One-Stop-Shop service - presentation of the PadovaFIT Expanded project and the activities in Bulgaria - Milena Agopyan, Energy Agency - Plovdiv
11:00 – 11:15	Discussion
11:15 – 11:30	Coffee break
11:30 – 13:00	Future programs for energy renovation of residential buildings, for replacement of heating devices, pilot projects of municipalities - Liayna Adjarova, Energy Agency - Plovdiv
13:00 – 14:00	Lunch
14:00 – 15:30	How to communicate effectively with citizens - Strashimir Dochkov, Energy Agency - Plovdiv
15:30 - 15:45	Discussion
15:45 – 16:00	Coffee break
16:00 – 17:30	Involvement of citizens, tools for active involvement of citizens - Liana Adjarova, Energy Agency - Plovdiv
17:30 – 18:00	Discussion

Tuesday 30/11/2021

09:15 – 09:30	Opening
09:30 – 11:00	Good practices for fight with energy poverty - programs for energy efficiency in residential buildings and for the replacement of heating devices as a tool to reduce energy poverty - Lily Stamler, Sofena
11:00 – 11:15	Discussion
11:15 – 11:30	Coffee break
11:30 – 13:00	Sustainable Municipal Energy Planning - Influence of the Residential Buildings Sector on the Municipal Energy Balance - Angelina Tomova, Energy Agency - Plovdiv
13:00 – 14:00	Lunch
14:00 – 15:30	Sustainable municipal energy planning - a roadmap for achieving municipal targets for reducing emissions and energy consumptions through renovation of residential buildings - Angelina Tomova, Energy Agency - Plovdiv
15:30 - 15:45	Discussion
15:45 – 16:00	Coffee break
16:00 – 17:30	Filling questionnaire
17:30 – 18:00	Discussion and closing

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4.3. TRAINERS

Trainers were selected among the representatives from the Energy Agency of Plovdiv and the Sofia Energy Agency - SOFENA dealing with the topics of the training courses.

4.4. TRAINING MODULES

4.4.1. TOPIC 1 - Development and implementation of the One-Stop-Shop service

During the first lesson, the main highlights of PadovaFIT Expanded project were illustrated, with a special focus on the creation of a *One-Stop-Shop* in the City of Padova and the replication of the model in the Cities of Timisoara (Romania), Smolyan and Vidin (Bulgaria). Was explained what types of OSS already exist, what kind of services they provide, the factors influencing the OSS operations in the Bulgarian context.

4.4.2. TOPIC 2 - Future programs for energy renovation of residential buildings, for replacement of heating devices

Futured programs for energy renovation of the residential buildings in Bulgaria were presented to the audience, expected from the Bulgarian recovery and resilience plan – for OSS establishment and grant schemes for energy renovation – and from the ERDF funds 2021- 2027.

The other program that could increase energy efficiency is the Operational Environment program that financed replacement of old inefficient stove on solid fuels with new ones, covering the requirements of Eco-design directive. This lesson was also aimed at providing participants with the basic information necessary to manage personal data (of possible users and of people they may meet at public events) in accordance with current European legislation.

4.4.3. TOPIC 3 – How to communicate effectively with citizens

The communication is a very important part of each project. For the active involvement of the citizen into the entire renovation process is necessary to communicate effectively with them and to convince them to participate.

Strong communication in local government creates trust in its citizens. The hope is that this trust will inspire citizens to become involved in their communities. As the relationship builds between governments and citizens, over time, citizens will come to realize that their concerns matter.

The technology gives local governments a multitude of ways to communicate. Print, television, radio, online media, social media, text, and e-newsletters are all communication channels for local governments to be used.

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To make communications strong between the local government and its citizens, staff needs training on how to be effective. Communication of today is different than just writing a news story or clearing a press release. New communication channels such as blogs and social media outlets bring a measure of accuracy and accountability with them. To have strong communication, writers need to match the writing style to the platform.

4.4.4. TOPIC 4 - Involvement of citizens, tools for active involvement of citizens

The Citizens engagement strategy with action plan for Vidin and Smolyan was presented to the trainees.

The main tools for citizens involvement are the followings.

1. Webpage - Almost all municipalities have a webpage and can publish information, news, planned events etc. The main objective of this tool is to provide information to the different stakeholders - homeowners, constructions companies, architects but also collect some data from them giving back useful feedbacks on the need of refurbishment of their house.

2. Social media channels - Almost all municipalities have a Facebook page and can publish information. The main objective of this tool is to provide information to the different stakeholders.

3. Flyers/ leaflets - They can be printed or digital.

4. Poster/ roll-up banners – Can be used for promotional activities. The roll-up banner will be used in the meeting room during the organized events. The posters will indicate the location of the events.

5. Dedicated events - This tool enables a direct contact with the stakeholders and will support in building trust between homeowners and local actors.

6. Promotional products - The promotional materials were distributed - roll-up banners, posters, leaflets, project newsletters, notebooks, stickie notes.

4.4.5. TOPIC 5 - Good practices for tackling energy poverty

Energy poverty is linked to low household income, high-energy costs, and energy inefficiency in households.

The term “energy poverty” is not defined in the Bulgarian legislation. Bulgaria lacks a definition and a monitoring system for energy poverty and only the concept of “vulnerable consumers” is used. The Energy Act defines the term “vulnerable consumers” as “household customers in whose property, supplied with electricity, live persons who, for reasons of old age, health or income are exposed to the risk of social exclusion about the supply and consumption of electricity and who benefit from social assistance measures to ensure the necessary electricity supplies”. It includes a wide range of categories: persons over 70 years of age, living alone, whose sole source of income is their pensions that is up to the poverty threshold for the respective year; persons with 90% or more limitation of workability and who need additional help; families with children with disabilities who rely on additional help; persons and families who already receive targeted aid for heating according to the law on social welfare.

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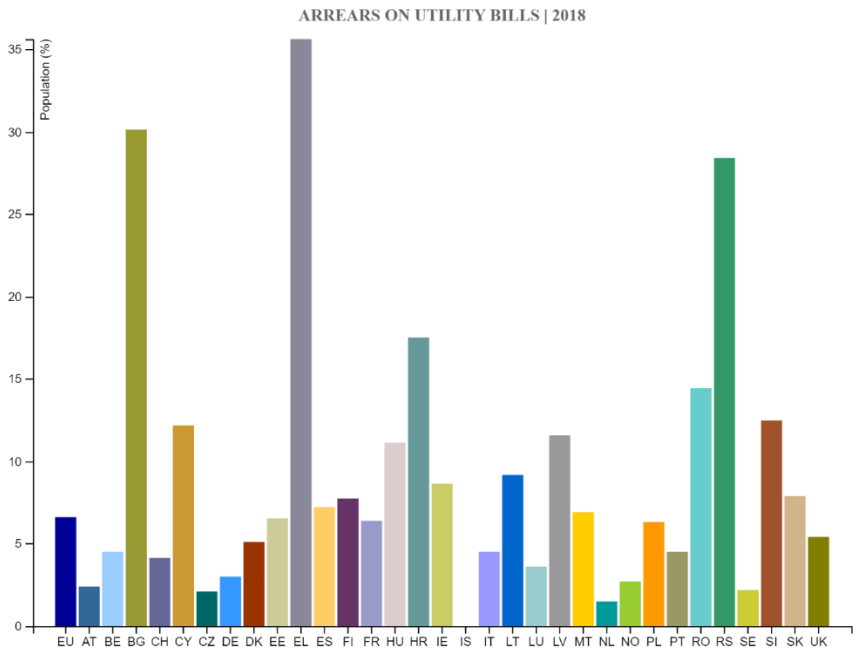
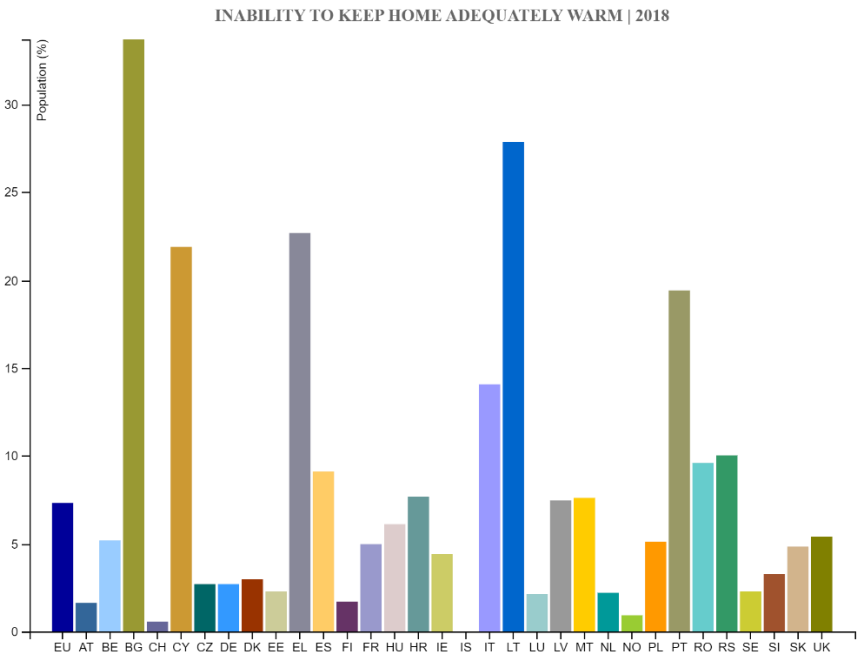
On 2018, 30% of the population in Bulgaria doesn't meet to pay on time the utility bills due to financial difficulties (data and graphics - EU Energy Poverty Observatory - https://energy-poverty.ec.europa.eu).



In Bulgaria 33.7% of population is unable to keep home adequately warm (data and graphics - EU Energy Poverty Observatory - https://energy-poverty.ec.europa.eu).



People at risk of poverty or social exclusion in Bulgaria in 2016 represents the 40.4% of total population (data and graphics - EU Energy Poverty Observatory - https://energy-poverty.ec.europa.eu)

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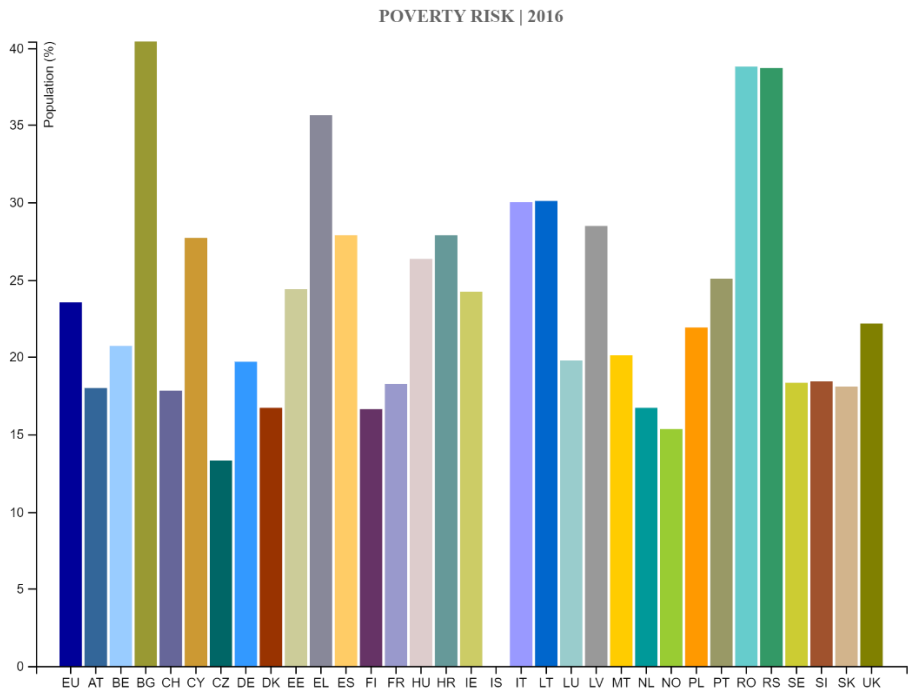

The programs for energy efficiency in residential buildings and for the replacement of heating devices lead to reduction of energy bills and are a tool to reduce energy poverty.

4.4.6. TOPIC 6 - Sustainable Municipal Energy Planning - Influence of the Residential Buildings Sector on the Municipal Energy Balance

The buildings in the EU are responsible for 40% of energy consumption. Roughly 75% of the EU building stock is energy inefficient. This means that a large part of the energy used goes to waste. Such energy loss can be minimized by improving existing buildings and striving for smart solutions and energy efficient materials when constructing new houses. Renovating existing buildings could reduce the EU's total energy consumption by 5-6% and lower carbon dioxide emissions by about 5%. On average, less than 1% of the national building stock is renovated each year.

More than 85% of the residential buildings in Bulgaria are single-family houses. The number of multifamily residential buildings is below 5%, but their floor space is approximately equal to that of single-family houses. The large relative weight of multifamily residential buildings implies significant potential for energy savings and emissions savings. 97% of the residential buildings are private owned and is a barrier to renovation. The largest share of the existing housing stock in the country was created in the period 1960 - 1989 (52% of inhabited residential buildings and 60% of floor area), mostly with prefabricated and reinforced concrete buildings. In this period, for the first-time, requirements have been set for energy storage in buildings, through normative coefficients of heat transfer of the enclosing building elements.

Given that, the housing sector has the highest energy consumption and no large-scale energy efficiency measures have been taken so far: the potential for savings is the greatest. The combination of energy renovation of the residential buildings together with changing of the heating systems will generate lot of savings.

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4.4.7. TOPIC 7 - Sustainable municipal energy planning - a roadmap for achieving municipal targets for reducing emissions and energy consumptions through renovation of residential buildings

Only the 17% of the inhabited dwellings are connected to a district heating system, mainly in big cities, whereas the remaining 83% is heated by own devices. The relatively low price of electricity is a barrier to renovation as the payback period for the EE measures becomes too long. Analysis of the strategical municipal documents (programs for EE, SEAP) shows that there is some reduction of the final energy consumption, but keeping this timeframe, municipalities would not be able to meet their energy goals.

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ANNEX 1: THE CERTIFICATE OF PARTICIPATION RELEASED IN PADOVA

COMUNE di PADOVA

PadovaFIT Expanded

ATTESTATO DI FREQUENZA

Si attesta che

[redacted]

ha partecipato al Corso di formazione **"Facilitatori territoriali per la promozione degli interventi di riqualificazione energetica nel patrimonio edilizio privato"** della durata complessiva di 29 ore presenziando ad almeno l'80% del monte ore.

Project manager
PadovaFIT Expanded
Daniela Luise

SETTORE AMBIENTE E TERRITORIO - INFORMAMBIENTE - COMUNE DI PADOVA

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ANNEX 2: THE TRAINING COURSE IN PADOVA - PRESENTATIONS

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