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CET training book for public administrations

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PLAN4CET

Cities and urban areas have been identified as the main opportunity in reaching climate neutrality, as they consume 78% of the world's energy and produce more than 60% of GHG. This need and vision are shared across EU cities and regions, but the climate neutrality transition process is complex, and many barriers have been identified. Even local and regional authorities have shown commitment to achieve climate neutrality, the lack of appropriate horizontal and vertical CET governance, integrated and holistic solutions and lack capacity (knowledge and resources) to develop and implement CET plans and strategies slows down the development of these process.

The general objective of the PLAN4CET project is to support European regions and cities to design, develop and implement Clean Energy Transition plans according to their needs and possibilities. To do so, the project has been conceived as an initiative where different project outputs (methodologies, tools and capability building and technical assistance) will be generated to support EU regions (specially to support medium and small unicipalities with a capacity lack) and cities in their CET planning, implementation and monitoring ctivities. The project will directly support 3 EU regions in improving the Climate and sustainable Energy Action Plans in pilots to be carried out in Navarra (ES), Skäne (SW) and Emilia Romagna (IT). These regions represent different type of EU regions and will serve as samples to many others in which the learnings and best practices can be transferred.

PLAN4CET is executed by a consortium composed by a group of 11 entities located in 4 European Countries (Spain, Sweden, Italy, and Belgium), involving different type local and regional public authorities together with other entities.

Summary

Summary of Deliverable

This Training book, developed by Plan4CET project partners, publishes different types of capacity building activities and trainings to improve the skills of local administrations, both policy makers and public officers, in relation to Clean Energy Transition (CET) planning with the long-term goal of carbon neutrality.

This Training Book describes three different capacity building programmes:

• Transition Manager (Chapter 1)

• Transition Expert (Chapter 2)

• Zero Carbon Community Manager (Chapter 3).

Each programme consists of various modules. Within each chapter, each sub-chapter explains the relevance of the topic for CET planning, describes the module's content and provides context information. Additional resources, such as selected best practices and references are provided within each the module in the "Resource" section.

A final chapter includes practical Tips for an effective delivery of the training programmes based on the author's experience.

The Training Book is meant to be used by PLAN4CET pilot regions and to be replicated in other European regions interested in rolling out a capacity building programme for local administrations. Based on the specific needs as local administration, the different training programmes or modules proposed can be selected and adapted to the local context.

As part of deliverable no. 3.1 "CET training book for public administrations," two annexes are available as separated documents. The first annex consists of a collection of slides for each capacity building program (Transition Manager (Chapter 1), Transition Expert (Chapter 2), Zero Carbon Community Manager (Chapter 3)). These slides can serve as a basis for presenting the various programs and can be customized as needed by the user. Each program has a unique layout to differentiate the different programs.

The second annex, on the other hand, is a catalogue of 30 best practices implemented by PLAN4CET partners, which can be used as case studies when delivering the courses. Each best practice describes the observed challenges in implementation, the consequences, results, and costs, providing an overview of the implementation approach and insights into the feasibility of replication in other locations.

Disclaimer

This publication reflects only the author's view, the Agency and the European Commission are not responsible for any use that may be made of the information it contains.

Abbreviations

CCC Climate City Contract

CET Clean Energy Transition

EE1st Energy Efficiency First Principle

EU European Union

GPP Green Public Procurement

NZC Net Zero Cities

PED Positive Energy District

REC Renewable Energy Community

SECAP Sustainable Energy and Climate Action Plan

TOC Theory of Change

Table of contents

Annexes published as separated documents:

Annex 1: Slides
Annex 2: Best Practice Catalogue

1. Introduction

The objective of the capacity building programmes described in this Training Book is to develop new skills in Local Authorities by training both policy makers as well as municipal staff enabling them to better:

- Manage the transition trough the support of tools and methodologies developed in Plan4CET project and beyond, but also with improved soft skills which are required by the complexity of the transition;
- Understand the transition with an improved knowledge on technologies, legal and administrative aspects related to the implementation of CET solutions;
- Manage energy communities and steer their evolution towards Zero Carbon Communities.

This Training Book describes three different capacity building programmes:

- Transition Manager (Chapter 2)
- Transition Expert (Chapter 3)
- Zero Carbon Community Manager (Chapter 4).

Each programme consists of various modules. Within each chapter, each sub-chapter explains the relevance of the topic for CET planning, describes the module's content and provides context information. Additional resources, such as "Best practices" and links to websites, articles, webinars and others are attached to the module in the "Resource" section of each sub-chapter. A final chapter (Chapter 5) provides Tips for an effective delivery of the training programme with the aim of offering practical suggestions.

This publication is meant to be used by PLAN4CET pilot regions and to be replicated in other regions interested in rolling out a capacity building programme for local administrations. Depending on the specific needs as local administration, different capacity building programmes or modules can be chosen.

New skills are strongly needed to make the energy transition happen, both for policy makers as well as for the technical staff of local administrations to foster a collaborative governance, cross-sectoriality and the involvement of external stakeholders.
These guidelines provide a comprehensive training programme primarily dedicated to local administrations, but also to cities stakeholders who need to be onboard the transition.

2. Transition Managers Programme

2.1. Learning objectives and overview of the programme

The concept of a siloed energy transition in urban environments is limited: the interconnections with other domains, such as mobility, housing, waste management, food, climate adaptation, biodiversity means that these issues
cannot be tackled one at a time but require a cross-sectoral and integrated approach. The Transition Manager programme is meant to develop the necessary skills to that end.
This training programme is a 40 hours course targeting local authorities staff (municipalities, regions) in order to improve their capacities in planning and implementing actions contributing to the clean energy transition and to carbon neutrality. Modules 1, 2, 3 and 6 are thought to be particularly useful also for policy makers.

Starting from a systemic and cross-sectoral perspective of the transition, the programme introduces participants to new approaches and best practices for the definition of strategies that derive from voluntary planning tools such as Sustainable Energy and Climate Action Plans (SECAP) and the Climate City Contract, up to their translation into measures and actions at the local level. Particular attention is paid to three aspects: **data**, the **involvement of local stakeholders**, and the **effective collaboration between the different levels of governance**.

Each of the following subchapters corresponds to one module of the course which can be tailored based on the needs of the participants and the priorities of the local administration. The delivery of the course can be either in presence or online for the first 8 modules, while the last module is designed as workshop to be held in presence. All across the course, self-study is encouraged to enable learners to become familiar with the subject matter.

The table below summarises the learning objectives and the modules which constitute the programme. The modules in bold are suggested for policy makers' participation.

Table 1 – Transition Manager Programme: learning objectives and modules. Modules in bold are targeting policy makers.

Learning objectives		Modules		Duration (hours)
1	Understanding the systemic connections between CET, carbon neutrality, climate adaptation and how they are embedded in EU policy, as well as the local planning tools	M1	**EU policy & funds on energy and climate**	**2**
		M2	Strategic planning tools - Theory of Change	2
		M3	**Mainstreaming CET and climate action into sectoral plans**	**4**

2	Increased soft skills in the transition management with holistic approach by improving vertical and horizontal governance and engagement of the quintuple helix	M4	**Horizontal & vertical governance**	**2**
		M5	Tools for engagement and working with the quintuple helix	2
		M6	**Leadership and sharing a long-term vision**	**2**
3	Launching CET solutions at city and district level	M7	Deep dive in: REC, PED, financing mechanisms and green public procurement	6
4	Capacity to apply tools to plan and evaluate the performance of the CET actions with an integrated perspective	M8	Tools and indicators for SECAPs and carbon neutrality plans	4
5	Applying the acquired knowledge to a practical case study	M9	Laboratory	16

2.2. European policies and funds on energy and climate

"There are many ways to achieve a goal, but the right means are those that make it possible with greater ease and success."
– J.W. Goethe

Learning outcomes

With this module, participants will learn:

- Which are the **challenges** in the energy sector and related to climate change that European countries have to face at present and in the upcoming years;
- Which are the main EU **policies** in the area of energy and climate;
- What the EU **funding programmes** are and how they can be used to enhance Clean Energy Transition (CET) in regions and cities.

The module aims to provide learners with a general **overview of the EU policies and funding opportunities** at local and regional level. The introductory chapter focuses on the energy and climate challenges that EU countries have to face to guarantee a safe future for their population. From these needs, the EU has adopted a series of policies and strategies to prevent major economic, social, and environmental consequences which are generated by the energy and climate crisis. Future Transition Managers must be aware of all these challenges and how the EU intends to respond to these threats through policies, regulations, and directives. This module will indeed reinforce the capacity of the local and regional authorities to enhance their clean energy transition plans, while learning about the different funding opportunities that are available to European cities and regions. This first chapter of the Transition Manager's programme serves as an introduction to the topics of the CET and how CET plans can be properly implemented at local and regional level. Understanding the relevant EU policies and the available funding opportunities for

municipalities and regions is the first step to allow the future Transition Manager to pursue their role of facilitators in this transition.

At the end of the module participants will be able to:

- Understand some of the main **energy and climate threats** in the EU;
- Recognize the **policies and strategies** that the EU has undertaken to address the current climate and energy challenges;
- Identify the different **European funding programmes**, with a particular focus on the LIFE programme, its requirements, and implications in order to develop a successful project;
- Access different resources to compare and analyze the funding opportunities available in their countries.

Learning format

Lecture, either on-site or online. Self-study is encouraged to allow learners to gain familiarity with all the available EU funding opportunities for regions and cities.

Relevance

Empowering local and regional authorities to act in Clean Energy Transition means providing them with the necessary tools to be part of the change. Before digging into the details of CET planning and implementation, it is fundamental to provide learners with a clear understanding of what the European Union is currently working on in terms of climate and energy policies, strategies, and funding opportunities to local and regional authorities. These policies and strategies are developed to face current challenges that are confronting the European energy sector, and understanding these challenges is therefore the first step to undertake for building a proper background knowledge to achieve clean energy objectives. This foundation knowledge will empower local and regional actors to take accurate actions in the planning and implementation of their energy and climate plans.

The first chapter of the Module aims to introduce learners to the European climate and energy challenges. This chapter is relevant as it offers background knowledge to future Transition Managers on why those European policies and strategies were adopted in the first place. Understanding this sector and the challenges that it must face at present is essential for developing and implementing effective policies and strategies to achieve a clean energy transition.

The module then continues with a second chapter that focuses on EU policies and strategies in the energy sector. This chapter is relevant for future Transition Managers as it provides them with the knowledge and tools to effectively navigate the transition towards sustainable energy in their territories. Having a clear idea of these policies enables learners to align their local plans with European objectives and to contribute to the EU CET agenda.

The last chapter of this first introductory module is dedicated to the European funding opportunities available in the energy and climate sector. Understanding the funding programmes coming from the EU is pivotal for future Transition Managers for effective

governance and strategic planning and access to financing for the implementation of new energy and climate solutions.

Content
The module is divided into 3 main chapters, as follows.

Chapter 1. Introduction to the EU Energy Sector and related Climate Challenges
The aim of this first chapter of Module 1 is to set the context around the European energy sector, its current challenges and how climate change has an impact on those challenges. The energy sector is undertaking important changes to reinforce affordability and security of energy resources in the EU. These changes are imperative as both the current geopolitical situation and climate change have a major impact on the sector, which must find a more sustainable way to continue guaranteeing energy production and consumption. Climate change indeed requires the energy sector to be efficient, reliable and resilient to face current and future energy crisis. This chapter's objective is therefore to allow learners to improve their knowledge about the energy sector in the EU so that they can design and deliver better CET plans that are tailored to their territories. The chapter is divided into the following paragraphs:

- Towards the Clean Energy Transition.
- The EU energy sector: current situation and future challenges.

Chapter 2. Recent developments in EU Energy and Climate Policies
This second chapter aims to provide learners with an overview of the most relevant energy and climate policies and strategies that the European Union has adopted in recent years, particularly with the Green New Deal. The purpose is to allow the future Transition Managers them to participate in the energy and climate debate with appropriate knowledge on what the EU is currently working on to address these issues and the most recent policy updates. In particular, the chapter focuses on the following topics:

- Introduction on EU policies and strategies;
- The EU Green Deal: towards climate-neutrality by 2050;
- The Fit for 55 package: one path to climate neutrality;
- The Energy Efficiency Directive;
- The Renewable Energy Directive;
- The Energy Performance of Buildings Directive.

Chapter 3. Understanding EU Fundings for Local and Regional Clean Energy Transition
This chapter focuses on a selection of funding opportunities available throught the European Union to support the clean energy transition at local and regional level. In outlining the key policy objectives for a specific timespan, the EU dedicates part of its budget to a multitude of funding programmes covering various research areas. These programmes set out rules and requirement for the development of research projects that are fully or partly funded by the EU budget. While fostering the cooperation among

different organizations and countries, the EU projects are a game-changer resource to allow the EU to meet its target for the future.
There are many types of funding programmes available over a variety of areas, from environmental protection to culture and education. Finding the right programme that answers the needs of a local administration is often not straightforward. The aim of this chapter is to help the future Transition Managers recognizing these funding opportunities that can be used to fulfill their CET objectives and the priorities set out by the Union during a specific timeframe. Given the number of programmes available in different thematic areas, the choice of this chapter is to focus on the LIFE programme, which is the financial instrument for the environment and climate actions.

The chapter is therefore divided as follows:

- Introduction to the EU funding opportunities.
- LIFE: the financial instrument for environment and climate action.
- LIFE sub-programme on Clean Energy Transition.
- Finding your way in the labyrinth.

Resources

- EUFUNDS-July22.pdf (fedarene.org)
- Funding Opportunities - Regilience
- EU funding programmes - European Commission (europa.eu)
- Funding_Overview_2021-2027_-_Eurocities.pdf (reselplan-toolbox.eu)
- Guide to EU Funding - 2023 edition | Think Tank | European Parliament (europa.eu)
- Smart MKplace Creating smart cities together | Smart Cities Marketplace (europa.eu). Green City Wiki: tool in the Smart Cities Marketplace website that summarizes all the necessary steps to set up a smart city project.

2.3 Strategic planning tools – Theory of Change

"There is no favorable wind for the sailor who doesn't know where to go"
- Seneca

Learning outcomes
With this module, participants will learn:

- why developing a Theory of Change (hereinafter ToC) is useful for CET and carbon neutrality planning;
- how to make use of a tool that can help them articulate a shared long-term vision, define the steps required to achieve it along with the desired impacts and the ways to evaluate them, taking into account that this tool can be applied both for an internal change process, as well as with the whole stakeholders ecosystem.

At the end of the module participants will be able to:

- design a process to develop a ToC for their city, being aware of the necessary resources and expertise;
- develop skills that will help them work with partners to design projects that deliver sustainable change.

Ultimately, this will reinforce their capacities to identify participated solutions for a complex challenge such as that of the energy transition and carbon neutrality. The approach to the ToC followed by the Horizon Europe Mission 100 Carbon Neutral Cities (Net Zero Cities HE project, NZC) will be adopted in this module to provide practical examples to participants.

Learning format
Lecture and facilitated workshop.

Relevance
ToC is well suited to complex, multifaceted and long-term issues as it helps to focus on the question "how do I make change happen?" rather than "what should my project do?". Thus, it can help avoid falling into the trap of designing familiar activities rather than those most relevant to the change we want to achieve (Pringle P., 2019).
The ToC is "essentially an explanation of how a group of stakeholders expects to reach a commonly understood long-term goal" (Anderson, 2005), hence a planning process which articulates how change can be achieved. It begins by defining the long-term goal or vision statement (e.g. 'a carbon neutral and clean energy city by 2030") and works backwards to systematically laying out each step along a 'causal pathway' – a series of steps which lead towards the long-term goal (Pringle P., 2019).

The ToC therefore is an asset for local administrations in the management of complex challenges such as those connected to facing climate change, which are often reinforced by the economic, financial, governance, organisational, political, and cultural systems in place.

A ToC can be generic (about a general issue, e.g. how innovations are adopted) or specific (e.g. how a new transport solution can be adopted in a given local and temporal context). A ToC approach focuses on the process of change and thus, the many small, intermediate results that are monitored and contribute to change rather than change as the one final outcome. It is about creating a framework to document an initiative, gathering evidence of the process of change and learning about how this process happens. A ToC accompanies an initiative throughout its development and will change with it accordingly, reflecting on the learnings that the inititative has achieved over a certain time.

Content
In the NZC approach, a ToC includes three elements: i) a diagram, i.e. a schematic representation of how changes are expected to happen, ii) an explanatory narrative description that tells the story of the desired change and explains the diagram, iii) a list of the risks and assumptions associated with the change processes.

The **NZC ToC diagram** is a summary of a process that can be developed during facilitated sessions with the relevant group of stakeholders by answering to a set of questions such as:

- What changes (outcomes) are you seeking?
- Which benefits/impacts are you aiming to achieve?
- When do you expect to achieve these changes (early changes and later)?
- Where and under what contexts is this going to happen?
- How do you think it will work in practice and how will one change lead to another?
- What else needs to occur for the changes to happen (assumptions)?
- What will you and others do to make the changes happen (activities)?

The NZC ToC diagram starts from the selection of one or more of the six emissions domains (energy, mobility, circular economy, nature-based solutions, green industry, built environment) to intervene in and the outcomes that are sought. Based on the outcomes, and reflecting on what needs to occur "in order for this to happen", a set of interventions is designed. The interventions are related to six transversal levers domains that can be activated to promote change (technological innovation and infrastructure, finance and funding, social innovation, democracy and participation, governance innovation, and learning, capacity and capability building).

Within NZC TOC, these systemic levers link the emission domains as a coherent portfolio, act as entry points into larger systems-wide transformations and support the design and implementation of a city's actions. The levers amplify and enable early and later-stage outcomes and long-term impacts, as well as lend structure to the city's impact pathways. These transition pathways progress across short-term, medium term and long-term timelines towards 2030 net-zero targets, including direct impacts (like sectoral GHG reduction), as well as a wide range of co-benefits and risks.

The **identification of risks and assumptions** can be both linked to internal or external factors such as available resources, expertise, leadership commitment and support, or emergency situations. Identifying assumptions helps with understanding what other actions, either within or additional to the initiative, may be needed to enhance the likelihood of the intended changes or outcomes occurring, and planning for how any risks are going to be managed. Thinking through these issues is also useful in identifying questions that need to be answered and deciding what needs to be measured through monitoring and evaluation.

While it is assumed that a ToC should be developed merely at the start of the planning phase, this approach can be useful at many stages of the initiative: it is also useful in the middle of an existing initiative as a way to understand and review progress and assess or re-design actions if required, and/ or identify knowledge gaps within the current approach. Finally, it can be used to evaluate the results of an intervention that is finalising, constructing a holistic evaluation approach that supports accountability and learning.

Resources

- The key to developing an effective ToC is to start simple and from the overarching vision statement or desired change, the focus is not on the product but on the process. Knowing who to involve and when is essential.
- The support of a facilitator with experience of ToC during group discussions can be useful to guide through the steps and provide a critical eye without getting lost in the content.

Best Practices

- Municipality of Parma Theory of Change

References

- Net zero cities portal: https://netzerocities.eu/

2.4 Mainstreaming CET and climate action into sectoral plans

"A system is never the sum of its parts its the product of their interaction."
– Russell Ackoff

Learning outcomes

This module aims to provide participants with practical tools and methodologies to include climate mitigation and adaptation measures in local planning instruments in an integrated way.

After attending the module participants will:

- gain knowledge on how different planning instruments can be harmonized and integrated amongst different interrelated domains (e.g. SECAPs and SUMPs)
- learn approaches to address climate mitigation and adaptation more systemically, such as the Climate City Contract and Local Green Deal
- critically reflect on the local planning instruments and how they can be better integrated with a multi-level and cross-sectoral approach.

Learning format

Lecture and facilitated workshop. For each chapter, after an introductory session, participants are invited to brainstorm about their local context and identify strenghts and weaknesses as opportunities for improvement.

Relevance

Local authorities at the regional and municipal scale are asked to commit to, plan and put into practice the clean energy transition at an unprecedented level of ambition and pace of

implementation: this requires adopting an integrated approach in planning and implementing sustainable energy actions.

Cities are complex multidimensional systems and the challenge of climate change affects all of these dimensions. While cities should be reducing their carbon emissions, they should ensure that urban planning is capable of dealing with the pressures of climate change in the adaptation agenda. This implies that cities and their local administrations are urged to rethink traditional territorial planning tools which are characterized by a silos approach. Working on sector or topic specific strategies and initiatives that have been developed in silos can lead to conflicting agendas, implementation challenges, and competition for resources. In the current context of climate emergency, socio-economic crisis, and budgetary restrictions, cities need to deliberately align their different policies to ensure a coherent approach (European Innovation Council and SMEs Executive Agency (EISMEA), 2021).

Local authorities are on one hand asked to implement regional sectoral strategies or general plans, but, on the other hand, the individual municipality and metropolitan cities can launch their own strategies or introduce mitigation and adaptation criteria into local planning and territorial governance tools. Urban climate mitigation and adaptation actions should be the result of strong coordination between plans, institutions and sectors, which requires both multisectoral and multi-level coordination, within and outside the local administration. Starting from the harmonization of plans, this module offers space to reflect on and learn different approaches to integrated climate mitigation and adaptation plans, such as the Climate City Contract and the Local Green Deal.

Content

Chapter 1 - Harmonization of plans

A picture of relevant plans and strategic policy documents with potential effects on climate change mitigation and adaptation in a specific territorial context can be analyzed in order to identify the correlations and therefore possible implementation synergies between plans. Sectoral plans which need to be considered and integrated are for example:

- sustainable mobility plans;
- heating and cooling plans;
- SDG strategies;
- land-use plans and sustainability strategies;
- social/welfare services plans;
- infrastructures plans;
- climate adaptation plans.

Harmonization of plans implies identifying those areas which are complementary amongst different planning instruments in order to steer them towards an overall strategic objective. Within a local authority, harmonization helps different departments share the same vision, cooperate better and optimize the use of resources. Several aspects may be harmonized amongst different planning instruments:

- Strategic vision: all departments taking part in the process (mobility, environment, energy, land use planning, etc.) shall share a common vision and strategic objectives.
- Baseline: all plans rely on the definition of a baseline against which the progress in achieving the plans' objectives is to be measured. Defining common databases for baseline definition leads to more coherence and a more efficient use of resources.
- Stakeholders involvement: a coordinated management of stakeholders' involvement feeds the definition of a single vision and allows a better use of resources.
- Common actions: as an example, low carbon mobility actions contribute to the achievement of the goals of both SECAP and SUMP by targeting improved mobility and energy efficiency or renewable energy.
- Monitoring and controlling: harmonization of reference years and monitoring timeframe enable a more efficient data collection (SIMPLA Project, 2019).

Chapter 2 – Going beyond "business as usual" towards systemic approaches
Two approaches which address climate change mitigation and adaptation in a systemic way will be presented: the Climate City Contract and the Local Green Deal. They both are initiated by political commitment and can be realized with a stepwise approach.

The Climate City Contract (CCC) is an innovative tool to help cities collaboratively address their barriers to reaching climate neutrality by 2030. Each city joining the Mission 100 Smart and Climate Neutral City launched by the European Commission in September 2021, is developing or has developed its own CCC, as overall plan for climate neutrality across all sectors such as energy, buildings, waste management and transport, together with related investment plans. Cities co-create a CCC, including a 2030 Action Plan and 2030 Investment Plan, with key stakeholders - including citizens - at all governance levels to achieve this ambition (Net Zero Cities, 2024).

A Local Green Deal (LGD) is a local tailor-made action plan to accelerate and scale up a city's green transition by creating an alliance with the private sector. It builds on and joins existing strategies - e.g. sustainable energy and climate action plans, circular economy plans, resilience or economic development plans - legislation, market, and financial incentives into a coherent approach to advance the European Green Deal locally (Perez Fernandez de Retana, 2023). The aim of each Local Green Deal is to articulate and strengthen commitment to action for agreed-upon societal responsibilities and to clearly define how and in what capacity each stakeholder will contribute to the Deal's sustainable development objectives.

Chapter 3 – Local context
Each region specific governance and administrative structure as well as strategic policy framework impacting on climate mitigation and adaptation shall be illustrated in this part of the module and participants can be encouraged to reflect on how to future-proof the local plans.

Resources

- Guidebook 'How to develop a Sustainable Energy and Climate Action Plan (SECAP)' - Part 1: The SECAP process, step-by-step towards low-carbon and climate-resilient cities by 2030 | Covenant of Mayors - Europe (europa.eu)

Best practices

- Harmonization between SECAP and SUMP: in the Horizon 2020 Project SIMPLA, cities with a population between 50.000 and 350.000 inhabitants have been in harmonising their SEAPs and SUMPs, based on a sound methodology designed at transnational level developed by the project.
- Parma as part of the Mission 100 Climate Neutral and Smart Cities experimented a new integrated climate neutrality plan with the development of its Climate City Contract
- Integrating energy and climate planning with spatial planning: IN-PLAN (Integrated Energy, Climate and Spatial Planning) is a LIFE CET project which is developing, testing and rolling out the IN-PLAN practice – a long-lasting support structure enabling local and regional authorities to effectively implement their sustainable energy, climate, and spatial plans. The project compiled a list of best planning practices which are available at the report at this link.

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2.5 Horizontal and vertical governance

"Coming together is a beginning. Keeping together is progress. Working together is success."
– Henry Ford

Learning outcomes
With this module, participants will learn:

- Why is **systemic change in governance** needed;
- How to **overcome the barriers and obstacles** in strategic change in governance;
- Understand the difference between **vertical and horizontal multilevel governance**;
- Understand that the **collaboration between different municipal departments** can help overcome complex challenges requiring in-depth cross-domain working.

The module aims to explore the **concept of governance and change in government structure**, illustrating the benefits of internal reorganization and directing learners to improve both horizontal and vertical multilevel governance. This module seeks to show the 6 governance aspects that help to become a climate-neutral and smart city demonstrating how specific silos within local government can be overcome through significant and effective changes in the organizational structure and/or tasks of municipal employees.

At the end of the module participants will be able to:

- Understand how to transform the municipal organisation improving collaboration both levels (horizontal and vertical);
- Analyze the complexity of the city as a socio-economic-infrastructural system and its fragmentation in terms of responsibilities, actors, and procedures;

- How to organise themselves, work together with stakeholders, realise long-term visions, find innovative ways for financing the energy transition.

Learning format
Lecture, either on-site or online. Participants are provided with a lesson on the topic through personal readings, documents, formal lectures, or through videos and multimedia resources.

Relevance
Achieving local, regional/national, and European climate and energy efficiency goals requires a significant paradigm shift and systemic alterations in current governance practices. The main challenge in current governance is the misalignment between the strategic vision for systemic city development and the intricate and fragmented nature of the systems that require transformation (Borsboom-van Beurden et al., 2023). A collaborative effort at all levels of municipal governance is imperative to achieve the goals within the set timeframe. Vertical and horizontal dialogues must take place at the regional, provincial and municipal levels.

Usually, local governments have limited abilities to make changes to current governance practices, as they have to operate within the legislative and regulatory frameworks of their country or region, and municipalities themselves have only very limited legislative power (Knieling and Lange 2018). Only fundamentally different approaches to governance and governance structures are able to bridge the gap between technological progress and the capacity of "city systems" to adopt these solutions on a large scale and address the challenges of climate change and other sustainability issues. Such new approaches to governance must involve formal and informal institutions, and both public and private sectors to bring about positive changes towards sustainability by addressing both social and ecological aspects. Importantly, this also entails that the links between innovative solutions or technologies and governance on local level, in terms of organisational structures, strategies, competences, and processes, should be thoroughly explored.

For what has been said, the present module aims to examine the benefits of improving internal and external relations in pursuit of these goals by demonstrating what can be gained by city governments from implementing changes in governance (Borsboom-van Beurden et al., 2023). For example:

- More possibilities to finance the energy transition: changes in governance enables access to a wider range of instruments to finance the energy transition, such as crowdfunding, tax incentives, private and blended finance or energy communities.
- Future-proof municipal assets, competences and staff: systemic changes in governance require new competencies, roles and staff, for example by hiring expert staff with different profiles, making cities and their administration future-proof to address climate challenges.
- Better negotiations with authorities on vital conditions: the governance changes make municipalities more aware of how they can make informed proposals for

changes in legislation, and negotiate with other government levels more favourable regulations and conditions for bringing about climate-neutrality.
- Branding of innovative local ecosystems: the best governance practices can make the municipality an attractive partner for testing innovative solutions, thus helping to attract talent and capital.

Content

Governance structure are frameworks of rules, procedures, responsibilities and roles that constitute decision-making processes and project management. Below will be given the definitions of horizontal and vertical governance:

- **Horizontal governance:** horizontal multilevel governance refers to collaboration and engagement between entities at the same level of government or within the same level of governance venues. It involves policy actors working together with other actors at the same level to address common issues or achieve shared goals.

- **Vertical govenance:** in vertical multilevel governance, there is a relationship of accountability between entities at different levels.

In summary, vertical governance is characterized by top-down control and centralized decision-making, whereas horizontal governance emphasizes collaboration, decentralization, and shared responsibility among peers. Both models have their strengths and weaknesses and may be suitable in different contexts depending on factors such as organizational culture, goals, and the nature of the issues being addressed.

The chapter aims to explore the concept of governance and government structure change, illustrating the benefits of internal reorganization and directing learners to improve horizontal and vertical multilevel governance. The following summarizes what can be the six aspects of governance that help to become a climate-neutral smart city (Borsboom-van Beurden et al., 2023):

<u>General aspects</u>

1. Learning within and between the cities: collaboration and knowledge exchange among European cities, initiatives, and projects;
2. Regulatory frameworks: addressing difficulties of working within regulatory frameworks when implementing climate-neutrality project portfolios and programmes;

<u>Within city administrations</u>

3. Transforming the internal organisation: making changes in the organisational structure or in responsibilities of municipal employees;
4. City visions and long-term transformation plans: political approval, ownership and leadership are important elements to guarantee the implementation of long-term plans (more information are available inside the next chapter 2.4 entitled “Tools for engagement and working with the quintuple helix”);

Collaboration with external stakeholders

5. Participation strategies and co-creation: city strategies and plans have a higher credibility when support is secured through co-creation and citizen engagement;
6. Public-private collaboration, business models, financing and procurement: collaboration with the private sector often works well and brings in additional financing through public-private partnerships.

Resources

- Judith Borsboom-van Beurden, Adriano Bisello, Daniele Vettorato, Tomas Vacha, Dusan Jakovljevic; "Systemic Changes in Governance. Equipping local governments for realising climate-neutral and smart cities", January 2023.
- Knieling and Lange, "Smart Region" governance for innovation", 2018

Best Practices

- **Florence:** A Task Force for promoting a common agenda in Florence environmental planning decisions and accessing technical capabilities of different departments.
- **Valencia:** City Strategy Coordinator in charge of implementing the Urban Agenda and the Mission Climate Neutral City.
- **Parma:** Carbon Neutrality Alliance of the Province of Parma coordinates all local stakeholders towards the primary objective of carbon or climateneutrality, outline their roles and commitments
- **Navarra region:** multilevel governance of the Covenant of Majors in Navarra. In order to coordinate the support to municipalities for SECAPs development, an ecosystem of agents at regional level has been created expecially to cater for the needs of understaffed small municipalities.

References

- https://climate-adapt.eea.europa.eu/en/mission/solutions/mission-case-studies/valencian-multi-level-collaboration-space
- https://projects2014-2020.interregeurope.eu/potent/news/news-article/13628/parma-s-alliance-for-carbon-neutrality-is-1-year-old/
- https://www.comune.parma.it/it/novita/comunicati/parma-carbon-neutral-2030-il-via-della-roadmap-di-parma

2.6 Tools for engagement and working with the quintuple helix

"The strength of the team is each individual member. The strength of each member is the team."
– Phil Jackson

Learning outcomes
With this module, participants will learn:

- What is the quintuple helix framework;
- Why the quintuple helix framework is important;
- How to effectively implement a quintuple helix framework in projects.

The module aims to explore the quintuple helix framework and tools to effectively implement it in projects. Including pratical tools for citizens and stakeholders engagement, within the module, possible common barriers will also be explored that city authorities face in the transition to climate neutrality. Tools for engagement and working within the Quintuple Helix framework offer valuable strategies and methodologies for fostering collaboration, innovation, and collective action among diverse stakeholders. By employing these tools effectively, organizations, communities, and institutions can harness the full potential of the innovation ecosystem to address complex challenges, drive sustainable development, and create positive societal impact.

At the end of the module participants will be able to:

- Implement the quintuple helix framework in projects.

Learning format
Lecture, either on-site or online. Participants are provided with a lesson on the topic through personal reading, face-to-face presentations, lectures, or through videos and multimedia resources. Discussion is considered as a crucial moment to articulate their ideas and questions, and to challenge and respond to the ideas and questions from the teacher, and/or from their peers.

Relevance
The transition to clean energy represents a complex and multifaceted challenge requiring collaboration across various sectors of society. The quintuple helix framework, which extends the triple helix model by including not only academia, industry, and government but also civil society and the environment, underscores the importance of holistic engagement in addressing such challenges.

Tools for engagement play a crucial role in facilitating collaboration and cooperation among stakeholders within the quintuple helix. These tools can take various forms, including digital platforms, collaborative decision-making processes, participatory workshops, and stakeholder dialogues. By leveraging these tools, stakeholders can exchange knowledge, share resources, and co-create innovative solutions to advance the clean energy transition.

Furthermore, tools for engagement help foster transparency, inclusivity, and accountability in decision-making processes, ensuring that diverse perspectives are considered and valued. They enable stakeholders to identify common goals, align interests, and develop shared visions for a sustainable future powered by clean energy.

Content

This module is structured to provide participants with a comprehensive understanding of the quintuple helix framework, its significance, and practical implementation strategies. Through a structured approach, participants will gain insights into the role of academia, industry, government, civil society, and the environment in driving innovation and sustainability within projects. The module aims to equip participants with the knowledge and tools necessary to effectively apply the quintuple helix framework in real-world scenarios.

Chapter 1: introduction to the Quintuple Helix Framework

This chapter serves as an introduction to the quintuple helix framework, elucidating its core components and principles. Participants will explore the evolution of the helix model from the traditional triple helix, understanding the added value of integrating civil society and the environment. Key topics covered in this chapter include:

- Overview of the quintuple helix model and its components;
- Rationale behind the inclusion of academia, industry, government, civil society, and the environment;
- Evolution of the helix model and its relevance in addressing contemporary challenges.

Chapter 2: importance of the Quintuple Helix Framework

In this chapter, participants will delve into the significance of the quintuple helix framework in driving innovation and sustainability. Through case studies and examples, they will gain insights into how collaborative engagement across multiple sectors can address complex challenges, particularly in the context of the clean energy transition. Key topics covered in this chapter include:

- Role of the quintuple helix framework in addressing challenges related to clean energy transition.
- Analysis of case studies showcasing successful implementations of the quintuple helix approach.
- Examination of the impact of collaborative engagement on innovation and sustainability.

Chapter 3: Implementing the Quintuple Helix Framework

The final chapter focuses on practical implementation strategies for applying the quintuple helix framework in projects. Participants will learn about tools and methodologies for fostering collaboration and engagement across academia, industry, government, civil society, and the environment. Key topics covered in this chapter include:

- Practical techniques for implementing the quintuple helix framework in projects;
- Tools and methodologies for promoting citizen and stakeholder engagement;
- Strategies for facilitating inclusive decision-making processes and stakeholder dialogues.

Conclusion
At the conclusion of the module, participants will have gained a thorough understanding of the quintuple helix framework and its significance in driving innovation and sustainability. They will be equipped with practical tools and strategies for effectively applying the framework in real-world scenarios, empowering them to drive positive change within their projects and communities.

Resources
- Carayannis, E.G., Barth, T.D. & Campbell, D.F. The Quintuple Helix innovation model: global warming as a challenge and driver for innovation. J Innov Entrep 1, 2 (2012). https://doi.org/10.1186/2192-5372-1-2

Best practies
- **Ventotene: Renewable Energy Community of Ventotene**. Ventotene is a small island in the Tirrenean sea. Here a renewable energy community was established with the participation of the municipality, citizens and small and medium-sized businesses in the area, with the support of the Sapienza University of Rome.
- **Gothenburg:** facilitator and figurehead role in Gothenburg organising a meeting space, such as the "Citizen Lab" for citizens and municipal departments.
- **Florence:** active listening for real engagement and building trust in Florence with public debates "maratona dell'ascolto" or a listening marathon.
- **Leipzig:** a satellite structure in Leipzig has developed a "satellite" structure. Climate department trains and appoints sustainability managers in other units of the administration creating a network of experts.

References
- https://digidemlab.org/lab/en/projects/citizen-platform-gothenburg/

2.7 Leadership and sharing a long-term vision

"Great things in business are never done by one person. They're done by a team of people."
– Steve Jobs

Learning outcomes
With this module, participants will learn:
- What is a shared vision?
- Why is a shared vision important?
- How to create a shared vision in a long term perspective?

The module aims to explore the critical role of leadership in fostering collaboration, inspiring stakeholders, and facilitating the development, communication and implementation of a shared long-term vision for sustainable urban growth and prosperity.

Within the module, possible common barriers will also be explored that city authorities face in the transition to climate neutrality.

At the end of the module participants will be able to:

- Defining their own city vision;
- Making cities future-proof with city visions, long-term territorial transformation and piloting;
- Understand how to implement and how to sustain a long-term shared vision.

Learning format

Lecture, either on-site or online, combined with facilitated discussion. Discussion is considered as a crucial moment to articulate their ideas and questions, and to challenge and respond to the ideas and questions from the teacher, and/or from their peers.

Relevance

The importance of stakeholder management in leadership is to ensure that all stakeholders have a common understanding of the goals and objectives of the organization and that they can work together to achieve these goals. Leaders must also be able to identify and manage potential conflicts between stakeholders. Stakeholder management is important to leadership because it allows leaders to identify, assess, and manage the interests and expectations of those individuals or groups who have a vested interest in the organization or project. This includes understanding what each stakeholder wants and needs and how their expectations will impact the organization or project. Leaders must also be able to effectively communicate with stakeholders and build relationships.

However, a number of persistent and highly interrelated barriers and obstacles slow the pace of the transition to climate-neutral and smart cities. Traditionally, municipalities have focused on providing mandatory services and technical maintenance of municipal assets, such as roads, housing, sewage systems, and urban green spaces. Systemic changes aimed at developing a shared strategic vision require more effort to arrive at a holistic, long-term definition. Municipal governments play a key role as an orchestrator of the adoption of climate-neutral, smart solutions in their jurisdiction.

The module is useful for levels of government, such as regional and national governments, to investigate where collaboration with municipalities can be improved and where support for proposed new ways of working could help accelerate climate-neutrality plans by constructing a shared internal vision.

Content

Leadership in the context of a long-term shared vision entails the ability to inspire, motivate, and guide stakeholders towards the realization of common goals, aspirations, and priorities over an extended period. It involves providing strategic direction, fostering collaboration, and cultivating a sense of ownership and commitment among individuals and groups involved in the vision. Effective leadership in this setting requires not only vision

and decisiveness but also adaptability, resilience, and the capacity to navigate complexities and challenges that may arise along the journey towards achieving the shared vision. It involves building trust, fostering open communication, and empowering stakeholders to contribute their diverse perspectives and talents towards the collective advancement of the vision over time. A shared vision in cities typically refers to a collective understanding or agreement among various stakeholders: such as city officials, residents, businesses, community groups, and other relevant parties regarding the long-term goals, aspirations, and priorities for the development and improvement of a city or urban area.

Creating a shared vision involves engaging stakeholders in discussions, workshops, consultations, and other collaborative processes to identify common values, desired outcomes, and strategies for achieving them. This shared vision serves as a guiding framework for decision-making, policy development, and investment in urban development projects, infrastructure, transportation, housing, economic development, environmental sustainability, and social equity (Borsboom-van Beurden et al., 2023).

Participation strategies are an important element of governance, because cities are legally obliged to consult and engage with citizens, local businesses and other stakeholders, and the viability of plans is much higher when their support is secured through co-creation (Borsboom-van Beurden et al., 2023). What is more, good participation strategies are also a vehicle for harvesting good ideas of citizens and local businesses, and for making use of their excellent knowledge of the local situation. How stakeholders are identified, contacted and involved, how communication and collaboration are taking place in reality, and how successful co-creation and possibly also co-production are set up, is key to any climate-neutrality plan. The local media can play a significant role in reaching out to citizens and other stakeholders.

Resources

- Judith Borsboom-van Beurden, Adriano Bisello, Daniele Vettorato, Tomas Vacha, Dusan Jakovljevic; "*Systemic Changes in Governance. Equipping local governments for realising climate-neutral and smart cities*", January 2023.
- Knieling and Lange, "Smart Region" governance for innovation", 2018.

Best practies

- **Sønderborg Roadmap:** 50 steps towards a carbon neutral Sønderborg by 2025 aims to achieve 75% carbon reduction in 2025 compared to 2007.
- **Limerick:** innovation playgrounds used for urban prototyping and co-design. Bold City Visions guides the process of replication and upgrading in cities in small-scale labs.
- **The Hague:** innovation manager in the City of The Hague gathers and assesses results from pilots and demonstrators connects the innovators to city officials.

References

- https://smart-cities-marketplace.ec.europa.eu/projects-and-sites/projects/smartencity/smartencity-site-sonderborg
- https://www.sustainableplaces.eu/wp-content/uploads/2022/09/SP22-Workshop-Innovative-Solutions-Cities-3-UL-NTNU-CxC.pdf
- REMARKABLE_D2.1_Ethnographic-Study-Results_FIN_map.pdf (climateleaders.eu). This deliverable is a qualitative research that is designed to engage existing and emerging Climate Leaders in a co-creative process. The presented outcomes of this research refer to seven European countries (Austria, Croatia, France, Ireland, Slovenia, Spain and Sweden). The PLAN4CET Transition Managers can therefore explore the research outputs about their regions.
- REMARKABLE_D2.2_CLP-design-guidelines-and-recommendations_FINAL.pdf (climateleaders.eu). The REMARKABLE Climate Leaders' guide on how to design a tailored training programme for climate leaders is a valuable resource for those looking to develop an effective climate leadership programme at the local level. The application of the programme will differ significantly depending on the region in which it will be implemented. Therefore, the guide provides a broad framework that needs to be tailored according to the specific needs of each region.
- Crafting-leadership-training-for-local-climate-leaders.png (800×2000) (climateleaders.eu) This deliverable is a checklist created for facilitators to correctly lay out the fundations, design and contents of leadership training programmes.
- Remarkable Climate Leaders Podcast This deliverable is a series of podcasts about Climate Leaders that made a difference in their communities through pioneering initiatives at local and regional level.

2.8 Deep dive in: REC, PED, financing mechanisms and green public procurement

"There's still so much to work on together for the transition to a sustainable, democratic and inclusive energy sistem with citizens and local communities at its core"
– Miriam Rodriguez Ruiz, Electra Energy Cooperative

Learning outcomes
Within this module, participants will gain actionable knowledge on specific actions (Renewable Energy Communities – RECs and Positive energy districts - PED) and cross-cutting levers (financing mechanisms and public procurement) which can accelerate CET. Considering RECs and PEDs, participants will learn:

- which are the key preconditions to activate RECs and PEDs and their potential impact on CET;
- who are the relevant stakeholders to mobilize;
- what can be the role of a local authority within RECs and PEDs;
- how the impact of RECs and PEDs on CET can be monitored.

With respect to the cross-cutting levers financing mechanisms and public procurement, participants will gain a deeper understanding of:

- strengths and weaknesses of different financing mechanisms for CET actions;
- how public procurement can be steered to sustain CET objectives.

Learning format
Online lectures

Relevance
In order to deliver on SECAPs objectives, local administrations need to assess options and ensure the most effective and impactful measures are adopted. Renewable Energy Communities and Positive Energy Districts are concepts which may significantly contribute to SECAPs objectives but require a proper understanding and coordination by the local administration.

Neighborhoods and districts are the ideal units to work with energy production and consumption to accelerate the energy transition. Local energy community ownership makes citizens leaders in the energy transition and allows to tackle sustainability with a wider social mission, since RECs can reinvest generated profits to achieve benefits for their members and the environment (Jaca, 2018).

RECs are a key player towards the development of Positive Energy Districts, as an essential part of carbon-neutral urban districts capable of producing energy resources to cover their needs (Trevisan, Ghiani, & Pilo, 2023). A Positive Energy District couples the built environment, sustainable production and consumption, and mobility to reduce energy use and greenhouse gas emissions and to create added value and incentives for the consumer and generate an energy efficient and energy-flexible urban area (JPI Urban Europe / SET Plan Action 3.2, 2020).

A crucial aspect of CET solutions is their economic sustainability, therefore financing instruments are enabling conditions for SECAPs implementation and shall be well known, understood and managed by local authorities.

Public procurement covers a significant share of the European market representing a demand for goods, works (such as construction) or services from private companies. Through Green Public Procurement criteria, local administrations can reduce the environmental impact of a purchase and steer energy efficient and circular products.

2.8.1 Renewable Energy Communities and local context around RECs

The Clean Energy for all Europeans package, in short, referred to as the Clean Energy Package (CEP), adopted in 2019 by the European Union, proposes eight legislative acts within the European energy policy framework to facilitate the transition from fossil fuels.

The EU Directives established by CEP aim at putting in place appropriate legal frameworks to enable the energy transition and attribute a special role to citizens and community activities (Rescoop Mecise, 2018). Two different concepts of energy communities (ECs) are proposed in the CEP package. The definition of such energy communities is widely comprehensive of different, possible, configurations, leaving to the member States the possibility for a better definition of the Citizens Energy Communities and Renewable

The CEP contains two definitions of "energy community": Citizen Energy Community (CEC) which is contained in the Directive on common rules for the internal market of electricity (IME) [Directive (EU) 2019/944] and Renewable Energy Community (REC), which is established in the revised renewable energy directive (REDII) [Directive (EU) 2018/2001]. The first one includes rules that enable active consumer participation, individually or through citizen energy communities, in all markets, either by generating, consuming, sharing or selling electricity, or by providing flexibility services through demand-response and storage. The directive aims to improve the uptake of energy communities and make it easier for citizens to integrate efficiently in the electricity system, as active participants. In addition, the revised Renewable energy directive (2018/2001/EU) aims to strengthen the role of renewables self-consumers and renewable energy communities. European countries should therefore ensure that energy communities can be sustained without discrimination compared to existing types of market players.

The Recast of the Electricity Directive (IME), approved on June 14, 2019 [Directive (EU) 2019/944], defined in art. 2, n. 11, the concept of Citizen Energy Community (CEC) and the Recast of the Renewable Energy Directive (REDII), approved on December 21, 2018 [Directive (EU) 2018/2001], defined in art. 2, n. 16, the concept of Renewable Energy Community (REC).

Although the purpose of the two concepts of energy communities is the same (provide environmental, economic, or social benefits, rather than financial profits), the differences, as summarized in the table above, are substantial. While a REC can operate with energy in a broad scope (heating & cooling, electricity), but only if generated from renewable sources, a CEC can operate only with electricity, but without limitation of sources. The concept of Collective Self-Consumption (CSC) is also important since it can be configured as an intermediate step for the creation of the ECs (Frieden, et al., 2019). CSC occurs when a system supplies electricity to more than one consumer ("one to many") in the same building or condominium, however, without the necessity to create a dedicated legal entity. The classic example is when a multi-unit building with a system in the common area supplies power to the condominium itself and also to its autonomous units. CSC is included in REDII [Directive (EU) 2018/2001], in article 21, as "Renewables self-consumers".

The CEP established specific deadlines for the transposition of the Directives by the Member States. In the case of IEM and RED-II these internalization deadlines were December 2020 and June 2021, respectively. However, several countries have delayed the implementation of legislation regarding the concepts of energy communities or have done

so in a very limited way. REScoop.eu, the European federation of citizen energy cooperatives, provides an overview of the transposition processes around the EU and their overall assessment of the transposition at national level.

Depending on how the transposition was performed, different configurations are possible in the various member states. The module will illustrate at the local level what are the practical steps to initiate energy communities, which role a local administration can play and what funding is available.

Resources

- Jaca, C., Prieto-Sandoval, V., Psomas, E. L., & Ormazabal, M., 2018. What should consumer organizations do to drive environmental sustainability? Journal of Cleaner Production 181 (2018): 201-208.
- Trevisan, R., Ghiani, E. and Pilo, F., 2023. Renewable Energy Communities in Positive Energy Districts: A Governance and Realisation Framework in Compliance with the Italian Regulation. Smart Cities 6, no. 1 (2023): 563-585.
- JPI Urban Europe and SET Plan Action 3.2, 2020 White Paper on PED Reference Framework for Positive Energy Districts
- Rescoop Mecise, 2018. Mobilising European Citizens to Invest in Sustainable Energy – Final Results oriented report of the Rescoop Mecise Horizon 2020 Project

Best practices

- **Energy Communities Repository** is an initiative by the European Commission to assist local actors (citizens, local authorities, and businesses) with setting up and advancing clean energy projects driven by energy communities in urban areas. Even if the initiative is no longer active, learning materials remain available.
- **RESCOOP** is the European association of energy cooperatives which collects information on energy communities in Europe.
- **Kalmar member owned PV park** is an initiative facilitating the participation of citizens to the clean energy transition by buying shares of the PV park, producing yearly 3 GWh of renewable electricity
- **City of Pamplona** developed training sessions for the participatory process of creating an energy community
- **Bologna Green Energy Community (GECO) project** developed a feasibility study for an energy community within the Pilastro district in Bologna, to fight energy poverty involving a wide range of stakeholders. GECO aimed to increase renewable energy production and self-consumption while promoting behavioral change in the community.
- **ENCOM HUB project**, financed by the LIFE programme, aims at designing, validating, and scaling up REC support services (i.e. information/awareness raising/training; participatory process management; techno-economic feasibility analysis; legal, administrative & financial assistance) to accompany the stakeholders throughout the REC development journey.

References

- https://www.rescoop.eu/
- https://webgate.ec.europa.eu/life/publicWebsite/project/LIFE22-CET-ENCOM-HUB-101120695/energy-community-hub-developing-supporting-services-for-the-creation-of-energy-communities

2.8.2 Positive Energy Districts

Positive Energy Districts (PEDs) have recently become an important concept for urban development. A Positive Energy District (PED) is a concept in urban planning and sustainable development aimed at creating urban areas that generate more energy than they consume, thus contributing positively to the overall energy balance of the city or district.

Although the term Positive Energy District was introduced in the scientific literature only recently in 2018 (Binda, Bottero and Bisello, 2022), its innovative approach to energy efficiency and flexibility has quickly gained traction with the European Commission as a way to support the energy transition. The PED originates from the Positive Energy Building (PEB), which is an energy requalification model with the same purpose as the PED, but which acts on a single building. The PED approach focuses specifically on the energy sphere, intending to develop urban solutions that generate more energy than they consume from renewable sources (RES) on a yearly basis. The excess energy generated can then be distributed and exported to other parts of the city (Moreno et al., 2021). The aim is to create or renovate buildings that not only do not emit greenhouse gas emissions, but which instead obtain an annual energy surplus at a local or regional level that can be exported to other buildings in the surrounding area. Moreover, "they require integration of different systems and infrastructures and interaction between buildings, the users and the regional energy, mobility and information and communication technology (ICT) systems while securing the energy supply and a good life for all in line with social, economic and environmental sustainability" (JPI-Urban Europe and SET-Plan Action 3.2, 2020).

PED is also considered by the JPI as one of the three pillars of Driving Urban Transition (DUT) together with the 15-Minute City and the Circular Urban Economy (CUE).

This district model has two key elements that may be distinguished from another: sustainability, which includes environmental, economic, and social considerations, and energy security and stability. Both of these facets are essential to the district model's overall performance (Marotta et al., 2021).

Boundaries and energy balance vary amongst PEDs. Buildings may be located inside clearly defined physical limits (geographic boundaries), or they may be located far apart yet connected by a network of pipes for gas, electricity, or heating (functional boundaries). Additionally, if the energy demand is met by a generating unit that is shared with other consumption places and is located outside of the PED's physical boundaries, the literature

refers to virtual boundaries (Marotta et al., 2021); (Moreno et al., 2021); (Wyckmans, Karatzoudi and Brigg, 2018).

In summary, this urban model requires the integration of multiple systems and infrastructures, interdisciplinary collaboration, and broader stakeholder involvement to achieve a fair and equitable society. It is important to keep in mind that a successful PED cannot just concentrate on technological advancements; it also has to include activities that involve end users. In this sense, it is crucial to educate people about the potential benefits of PED while also making an effort to create an environment favorable to establishing social bonds. PEDs offer the potential to support energy transitions and contribute to a more sustainable and resilient energy future.

Resources

- Riccardo Trevisan et al., "Renewable Energy Communities in Positive Energy Districts: A Governance and Realisation Framework in Compliance with the Italian Regulation", Smart Cities 2023, 6(1), 563-585; https://doi.org/10.3390/smartcities6010026
- Anita Tatti et al., "The Emerging Trends of Renewable Energy Communities' Development in Italy", Sustainability 2023, 15(8), 6792; https://doi.org/10.3390/su15086792

Best practices

- **Kinetic Project** https://kinetic-project.eu/
- **ARV Project** https://greendeal-arv.eu/
- **PROPEL Project** https://www.eurac.edu/en/institutes-centers/institute-for-renewable-energy/projects/propel

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- https://www.eurac.edu/en/institutes-centers/institute-for-renewable-energy/projects/propel
- https://iris.enea.it/retrieve/dd11e37c-eaac-5d97-e053-d805fe0a6f04/Guida_Comunita-energetiche.pdf
- https://iris.luiss.it/retrieve/e163de42-e19f-19c7-e053-6605fe0a8397/740-99Z_Book%20Manuscript-4397-1-10-20211213.pdf

2.8.3 Innovative financing mechanisms for sustainable investments

The introduction of the European Taxonomy for sustainable investments, including the Do No Significant Harm principle, within the Green Deal, aimed at improving access to funding for climate and energy transition projects by the public sector and the business sector by setting a common understanding of what can be considered a sustainable investment. Materials developed by the European Horizon 2020 project Prospect+ provide a comprehensive overview of financial instruments and a collection of experiences from 195

public authorities categorized by type of investments that can be used for learning and replication.

The financial cycle of a climate and energy investment is a relevant aspect to be taken into account for the implementation of CET actions. During the initial stage of the investment design, a financial analysis is necessary to assess the viability of one or a mixed funding scheme (e.g. by EPC and structural funds). To this end, a number of financing opportunities offer project development assistance to local authorities:

- EU City Facility (EUCF) providing project development assistance;
- European Energy Efficiency Fund (EEEF) providing support to assess the bankability of investments up to 15 million euros;
- European Local Energy Assistance (ELENA) BEI provides technical assistance for energy efficiency and renewable energy investments targeting buildings and innovative urban transport for projects above 30 million euros.

Possible funding mechanisms are:

- **Credit lines** are energy efficiency/renewable energies credit lines established by the commercial banks developing building retrofit products in the same way that they have car loans or mortgages. Among them **soft loans** schemes are loans below market rates and with longer payback periods derived from public funding to facilitate investments.
- **Funds** to support investment in residential, commercial or public sector can be private or publicly listed on stock exchanges, and they contain entirely private capital, entirely public capital, or contributions from both private and public sectors. Among them **revolving funds** established to finance a continuing cycle of investments through initial amounts received from its shareholders, creditors or donors and later through amounts received from reimbursements of provided funding or loans to projects. These recovered funds become available for further reinvestment in other projects under similar scope e.g. revolving funds for sustainable energy will use the loans recovered funds to finance new sustainable energy projects. **Risk mitigation** tools such as loan guarantees are provided to lenders which serve as buffers against first losses of non-payment by the borrowers.
- **Energy Performance Contracting** is a method to implement energy efficiency projects, by which an ESCO (Energy Services Company) acts as a unique contractor and completes all the steps of a project, through installation up to operations and maintenance. The ESCO delivers a performance guarantee on energy savings and takes responsibility for the result. The EPC contract is the contractual agreement by which the output-drive results are agreed upon.
- Local government (or their agencies) can issue **green bonds** to fund their sustainable energy and climate actions.

Local authorities may also engage the citizens to attract funding, using **Crowdfunding**, which involves an open call, mostly through digital channels, for the provision of financial resources either in the form of a donation or in exchange for some form of reward and/or

voting rights. For example, in Emilia-Romagna, crowdfunding, mostly used by social enterprises, over 10 years was able to attract over 61.6 million euro in total.

Resources

- Horizon2020 Prospect+ project developed a capacity building programme for municipal and regional authorities focused on introducing innovative financial approaches for energy and climate actions (Cross Sectoral Module). The project compiled a useful collection of best practices as well as a glossary of financial terms.
- Regional funding for adaptation measures this guide, developed by Mission Adaptation, provides an overview of financial resources and insights on enhancing preparedness before seeking funding or financing.

Best practices

- **ELENA Primavera Project in Navarra region:** the project aims at encouraging energy refurbishment of the residential building stock, mostly private, mobilizing 40 milion euros. The project has been implemented in 50 municipalities in Navarra region.

2.8.4 Green Public Procurement

Every year, over 250,000 public authorities in the EU spend approximately €2 trillion per year on the purchase of services, works and supplies (Eu Public Procurement Data Space, 2024). Due to the massive value of public purchases across the EU, and the market it creates, public procurement, particularly when used in a strategic way, is a relevant and powerful way to respond to societal, environmental and economic challenges, and to shape the way in which both the public and private sector behave on the market. Green Public Procurement (GPP) is a voluntary policy measure ensuring that the environmental impact of public procurement is reduced.

GPP can reduce environmental impacts both directly, through improved environmental performance of goods, services and works bought, and indirectly through using the public purchase market leverage to encourage companies to invest in cleaner products and services. Besides the purchase of energy itself for the local administration functioning, transport, waste management, the provision of health or education services, city data centers also are strongly linked with energy.

GPP has the potential to contribute to the decarbonization of the building industry and transport sector, which represent about 12% of public procurement GHG emissions (Stockholm Environment Institute, 2023). The EU GPP criteria are a supporting framework, providing concrete clauses on how to “green” public purchasing of the targeted products. GPP criteria for over 20 product categories have been defined at EU level which can be adopted by member states. Support for local administrations on GPP is provided at European level, via the GPP helpdesk and a dedicated training toolkit. Each member state and local administration may adopt national or local GPP policies and procedures.

Implementing GPP requires the involvement and cooperation of different departments and staff members across an organisation as in many local authorities, purchasing responsibilities are dispersed across the administration. Finance, environment and procurement officers will likely need to be consulted, as well as certain specialist departments such as construction, energy or IT. Setting up a working group involving representatives from different departments can help to ensure the commitment and that targets are met.

Resources

- GPP good practice library is a collection of GPP practices across Europe
- GPP training toolkit can be consulted for training materials on GPP
- Eu Green Public Procurement Helpdesk is available to be contacted by local authorities interested in implementing GPP
- Buying green! A handbook on green Public Procurement – 3rd edition is the latest handbook on GPP issued by the European Commission

References

- Eu Public Procurement Data Space. 03 2024. https://single-market-economy.ec.europa.eu/single-market/public-procurement/digital-procurement/public-procurement-data-space-ppds_en.
- Stockholm Environment Institute, 2023. Green Public Procurement: a key to decarbonizing construction and road transport in the EU. Report, 2023.

2.9 Tools and indicators for SECAPs and carbon neutrality plans

"A good tool improves the way you work, a great tool improves the way you think"
– Jeff Duntemann

Learning outcomes

The module aims to provide learners with new skills to design and implement ambitious short and medium-term CET plans and strategies for 2030 potentially paving the way for the 2050 carbon neutrality goal.

After attending the module, participants will be able to:

- Pinpoint the critical steps for CET planning;
- Identify tools that can support inter municipal CET planning;
- Gain knowledge about monitoring of REC and PED development;
- Identify tools on tools supporting the involvement of citizens;
- Build indicators for CET/carbon neutrality strategy monitoring.

Learning format

Webinar or in-presence lecture with facilitated discussions

Relevance

To support local administrations in CET planning, in relation to the different phases of SECAP design, implementation and monitoring, a wide portfolio of tools has been developed within Eu-funded projects. This module will focus on a selection of tools that are targeting the urban scale and can facilitate the design and implementation of specific SECAPs actions supporting the energy transition. The tools relate to different phases of the planning cycle, and can inform inter-municipal plans, facilitate the monitoring of action implementation as for RECs and PEDs, and boost citizens involvement.

The second part of the module aims to enhance participants skills in the definition of SECAP targets and monitoring process by working with indicators: the definition of local indicators that are representative, measurable and impact oriented is often a demanding challenge. Indicators are a key instrument to define a baseline for action, provide accountability, and enable data-driven decision making. Additionally, they can be used to implement corrective measures in case specific actions do not deliver the expected impacts. Indicators such as renewable energy production, CO2 emissions reduction and improvement of adaptation capacity are functional to embark them on the transition. Starting from 2025 a new domain will be compulsory within SECAPs which is **energy poverty**, therefore the module will pay more attention to this new indicator.

Tools

Content

It is useful to provide cities with a range of tools with different functionalities to support the SECAP process. These tools can support cities at different stages of the planning cycle and provide comprehensive coverage of the entire SECAP process. They not only help individual municipalities, but also support collaborative efforts between several municipalities, facilitating the development of inter-municipal plans.

In addition, these tools can play a key role in improving stakeholder engagement and participation in the clean energy transition. The proposed tools are both online tools and toolkits and represent a small, selected set of the tools actually available.

Table 2 – Definition of frameworks, tools and instrument for Plan4CET.

Tool	Objective	Scales		
		Regional	Provincial	Municipal
Decidim	How to virtually engage with stakeholders (multi actor governance)	x	x	x
M.O.T.A.	How to design InterMunicipal SECAPs (horizontal cooperation)	x	x	

Kinetic PED mapping	How to screen the entire city to identify potential PEDs			x
EU City Calculator	How to visualize and simulate low-carbon scenarios		x	x
CEESEU Secap Evaluation tool	How to make a quick self-assessment to evaluate the compliance with the SECAP		x	
Cities4PED toolkit	How to design PEDs			x

DECIDM
Need: Citizen participation is crucial in CET planning. Implementing a flexible democratic system ensures that citizens have a meaningful role in the decision-making processes related to clean energy transition. This system allows for the active engagement of citizens in shaping policies, projects, and initiatives that affect their communities and the environment. A flexible democratic system adapts to the diverse needs, preferences, and concerns of citizens, fostering inclusivity and transparency in CET planning. It provides various avenues for citizens to participate, such as public consultations, community meetings, citizen assemblies, and online platforms. These mechanisms enable citizens to voice their opinions, provide feedback, and contribute ideas to the planning and implementation of clean energy initiatives. Moreover, a flexible democratic system encourages collaboration and cooperation among stakeholders, including government agencies, non-profit organizations, businesses, and academic institutions. By involving diverse perspectives and expertise, it promotes innovative solutions and ensures that CET planning reflects the collective interests and values of the community. Overall, implementing a flexible democratic system empowers citizens to actively participate in CET planning, strengthening social cohesion, trust, and ownership of clean energy initiatives. It fosters a sense of responsibility and accountability among all stakeholders, ultimately leading to more effective and sustainable outcomes in the clean energy transition.
Tool: Decidim is a digital platform for participatory democracy, allowing organizations to create customized websites for democratic engagement. It enables various processes like strategic planning, budgeting, and public consultation. Decidim operates as a public-commons, free and open infrastructure, governed by a social contract emphasizing principles of transparency and equal opportunity. Its functional architecture revolves around participatory spaces, offering diverse mechanisms for democratic engagement. Beyond its technological role, Decidim empowers social

processes and fosters collective action. In essence, Decidim represents a technopolitical project, merging legal, political, and social dimensions to redefine digital democracy.
Resources: • https://decidim.org/ • https://docs.decidim.org/en/develop/whitepaper/decidim-a-brief-overview.html

M.O.T.A. - Multi Objective Territorial Analysis
Need: Designing InterMunicipal SECAPs promotes collaboration, efficiency, innovation, and resilience, leading to more impactful and sustainable climate action across regions, which promote horizontal cooperation among small municipalities. This is crucial for several reasons: Scale and Impact: Climate change is a global issue that requires concerted efforts at all levels. InterMunicipal SECAPs allow for a larger geographical area to be covered, leading to more significant impact on emissions reduction and adaptation strategies. Resource Optimization: By pooling resources and expertise across multiple municipalities, InterMunicipal SECAPs enable more efficient use of financial, human, and technological resources, especially in situations of small municipalities with limited technical and economic resources. Shared Learning and Innovation: Collaboration fosters the exchange of best practices, lessons learned, and innovative ideas among municipalities. By working together, municipalities can benefit from each other's experiences and knowledge, accelerating progress towards climate goals. Increased Political Support: Joint efforts often garner more political support and visibility than individual initiatives. InterMunicipal SECAPs demonstrate a unified commitment to climate action, which can attract support from higher levels of government, stakeholders, and the public. Enhanced Resilience: Climate change impacts are often felt across multiple jurisdictions. InterMunicipal SECAPs allow municipalities to coordinate adaptation measures and build resilience collectively, ensuring a more comprehensive and effective response to climate risks.
Tool: Multi Objective Territorial Analysis (M.O.T.A.) The tool facilitates the clustering of neighboring municipalities within a region based on various criteria, including their potential alignment on factors such as transitioning to 100% renewable energy, shared services or needs, common objectives outlined in energy and environmental plans, as well as similarities in demographics, social dynamics, infrastructure, and morphology. This analysis is conducted using established data mining techniques. By identifying similar municipalities and connecting them, the tool enables the exchange of ideas and fosters cooperation for the development of inter-municipal SECAPs. This supports strategic social planning in transitioning to a new

energy system, while also leveraging synergies and achieving economies of scale, particularly beneficial for smaller municipalities.
Resources: • Plan4CET project – https://plan4cet.eu/ Eurac Research - Jessica Balest • Municipal transitions_ The social, energy, and spatial dynamics of sociotechnical change in South Tyrol, Italy (sciencedirectassets.com)

Kinetic PED mapping tool
Need: In urban planning, the concept of Positive Energy Districts (PEDs) represents an important step towards sustainable and resilient cities. However, given the diverse nature of urban environments, it's crucial to use a screening approach to identify suitable locations within a city for the implementation of PEDs. This PED mapping tool is an important tool in this process. Firstly, cities have a wide range of contexts, including variations in population density, land use patterns, infrastructure availability and environmental conditions. A screening approach helps to systematically assess these diverse urban situations to identify areas where PEDs can be most effectively implemented. By analysing factors such as existing energy infrastructure, building typologies, renewable energy potential and community dynamics, planners can identify locations with the highest potential for PED development. In addition, different areas within a city may have different sustainability challenges and opportunities. For example, industrial areas may offer opportunities for integrating renewable energy generation into manufacturing processes, while residential neighbourhoods may prioritise energy-efficient buildings and community-based renewable energy projects. The PED mapping tool allows planners to tailor their approach to the specific needs and characteristics of each area, maximising the potential benefits of PED implementation. In addition, taking into account the socio-economic and demographic diversity within cities is essential for equitable urban development. The screening approach takes into account factors such as income levels, social vulnerability and access to resources to ensure that PED initiatives contribute to social inclusion and meet the needs of all residents. By identifying areas where PEDs can have the greatest positive impact on both environmental sustainability and social equity, cities can effectively prioritise investments and interventions.
Tool: Kinetic PED Mapping tool This tool functions as a comprehensive decision support system for urban energy planning. It offers valuable insights into opportunities for promoting renewable energy adoption and improving energy efficiency across the city. It utilizes Geographic Information Systems (GIS), geostatistics, and a multi-criteria approach to comprehensively assess the entire city. This allows for pinpointing areas with the

greatest potential for achieving a positive energy balance through renewable energy and improved efficiency measures.
The tool delves deeper, incorporating factors like existing infrastructure proximity, energy resource distribution, and even the social dynamics within communities. This ensures that diverse priorities of local stakeholders are considered.
By integrating these varied datasets and analytical techniques, the tool paints a holistic picture of the urban landscape. It highlights areas where interventions in energy planning and infrastructure development can have the most significant impact. This consideration of both technical feasibility and socio-economic factors empowers policymakers and planners to make informed decisions that align with the city's needs and priorities.
Its multi-criteria approach guarantees that planning efforts are not only technically sound but also socially and geographically relevant, ultimately contributing to the sustainable development and resilience of urban areas.

Resources:

- Kinetic project - https://kinetic-project.eu/
  Eurac Research – Daniele Vettorato

EU City Calculator
Need: the complex challenges cities face in addressing climate change and transitioning to low-carbon environments need a tool to support decision-making by allowing city administrators and stakeholders to visualize and simulate different scenarios for reducing emissions. A calculation tool would help assess the effectiveness of various mitigation measures and understand their implications and trade-offs. Real-time simulations would enable cities to explore different strategies and adapt to changing circumstances, while comprehensive analysis would provide insights into the broader impacts of climate strategies on the energy system and socio-economic factors. Overall, such a tool would empower cities to make informed decisions and effectively navigate the transition to sustainable, low-carbon futures.
Tool: The EU City Calculator is an online tool designed to support cities in their efforts to address climate change. It allows city administrations and stakeholders to visualize and simulate low-carbon scenarios, aiding in decision-making and strategy implementation. With its user-friendly interface, users can explore the potential impacts and trade-offs of various mitigation measures, such as energy retrofitting and renewable energy expansion in the building sector. By using the EU City Calculator, cities can develop and share energy and climate transition scenarios, gaining insights into key measures and levers for achieving a low-carbon future. Users can perform real-time simulations, gaining a comprehensive understanding of the energy system, greenhouse gas emissions, and associated socio-economic impacts. The tool guides users through selecting measures, building scenarios, and analyzing their potential for reducing emissions and costs.

Resources: • https://europeancitycalculator.eu/the-eu-city-calculator/ • https://eucitycalc.climact.com/

CEESEU Secap Evaluation tool
Need: This tool addresses the need for Covenant signatories to have a streamlined and accessible method for evaluating their SECAP compliance. By providing a quick self-assessment, it allows municipalities and other stakeholders to efficiently gauge their adherence to SECAP requirements across various essential components. This helps signatories to identify areas of strength and areas needing improvement in their sustainable energy and climate action planning, ultimately supporting more effective and targeted efforts towards achieving their goals.
Tool: Created as part of the H2020 CEESEU project, this user-friendly tool is designed to assist Covenant signatories in assessing their SECAP compliance efficiently. It offers a rapid self-assessment feature covering essential SECAP components, including political processes, administrative structures, budgets, participatory processes, Building Energy Index (BEI), Risk and Vulnerability Assessment (RVA), Action Plans, implementation strategies, multi-level governance considerations, energy poverty, and just transition measures.
Resources: • https://eu-mayors.ec.europa.eu/en/ceeseu-secap-evaluation-tool • https://eu-mayors.ec.europa.eu/en/guide-how-to-use-ceeseu-secap-evaluation-tool

Cities4PED toolkit
Need: With the global imperative to transition towards sustainable energy systems, PEDs have emerged as promising models for achieving energy efficiency and renewable energy goals at the district level. However, implementing PEDs requires navigating complex challenges, including technical considerations, stakeholder engagement, financing, and urban planning.
Tool: The toolkit titled "Powering the Energy Transition at the District Level: A Practical Guide for Local Initiators" comprises a handbook and playing cards, offering insights from real urban districts across Europe to inspire PED initiatives. The handbook's sections include: Framing PEDs and Exemplary Portraits: Describes the essential dimensions of a PED through narratives of six sample neighborhoods. Keys for PED (Re)Development: Explores 11 key questions PED initiators face, providing insightful directions and examples.

Considerations: Addresses tensions in PED strategies, prompting reflection on value frameworks. Supplementary playing cards aid in organizing local workshops. Local initiators engaged in PED strategy development are encouraged to join the journey of testing and accelerating new practices for PED (re)development.
Resources: • https://www.yumpu.com/en/document/read/68525182/powering-the-energy-transition-at-the-district-level-cities4peds-awb-final • https://architectureworkroombrussels.myshopify.com/products/jpi-ped-guide

Indicators

In the recast Energy Efficiency Directive (European Commission 2023), energy poverty is defined as "a household's lack of access to essential energy services, where such services provide basic levels and decent standards of living and health, including adequate heating, hot water, cooling, lighting, and energy to power appliances [...] caused by a combination of factors, including at least non-affordability, insufficient disposable income, high energy expenditure and poor energy efficiency of homes".

The latest figures show that approximately 40 million Europeans across all Member States representing 9,3% of the Union population were unable to keep their home adequately warm in 2022 due to increased energy prices combined with inflation (European Commission 2023). Investments in energy efficiency and renewable energy are the main structural measures included in the European Commission's recommendation to tackle energy poverty. The issue has been specifically addressed by a recommendation to Member States in October 2023 (European Commission 2023).

At European level, the Energy Poverty Advisory Hub has defined 56 indicators that can be used to assess and monitor energy poverty. These can be grouped in 6 Macro Areas that take into account all the domains contributing to energy poverty: climate, housing, mobility, socio-economic aspects, policy and regulatory framework, and participation and awareness raising. When working with these indicators, the first recommended step for municipalities is to identify which indicators of the 56 suggested at European level are relevant to characterize the specific local energy poverty context and can be used to monitor whether the challenge is being addressed.

The Energy Poverty Advisory Hub published a first Handbook (link below) on how to address energy poverty, where more details on the use of the local indicators is described and can be used when creating local energy poverty diagnosis and including actions tackling energy poverty in the SECAPs.

Resources

- Energy Poverty Advisory Hub (EPAH) Handbook 1: A Guide to Energy Poverty Diagnosis
- EPAH Report: Tackling energy poverty through local actions – Inspiring cases from across Europe
- Cooltorise project: COOLTORISE aims to reduce summer energy poverty incidence among European households, improving their indoor thermal habitability conditions and reducing their energy needs during the hot season, which will in turn decrease their exposure to heat and heat-related health risks.
- Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (recast)

Best Practice

- **Navarra Region** The new map of social and building vulnerability of Navarra is an innovative management tool for local entities and professionals, which combines socioeconomic data of the Navarrese population and data on buildings of the Provincial Community. The project is carried out by the public company NASUVINSA and supported by funds from the European LIFE ADAPT project.
- Navarra Region has developed an ambitious model for social housing rental management that includes: Home Energy Management (HEM) System installed at dwelling level, Building Energy Management systems integrated with HEM, an open platform to manage buildings and ensure indoor comfort.

2.10 Case study

"What we have to learn, we learn by doing."
– Aristotele

Learning outcomes

The final module of the Transition Manager capacity building programme offers participants the opportunity for to apply the knowledge gained during the programme to a case study. The module will equip participants with a better understanding of the skills required for a transition to sustainable and clean energy, as well as concrete strategies for promoting CET plans within their organizations.
Additionally, this module aims at promoting the development of soft skills such as adaptability, creativity, teamwork, and decision-making.

Learning format

Facilitated workshop. Participants will be working in groups and assigned a case study, which shall be introduced to them at the onset of the course so that, at the end of each module, a piece of knowledge related to the case study is added. The module adopts a "learning by doing" approach, allowing participants to develop skills that they can transfer to situations they are facing in their daily work. Participants will be encouraged to draw conclusions after analyzing the practice in a spirit of continuous improvement.

Content

This two-days module includes: an introduction to the "case studies" and an afternoon of facilitated group work, during the second day participants will present the results of their group work and a session of feedback on the course will close the programme.

Participants are divided in groups composed by 4–5 members and each group is supported by a facilitator. Each group is tasked with the assignment of developing up to three CET actions for a specific local or regional context that have a multi-level character and is encouraged to identify all possible co-benefits and implications for clean energy and carbon neutrality.

The solutions developed shall be presented in terms of:

- Vision
- Actions to deliver the vision (1 up to 3)
- Stakeholders involved
- Resources needed
- Planning instruments which can accelerate or hinder the roll out
- Monitoring: which key indicators?

During day 1 the participants are introduced to the case studies, each region shall decide whether it is more effective to work on a real case (e.g. a joint inter-municipal SECAP), or to use a fictional case. In the second half of Day 1 participants work together to brainstorm and develop their solutions and prepare a power point presentation which will be shared in Day 2.

During Day 2, after each group has presented their work, a feedback session is organized in order to allow each group to share comments/experiences with the other groups, thereby encouraging peer-to-peer learning and providing a space to share experiences and approaches to accelerating the transition.

3 Transition Experts Programme

3.1 Learning objectives and overview of the programme

The Transition Experts programme aims at providing i) a general overview of the main challenges and solutions to the climate change challenge for non experts, ii) an in depth knowledge on key aspects of the energy transition and climate neturality from the point of view of policy, technology and implementation.
The programme targets both local administration staff which are not directly involved in energy and climate planning, but who are important to be engaged, as well as private stakeholders such as companies, local associations who may benefit from a more detailed knowledge of the city's objectives on climate and energy. The latter category is the main target of the "Local" part of the capacity building programme.

The programme consists of 5 "Common Grounds" webinars which are delivered in English by Plan4CET partners and are focused on the European framework, and 5 "Local" webinars embedded in the local level and presenting a more detailed content.
The webinars will be recorded and made available on internal capacity building platforms for local administrations.

Learning format
The entire Transition Expert capacity building programme is designed to be delivered through webinars, in order to increase its accessibility, and to give more flexibility to the participants. Despite being conducted online, webinars can still be conducted in a highly interactive way. Features such as live polling, chat rooms, Q&A sessions, and interactive presentations can engage participants and encourage active participation, fostering a dynamic learning environment.

3.2 Common grounds webinars

Each "Common Grounds" webinar lasts 60 minutes and is structured as follows:

- Welcoming and introduction to the topic of the day;
- Introduction to PLAN4CET project;
- Expert 1: Explaining the topic;
- Expert 2: How to implement it and providing best practices;
- Q&A and conclusions.

The material used during each webinar (ppts, links to websites, docs) will be shared with participants by email after each session. The five Common grounds webinars deal with the following topics:

	Common Grounds webinars
1	European energy and climate strategies
2	Energy Efficiency First principle
3	The new Energy-related directives
4	Role of energy agencies in the EU
5	Climate change adaptation

3.2.1 European energy and climate strategies

"We are what we repeatedly do. Excellence, then, is not an act, but a habit."
- Aristotle

Learning outcomes
With this webinar, participants will learn:

- Which are the main challenges that the EU has to cope with to guarantee a sustainable future for its citizens for what concerns the energy sector and climate change;
- What are the main policies and strategies adopted by the EU to face these current and future challenges.

The webinar aims to provide participants with an introduction to the main issues and threats deriving from the energy sector and climate change. To cope with a changing climate, the EU must adapt its strategies and decisions to face current challenges and be ready for future ones. In the first half of the webinar, some of these issues related to the energy sector and climate change are untangled and explained to participants, which will receive a valuable insight on the state of the EU at present. It is fundamental for future Transition Expert to understand energy and climate challenges, their context, and terminology. In the second half of the webinar, participants are provided with a general overview of the main policies and strategies that the EU has undertaken in the area of climate change and energy. This second half of the webinar aims to empower the Transition Experts by providing a series of resources (links, documents, ppts) that participants can read and study to gain an in-depth knowledge on the direction that the EU is following towards a sustainable future.

At the end of the webinar, participants will be able to:

- Identify the main challenges in terms of energy and climate that the EU is currently facing;
- Explain and discuss the new and updated energy and climate policies and strategies in the EU.

Relevance

In 2023, the EU has adopted a set of proposals to reduce net GHG emissions by at least 55% by 2030 compared to 1990 levels, and to become the first climate-neutral continent by 2050. The EU has also established a new binding EU-level target to improve energy efficiency by 11.7% by 2030. These decisions and strategies are just some of the many that the EU has discussed and adopted to face challenges in the energy sector and related to climate change. To allow for CET, local and regional authorities need to be aware of the direction the EU is taking towards a more sustainable future. It is indeed almost compulsory to provide learners with an informative session on energy and climate policies and strategies that the EU has currently undertaken. The first part of the webinar focuses on the current state of the energy sector and climate in the Union, providing participants with an interesting insight on the main challenges to decarbonization and the issues related to climate change events. The second half of the webinar presents some of the strategies and policies that the EU adopted in the last years. The future Transition Experts are provided in this webinar with an introduction to these policies, as well as some useful material to read and study to deepen their knowledge of climate and energy strategies.

References

- Covenant of Mayors - Europe | Covenant of Mayors - Europe (europa.eu)
- Delivering the European Green Deal - European Commission (europa.eu)
- Practice-sharing | Covenant of Mayors - Europe (europa.eu)

3.2.2 Energy Efficiency first principle

"Energy efficiency is not just about saving money. It's also about saving the environment and our future."
- Julia Louis-Dreyfus

Learning outcomes

With this webinar, participants will learn:

- What the Energy Efficiency First principle is;
- Why it is important to apply this principle in all steps of the decision-making process at regional and local level;
- How other local authorities in the EU have applied the EE1st in their territories.

The webinar aims to provide participants with an overview of the Energy Efficiency First principle, from which needs it comes from, the related directive and what it entails for regional and local authorities. Being one of the central pillars of the EU's long-term strategy, regional and local actors have to be aware of it while planning their Clean Energy Transition. Thanks to the participation of expert speakers, the webinar intends to be a forum for questions to be asked. The presentation of best practices related to the EE1st plays also a central part in the webinar, where local and regional actors can learn from what has been already achieved in other territories to meet the requirements of this principle.

At the end of this webinar, participants will be able to:

- Explain what the EE1st is and why it is relevant and beneficial for the Clean Energy Transition;
- Implement the EE1st principle in their territory;
- Analyse and discuss some best practices related to EE1st principle.

Relevance

Energy Efficiency 1st (EE1st) is an EU guiding principle that emphasis the urgency to reduce fossil fuels consumption, as well as the need to reduce the production of energy in the member states and the EU as a whole. Energy efficiency plays a central role in the Clean Energy Transition plans in European regions and cities. This principle was introduced in the revised Energy Efficiency Directive (EU/2023/1791), and it sets the obligation for EU countries to include energy efficiency solutions in their planning and major decisions, both in energy and non-energy sectors.

The principle is based on three main objectives:

1. only the energy really needed is produced;
2. investments in stranded assets are avoided;
3. demand for energy is reduced and managed in a cost-effective way.

The principle emphasizes not only the reduction of fossil fuel consumption, but also a general reduction of energy production. The public sector is therefore encouraged to plan the CET by investing in energy efficient production and solutions.
As future Transition Experts, learners must be updated on the EU priorities in terms of energy efficiency in order to make informed and related decisions in their local and regional planning activities, taking into account the EE1st principle and the new obligations that it entails.

References

- Regio1st - Fedarene
- Energy efficiency first principle (europa.eu)
- Directive - 2023/1791 - EN - EUR-Lex (europa.eu)

Best practices

- Combined heat and power to increase energy efficiency of locally produced bioenergy in Sweden, a pilot project in Sweden tested a technological solution (Organic Rankine Cycle) to produce 200 up to 300 MWh per year optimizing the heat exchange process.

3.2.3 The new Energy-related directives

"Life's challenges are not supposed to paralyze you, they're supposed to help you discover who you are."

- Bernice Johnson Reagon

Learning outcomes

With this webinar, participants will learn:

- What are the main challenges in the energy sector nowadays in Europe
- What the EED and RED are and why these directives are important to achieve CET.

The webinar aims to provide participants with an overview of the two main EU directives in the area of energy efficiency. The first one, the Energy Efficiency Directive, published in 2012, and then revised in2018 and 2023, sets the obligations and targets to achieve the EU ambitious targets in energy efficiency. The other most relevant directive is the Renewable Energy Directive, published in 2009 and revised in 2023. This directive provides a legal framework for the development of clean energy across all sectors of the economy, while enhancing cooperation among EU countries to achieve the renewable energy targets by 2030. Both directives set out challenging targets with the aim of modernizing and redesigning the energy sector in the Union. These rules and objectives must be kept in mind when developing plans for Clean Energy Transition. Therefore, both directives represent an important piece of knowledge for the future Transition Experts.

At the end of this webinar, participants will be able to:

- Identify the current issues in the energy sector at EU level;
- Discuss and explain the main concepts behind the EED and the RED;
- Integrate their objectives and rules in the local and regional energy planning.

Relevance

The EU has set out in the European Green Deal the goal to become climate neutral by 2050. As the energy sector is the main greenhouse gases producer, a sectorial revolution is indeed needed to achieve the ambitious objectives to a net-zero economy.

Clean Energy Transition means to shift the energy production away from fossil fuels and other sources that release greenhouse gases in large quantities to sources, such as renewables, that release little or no greenhouse gases. This transition is regulated at EU level by rules and directives developed over the years that aim to harmonize the decarbonization process in all the member countries. The two main directives on energy regulation are the EED and the RED.

Getting to know about the Energy Efficiency Directive and the Renewable Energy Directive is thus important for the future Transition Expert in order to be compliant with the recent updates on energy issues coming from the EU. Both directives have been revised in 2023 to keep their targets and objectives in line with the EU priorities and ambitions for 2030 and 2050.

The experts invited to speak in this webinar will provide participants with some inputs on both directives and what has been changed with the revisions, plus giving some insights on how to adapt regional and local plans to be in line with the EU objectives on energy. The session gives the opportunity to local actors to ask questions to the experts and have a better understanding about the new energy-related directives.

Resources

References

- Energy efficiency directive - European Commission (europa.eu)
- Renewable energy directive (europa.eu)
- EU's global leadership in renewables - Publications Office of the EU (europa.eu)
- Energy transition in the EU (europa.eu)

3.2.4 Role of energy agencies in the EU

"Alone we can do so little; together we can do so much."
- Helen Keller

Learning outcomes

With this webinar, participants will learn:

- What energy agencies are and what they do to ensure the CET in their territories;
- How energy agencies can help public authorities in their CET planning.

The webinar aims to provide participants with an in-depth understanding of the reality of energy agencies in the EU. Energy agencies are central actors when it comes to the sustainable energy transition since they advise and provide services in the energy sector to both individual citizens and public authorities. These energy agencies are knowledge centres that aim at facilitating the energy transition in European regions and cities by providing support, training and other services to implement energy programmes. The webinar is divided into two parts. In the first part, the guest expert gives an overview of energy agencies, their role and responsibilities to achieve CET in regions and cities. In the second half of the webinar, the second guest speaker introduces the ManagEnergy initiative, which is the European Commission's initiative dedicated to local and regional energy agencies. ManagEnergy assists these agencies to become the leaders in the energy transition and to increase the number of investments towards renewable and sustainable energy solutions by providing information, visibility, know-how and networking opportunities. Over the years, this initiative has developed a series of tools that can be useful to the future Transition Experts to understand better the role of energy agencies and their relevance in achieving CET goals.

At the end of the webinar, participants will be able to:

- Explain the role of energy agencies and how they can help in the clean energy transition in European regions and cities
- Locate the nearest energy agency in their area and understand how it can help in the CET planning.

Relevance

The revised European Energy Efficiency Directive (EED) acknowledges local and regional energy agencies as pivotal stakeholders, emphasizing their crucial role in supporting regional and local authorities in implementing energy efficiency measures through long-term planning and the establishment of renovation one-stop-shops.

But what exactly are and do energy agencies? Energy agencies are organizations dedicated to the promotion of the energy transition within a specific territory (e.g. a city or region) with a public mandate and governance. Regional and local energy agencies are innovative knowledge centers that promote sustainable energy solutions and facilitate large-scale investments in clean energy, bringing together the key actors of the energy transition: citizens, private organizations, and public authorities. Energy agencies are therefore in a favorite position to help local and regional authorities in the CET.

As part of the change towards a cleaner and more sustainable city or region, the future Transition Experts need to be aware of the existence of energy agencies, their role, and how they can get help from these organizations to pursue the CET in their local and regional authorities. The webinar aims at giving a general overview to participants about these organizations that have a pivotal role in the sustainable energy transition.

References

- ManagEnergy - About - European Commission (europa.eu)
- ManagEnergy Publishable Report 2017 - 2020 - European Commission (europa.eu)

3.2.5 Climate change adaptation

"Adaptation is not about standing still and bracing for impact; it's about moving forward, anticipating change, and thriving in new conditions."
- Christiana Figueres

Learning outcomes

With this webinar, participants will learn:

- What climate change adaptation, mitigation and resilience are
- Which are the main risks related to climate change that are common in cities and regions in the pilot countries
- How to adopt solutions to climate change events that have been already set up by other European regions and cities.

The webinar aims to provide participants with an introduction to the topic of climate change adaptation. In particular, the word adaptation is often confused with "mitigation" or "resilience". Actually, these three terms have different meanings, and they all concern different reactions to climate change events. The first part of the webinar is therefore focused on explaining these terms, while providing participants with a list of extreme events that are becoming common in EU countries, such as floods and droughts. Every EU territory is affected by these events, even if with a different level of vulnerability and readiness.

In the second half of the webinar, the EU Commission's initiative "EU Mission: Adaptation to Climate Change" is presented to participants. This initiative aims to contribute to the EU adaptation strategy by helping regions to develop plans to cope with climate change at present and in the future years. The initiative is also an important research framework to investigate innovative solutions that can be implemented to build resilience to a changing climate. The Mission's portal provides local and regional authorities with best practices, tools, and knowledge to support and develop their adaptation plans. Some best practices are presented in the webinar, while more country-specific examples will be outlined in the series of local webinars.

At the end of the webinar participants will be able to:

- Explain the difference between climate adaptation, mitigation and resilience;
- Understand the risks related to climate change that can happen in their regions (e.g. floods, droughts);
- Analyse adaptation solutions to climate change events.

Relevance

Adapting to climate change means to be ready to deal with the dangerous effects that climate change is causing and will increasingly cause in the upcoming years. In order to survive these events that are becoming more and more common, and to avoid major and irreversible economic, social and demographic problems, the EU and its governments, as well as regional and local authorities, have an important role to play.

Climate change affects EU territories in different ways, from heavy floods to long periods of droughts, from an increase in global temperatures to glaciers melting, and all European regions are sensitive to those events, even though in various levels of vulnerability. In order to secure a safe environment for citizens, governments have to develop concrete plans to enhance the resilience of their territories to face the inevitable effects of climate change.

Given the urgency of the issue, local and regional authorities have to play their part in securing a sustainable future through the development of detailed and feasible climate adaptation solutions that integrate in the clean energy transition planning. This webinar aims to provide the future Transition Experts with a general understanding of what climate change adaptation is, while presenting some best practices which have been implemented in other regions of Europe to cope with climate change events.

Best Practices

- Climate-ADAPT Case study explorer — English (europa.eu)

References

- Adaptation to climate change - European Commission (europa.eu)
- Community Building - Regilience
- EU Adaptation Strategy - European Commission (europa.eu)
- EU Mission on Adaptation to Climate Change Portal (europa.eu)
- Citizen Engagement Manual DIY manual_v1_September2023.pdf | Powered by Box
- Home – Climaax
- Homepage - Pathway2Resilience (pathways2resilience.eu)

3.3 Local webinars

Local webinars are designed for municipalities but also for interested local stakeholders. Each Local webinar session lasts 60 minutes and is delivered in the local language with a common agenda structure:

- Welcoming and introduction to the topic of the day;
- Introduction to PLAN4CET project;
- Expert 1: Explaining the topic;
- Expert 2: Best practices and real-life examples from the local level;
- Q&A and conclusions.

The material used during each webinar (ppts, links to websites, docs) will be shared with participants by email after each session. The five Local webinars deal with the following topics:

	Local webinars
1	Energy planning and modeling tools for sustainable development
2	Reduce, Reuse, Recycle: A circular economy strategies for cities
3	Energy Transition: Positive energy district (PED) and renewable energy communities
4	Participatory processes in the clean energy transition
5	Nature based solutions in cities

3.3.1 Energy planning and modeling tools for sustainable development

"The way you think, the way you behave, the way you eat, can influence your life by 30 to 50 years."
– Deepak Chopra

Learning outcomes
With this webinar, participants will learn:

- The principles of energy planning and modelling
- The main tools for energy planning and modelling

The webinar aims to provide participants with an overview of the energy planning and modelling principles and tools. Thanks to the participation of expert speakers, the webinar intends to be a forum for questions to be asked. The presentation of best practices related to energy planning and tools also has a central part in the webinar, where local and regional actors can learn from what has been already achieved in other territories.

At the end of this webinar, participants will be able to:

- Explain what the principles energy planning and modelling
- Navigate in the energy planning and modelling tools.

Relevance
Energy planning and modeling tools play a crucial role in shaping sustainable energy policies and strategies. These tools provide decision-makers with valuable insights into the complex dynamics of energy systems, enabling them to make informed choices that balance economic, environmental, and social considerations. One key relevance of energy planning and modeling tools is their ability to assess various scenarios and forecast future energy demand, supply, and infrastructure needs. By simulating different scenarios, policymakers can evaluate the potential impacts of different policy interventions, technological advancements, and market changes on energy security, affordability, and environmental sustainability.

Best practices

- Developing energy scenarios for Piedmont Region: https://www.eurac.edu/en/institutes-centers/institute-for-renewable-energy/tools-services/energy-modelling/regional-energy-modelling-for-the-piedmont-region

3.3.2 Reduce, Reuse, Recycle: A circular economy (CE) strategies for cities

"A transition to clean energy is about making an investment in our future".
- Gloria Reuben

Learning outcomes

With this webinar, participants will learn:

- The principle of circular economy: reduce, reuse and recycle;
- How local authories could develop circular economy strategies at the city scale
- Why it is important to apply this principle in all steps of the decision-making process at regional and local level;

The webinar aims to provide participants with an overview of the CE principles: reduce, reuse and recycle and how to plan an effective circular economy strategies at the city scale. Thanks to the participation of expert speakers, the webinar intends to be a forum for questions to be asked. The presentation of best practices related to CE also a central part in the webinar, where local and regional actors can learn from what has been already achieved in other territories.

At the end of this webinar, participants will be able to:

- Explain what the principles of Circular Economy are and what is their impact in the Clean Energy Transition.
- Implement CE strategies at city scale
- Analyse and discuss some best practices related to CE..

Relevance

Circular economy is an economic system aimed at reduce reuse and recycle resources and waste. Unlike the traditional linear economy, which follow "take, make, use, dispose" model, CE focuses on closing the loop, promoting sustainability and resilience.

CE and energy are closely related, with both concepts reinforcing sustainability and resource efficiency. By promoting energy efficiency in production processes, integrating renewable energy sources, and utilizing waste-to-energy technologies, CE contributes to reducing energy consumption and environmental impact. Additionally, energy recovery from recycling processes and decentralized energy systems further enhance sustainability and resilience, aligning with circular economy principles. Together, these approaches offer a pathway towards a more sustainable future with minimized waste and optimized resource use.

For local governments (muncipality or larger scale) it is important to implement CE strategies in their territory to transition toward a just low carbon society.

Best practices

- **Eclectic Project:** https://www.eurac.edu/it/institutes-centers/istituto-per-le-energie-rinnovabili/projects/eclectic
- **Sec Project:** https://www.eurac.edu/it/institutes-centers/istituto-per-le-energie-rinnovabili/projects/sec

References

- A new Circular Economy Action Plan
  For a cleaner and more competitive Europe
- Circular economy a infographic
- The enviromental impacts of plastics and micr-plastics use, waste and pollution: EU and national measure

3.3.3 Energy Transition: Positive energy district (PED) and renewable energy communities

"Positive energy is attracted to positive energy."
– Deborah Day

Learning outcomes
With this webinar, participants will learn:

- Define Positive Energy Districts (PED) and Renewable Energy Communities (RECs) and their significance in the context of energy transition;
- Gain familiarity with key concepts and principles underlying PED and Renewable Energy Communities;
- Explore real-world examples of successful PEDs and RECs implemented in different urban and rural contexts

The webinar aims to equip participants with the knowledge, skills, and strategies necessary to plan, develop, and implement Positive Energy Districts (PEDs) and Renewable Energy Communities (RECs) as integral components of the energy transition process. Through a comprehensive exploration of key concepts, case studies, and best practices, participants will gain the tools and resources needed to catalyze community-led initiatives, foster stakeholder engagement, and navigate the complexities of policy, technology, and financing in the pursuit of sustainable and resilient energy systems at the local level.

At the end of this webinar, participants will be able to:

- Understand the policy and regulatory frameworks at local, national, and international levels that support the development of PEDs and RECs;
- Identify policy instruments, incentives, and barriers that impact the establishment and operation of PEDs and RECs;
- Recognize the importance of community engagement and participation in the planning, design, and implementation of PEDs and RECs;
- Identify opportunities for synergies with other sustainable development goals, such as climate resilience, biodiversity conservation, and social equity.

By achieving these learning outcomes, participants will be equipped with the knowledge, skills, and tools necessary to actively contribute to the development and implementation of Positive Energy Districts and Renewable Energy Communities, advancing the goals of energy transition and sustainability.

Relevance
The urgency to mitigate climate change and reduce greenhouse gas emissions has reached a critical point. The Intergovernmental Panel on Climate Change (IPCC) has issued stark warnings about the need to limit global warming to well below 2 degrees Celsius to avoid catastrophic consequences. Transitioning to clean energy sources is essential in achieving this goal, and PEDs and ECs offer innovative solutions to accelerate this transition. PEDs and ECs represent a shift towards decentralized energy production, distribution, and consumption, empowering communities to take control of their energy futures and reduce reliance on centralized, fossil fuel-based energy infrastructure.

Climate change is already impacting communities worldwide, with more frequent and severe extreme weather events, such as heatwaves, storms, and floods. PEDs and ECs promote resilience and adaptation by integrating renewable energy sources, energy-efficient technologies, and decentralized energy systems that are more resilient to disruptions and better equipped to withstand the impacts of climate change.

Discussing the role of Positive Energy Districts and Energy Communities in the context of the clean energy transition is crucial today to address urgent climate challenges, promote resilience and adaptation, stimulate local economic development, advance social equity and justice, and mobilize policy and regulatory support for transformative change towards a sustainable energy future.

Best practices
- **Kinetic Project** https://kinetic-project.eu/
- **ARV Project** https://greendeal-arv.eu/
- **PROPEL Project** https://www.eurac.edu/en/institutes-centers/institute-for-renewable-energy/projects/propel

3.3.4 Participatory processes in the clean energy transition

"Freedom is participation".
– Giorgio Gaber

Learning outcomes
With this webinar, participants will learn:
- The principles of an effective participation of citizens and stakeholders in planning and policymaking;
- participatory process methods for a clean energy transition

The webinar aims to provide participants with an overview of the citizens and stakeholders engagment principles and how to effectivly involve them in the planning and policymaking

process. Thanks to the participation of expert speakers, the webinar intends to be a forum for questions to be asked. The presentation of best practices related to CE also a central part in the webinar, where local and regional actors can learn from what has been already achieved in other territories.

At the end of this webinar, participants will be able to:

- Explain what the principles of an effective participation of citizens and stakeholders in planning and policymaking;
- impact in the Clean Energy Transition;
- Implement CE strategies at city scale;
- Analyse and discuss some best practices related to CET.

Relevance

Participating in the energy transition is a cornerstone of fostering democracy, as it empowers communities to shape the future of their territories. It's essential to involve those who live in and understand the area, ensuring a just transition that leaves no one behind. This approach not only enhances local ownership and accountability but also promotes equity and inclusivity in the transition process. Citizens and stakeholders participation is also curcial for raising awerness and foster informed decision-making.

Best practies

- Participatory process for SECAP in Messina: https://paesc.comune.messina.it/il-percorso-del-paesc/
- Climate assemblies in Bologna: https://www.chiara.eco/

References

- Medium OCSE: https://medium.com/participo/renewing-democracy-in-an-age-of-complexity-and-disillusionment-70942a6a3ee9

3.3.5 Nature based solutions in cities

"Nature is the source of all true knowledge."
– Leonardo da Vinci

Learning outcomes

With this webinar, participants will learn:

- Define the concept of Nature-Based Solutions (NBS) and its significance in urban contexts;
- Identify various types of Nature-Based Solutions;
- Recognize the environmental, social, and economic benefits of implementing NBS in cities;
- Learn about key indicators and methodologies for evaluating the social, economic, and environmental impacts of NBS;

- Explore successful NBS projects implemented in different cities and regions.

This webinar explore the multifaceted ways in which Nature Based Solutions can support the clean energy transition in cities, ranging from carbon sequestration and climate resilience to enhancing renewable energy infrastructure and fostering community engagement. By leveraging the inherent power of nature, municipalities, policymakers, and stakeholders can unlock a wealth of opportunities for a sustainable energy future.

At the end of this webinar, participants will be able to:

- Understand the policy and governance frameworks at local, national, and international levels that support NBS implementation;
- Recognize the importance of stakeholder engagement and community involvement in NBS planning and implementation;
- Gain knowledge of tools and approaches for integrating NBS into urban planning and development processes.

By achieving these learning outcomes, participants will be equipped with the knowledge, skills, and resources necessary to promote and implement Nature-Based Solutions in their respective municipalities, contributing to the creation of more sustainable, resilient, and livable cities.

Relevance

The transition towards clean energy sources stands as one of the most pressing challenges of our time, necessitated by the imperative to mitigate climate change, reduce air pollution, and ensure energy security. While conventional approaches focus predominantly on technological advancements in renewable energy systems, Nature-Based Solutions (NBS) offer a complementary and holistic framework for achieving these objectives.

Nature-Based Solutions (NBS) refer to actions that are inspired by, supported by, or copied from nature to address various societal challenges in a sustainable and resilient manner. These solutions leverage natural processes and ecosystem services to provide benefits for both people and the environment. NBS are characterized by their ability to work with natural systems, rather than against them, and often involve the restoration, conservation, or sustainable management of ecosystems.

Nature-based solutions (NBS) can play a crucial role in supporting the clean energy transition in several ways:

- *Renewable Energy Infrastructure Integration:* NBS such as green roofs, urban forests, and vegetated swales can be integrated with renewable energy infrastructure like solar panels and wind turbines. This integration optimizes land use and enhances the efficiency of clean energy production.
- *Carbon Sequestration:* forests, wetlands, and other natural ecosystems act as carbon sinks, absorbing and storing carbon dioxide from the atmosphere. By

conserving and restoring these ecosystems, NBS contribute to carbon sequestration, offsetting greenhouse gas emissions and mitigating climate change.

- *Bioenergy Production:* biomass derived from sustainably managed forests and agricultural residues can be used for bioenergy production, providing a renewable alternative to fossil fuels. Agroforestry systems and perennial energy crops also offer opportunities for bioenergy production while enhancing biodiversity and soil health.
- *Climate-Resilient Energy Infrastructure:* NBS such as green infrastructure and coastal ecosystems provide natural buffers against extreme weather events and climate impacts, reducing the vulnerability of energy infrastructure to disruptions. For example, coastal wetlands and mangroves help protect against storm surges and sea-level rise, safeguarding coastal power plants and transmission lines.
- *Energy Efficiency Improvements:* urban green spaces and tree cover help mitigate the urban heat island effect, reducing the need for energy-intensive cooling in buildings during hot weather. Additionally, green infrastructure like permeable pavements and bioswales can manage stormwater runoff, reducing the energy required for wastewater treatment and flood management.
- *Community Engagement and Social Equity:* NBS projects such as community solar gardens and renewable energy cooperatives promote community engagement and ownership in the clean energy transition, fostering social equity and empowerment. By involving local residents in decision-making and benefit-sharing, these projects enhance social acceptance and support for renewable energy initiatives.
- *Policy Integration and Co-benefits:* integrating NBS into energy policies and planning frameworks can unlock multiple co-benefits, such as improved air quality, enhanced biodiversity, and increased resilience to climate change. By adopting an integrated approach, policymakers can maximize the synergies between nature conservation, clean energy deployment, and sustainable development goals.

Best practies

- **VARCITIES** Project
- **JUSTNature** Project
- **Clevercities** Project

References

- https://varcities.eu/
- https://justnatureproject.eu/
- https://clevercities.eu/

4 Zero Carbon Community Managers Programme

4.1 Learning objectives and overview of the programme

Communities are at the heart of the transition, nevertheless their active role in the energy sector is a rather new concept in most european countries, which also opens up the opportunity for a new professional figure, the community manager. Therefore, this 30 hours capacity building programme aims at providing the necessary skills for the operational phase of a renewable energy community, and to foster its evolution towards zero carbon community. The aim of the programme is to align the bottom up activities within communities with the overall goals of the local administrations in terms of energy transition and climate neutrality.

Target participants of the capacity building programme are: local administration staff who are interested in taking an active role as community managers, or who would like to gain direct knowledge of the practical process of managing a community, citizens or volutneers who are willing to take on the management of a REC, or professionals who are interested in this role.

The programme assumes that participants are not energy specialists, it is however advised to test the preliminary knowledge of participants on energy topics in order to better fine tune the programme's initial modules on renewable energy.
The course consists of 6 modules of which two are suggested to be delivered in presence while the others are delivered as online webinars to allow more flexibility.

Learning objectives		Modules	Duration (hours)	How
1	Knowledge of regulatory aspects of Energy Communities at local level	**M1: Context and regulatory aspects at local level on REC (collective self consumption and REC)**	4	P
2	Knowledge of technological aspects related to renewable energy solutions and community management	M2: Installation and integration of renewable energy solutions	3	O
		M3: Digital solutions for REC management	3	O
3	Managing citizens and companies involvement and participation as well as legal aspects in REC	M4: Legal&administrative aspects - practical examples	6	O

4	Implementing strategies and tools to develop from REC to zero carbon community and ensuring long term engagement	M5: Long term engagement of the community towards zero carbon communities	6	O
		M6: study visit&workshop, course evaluation	**8**	**P**

By creating a direct link with the local administration and the local experts working on renewable energy communities, the future "Zero Carbon Community Managers" will be empowered in supporting the transition. Last but not least, participants will benefit from a newly generated Community of Practice of fellow managers with whom they can exchange current and future experiences.

4.1.1 Context and regulatory aspects at local level on REC (collective self consumption and REC)

Learning outcomes
With this module, participants will gain knowledge on:

- The European and national context around energy communities
- Why energy communities and energy sharing more in general is a key concept in the energy transition
- What are the regulatory aspects for Energy Communities at local level

Learning format
Lectures and facilitated discussions, either online or in presence to allow participants to network and get to know each other.

Content
Starting from the European context and the overall benefits of energy communities, the module will introduce participants to the local CET planning or strategies.
At European level, the European Commission launched two directives relating to the energy sector as part of the Clean Energy Package in 2018 and 2019. These documents point to the role of Energy Communities, among other instruments, in accelerating the transition possible. The directives define two different concepts of energy communities: Renewable Energy Communities (in the 2018 directive) and Citizen Energy Communities.
The main objectives of an energy community, and in broader terms of energy sharing, are:

- Promoting energy sovereignty based on renewables
- Empower citizens with an active role in the energy market
- Reducing energy related costs (either related to energy source, to taxes or to grid related costs) especially tackling energy poverty
- Fostering greater social cohesion, by investing the benefits obtained from the energy market in community related services.

The supporting documents and training programmes on energy sharing are numerous and will be used as reference for the delivery of the module.

The module will illustrate the local framework around energy allowing the future zero carbon community managers to contextualize the activities of the community in the local policy landscape as well as to become aware of possible incentives or financial instruments supporting RECs. In such a way, the zero carbon community manager will bcome aware of the overall objectives and strategies that the local authorities are pursuing.

Resources

- RESCOOP the European association of energy cooperatives collects information on energy communities in Europe
- Energy Communities Repository an initiative by the European Commission to assist local actors (citizens, local authorities, and businesses) with setting up and advancing clean energy projects driven by energy communities in urban areas. Even if the initiative is no longer active, learning materials remain available.
- Synthetic overview of the Directives concerning energy communites

Best practices

- **Bologna Green Energy Community (GECO) project** developed a feasibility study for an energy community within the Pilastro district in Bologna, to fight energy poverty involving a wide range of stakeholders. GECO aimed to increase renewable energy production and self consumption while promoting behavioral change in the community.

4.1.2 Installation and integration of renewable energy solutions

Learning outcomes

This module will provide participants with practical knowledge on:

- the main types of renewable energy production technologies (PV, solar, biomass, wind, hydro) and relevant parameters associated to those plants, as well as key aspects related to the maintenance of renewable energy plants
- how the energy markets work
- building energy efficiency concepts, energy audits.

Learning format

Webinar

Content

While the centralized energy system is characterized by a relatively simple value chain with limited links and players, the energy transition leads to a more decentralized renewable-based energy generation, more diversity in supply and increasing complexity of demand and supply management. It is important that Zero Carbon Community Managers are aware of this complexity and familiar with the basic renewable energy concepts in order to

correctly communicate to citizens, and effectively negotiate with other market players and local actors.

The module will provide an overview of the main renewable energy sources, i.e. PV, wind, solar, hydroelectric and biomass, focusing on those with the highest application potential in the local context, in coherence with the local energy strategies (Regional Energy Plans, PAESC, Carbon Neutrality Roadmaps). The necessary steps for renewable energy plant installation from feasibility study to permitting and installation at local level will be shared with participants. Thereafter, the concept of integrated energy system will be introduced as well as the main energy market mechanisms, including relevant stakeholders at local level.

Finally, the module will zoom in into building energy efficiency in order to provide participants with the basic knowledge on energy management and sufficient background to interprete a building energy audit. An energy audit is completed at a residential or commercial building to determine its energy efficiency.

Resources

- EUCENA – Eu Citizens Energy Academy provides free online training for citizens

4.1.3 Digital solutions for REC management

Learning objectives

This module will introduce participants to the digital tools which are necessary to manage a REC, i.e. smart meters, digital platforms used to determine economic benefits, and their functioning. After the module, participants will be able to:

- simulate a simple energy community configuration
- gain knowledge on the necessary activities for the management of REC members
- understand which digital tools are available for REC management.

Learning format

Webinar

Content

Digital platforms and tools are an important enabler of the decentralized energy system, and key for managing the internal processes, relationships with members, and communications operations within energy communities. In the preliminary stages, simulation tools are available online to model energy communities' configurations and support the identification of the most beneficial solution for the specific context depending on the national regulations, which can be useful to better understand the ways a REC works and to plan future investments. During operations, REC management can be supported by digital platforms integrating continuous energy monitoring systems and allowing to calculate the shared energy and the revenues generated by the energy community. The

guide compiled by the Energy Community Repository will be used to illustrate the tools already developed by Eu-funded projects, integrating them with those available at national level.

Resources

- Digital tools for energy communities
- Minuto et al., 2022. Digital platforms for renewable energy community management: an overview International Journal of Sustainable Development and Planning, Vol. 17, No. 7, November, 2022, pp. 2007-2013

4.1.4 Legal administrative aspects - practical examples

Learning objectives

This module will provide participants with:

- Clarification of the administrative and legal requirements necessary for the correct management of the community based on the legal form (cooperative, association, etc.), such as: number of assemblies, necessary members of the board, etc.;
- Mentor support to overcome most common challenges faced by communities at local level (such as issues with the DSO or chamber of commerce).

Learning format
Webinar

Content

Energy communities and other innovative concepts based on energy sharing and the empowerment of citizens and communities in the energy transition are still relatively new in EU energy policy. Only a few Member States had frameworks in place with the explicit aim to support and enable energy communities prior to the adoption of the CEP. For example, in Italy, the impulse to the development of a specific legislation was given by the European Directives.

It is important to take into account that the EU definitions of RECs and CECs, while principles-based, require further elaboration and details at the national level, including references across different sectors and topics (electricity, heating and cooling, gas, energy efficiency, renovations, etc.). This necessitates the development of national legislation and regulations, the integration of energy communities into climate and energy plans, and the assignment of different roles and responsibilities to National Regulatory Authorities (NRAs), Executive Agencies and other authorities, from the national to the regional to the local level.

Based on the national and local context, the module intends to provide a clear picture of the requirements at administrative and legal level to manage an energy community, which

vary as a function of its legal form being it a cooperative or an association. Requirements in terms of members roles (board of directors), voting rights, possible advisory boards will be illustrated for different types of legal forms. Wherever possible, examples from already running projects will be engaged in the capacity building to share their experience with participants. Practical advice at the local level will be provided to participants.

Resources

- A roadmap to developing a policy and legal framework that enables the development of energy communities – Report by the Energy Communities Repository

4.1.5 Long term engagement of the community towards zero carbon communities

Learning objectives

This module focuses on the tools and strategies to ensure the sustainability of the community in the long term. Participants will be provided with knowledge on:

- Strategies and tools to ensure long term engagement of the members of the community;
- Technical and financial analysis to assess the best project options for the community and develop a community roadmap based on local needs and specificities (ancillary services);
- Financial instruments for community development.

Learning format
Webinar

Content
Energy communities are open and voluntary and combine non-commercial aims with environmental and social community objectives that can pave the way towards zero carbon communities. It is crucial however that communities are sustainable also from the financial point of view and to this end it is necessary that zero carbon community managers are capable of building and analyzing business plans related to the future of the community. Energy efficiency is a pillar of collective actions developing energy communities. Such business plans may include an evaluation of: revenues from energy sharing or investments in renewable energy plants, investments in house renovation, sharing mobility services, or other services that can be beneficial to the community such as co-working, kindergartens, etc.

The Horizon 2020 funded *Compile* project has developed comprehensive guidelines on how to engage stakeholders within community projects, including both institutional stakeholders and volunteers.

The module will also provide an overview of funding opportunities for RECs towards zero carbon communities both at the European and local level, giving practical insights on their applicability. Traditional funding schemes do not fit well to the community purposes, therefore new models are emerging. On this topic, the materials developed by the LIFE *ACCE* project focused on Community Energy Financing Schemes (CEFS) will be used.

Resources

- European Energy Community Platform
- Stakeholders Engagement Guide Compile Project
- Inclusivity Guide for Energy Communities
- Mobilising investments for energy communities – webinar recording
- Financial guide for energy communities – Horizon 2020 SCCALE 20 30 50 Project

4.1.6 Study visit&workshop, course evaluation

Learning objectives

The final module provides an opportunity for participants to visit a renewable energy community project "on the ground" in order to experience a real project. The module intends to train mostly the soft skills of participants by simulating real life conditions within a community and will enhance participants skills on:

- Efficient communication
- Conflict management
- Negotiation

Learning format

Study visit and lectures by experts and facilitated workshop to encourage discussions amongst participants.

Content

The final module consists of a 8 hours workshop aimed at showcasing real examples of community projects at the local level and at kickstarting the Community of Practice amongst participants who will be encouraged to share their experiences.

During the first part of the day participants will participate to a study visit to a local community project and identify they key steps and the critical points. During the second part of the day, participants divided in groups, will develop their roadmap towards zero carbon community using the information learned in the course.

5 Tips for an effective delivery of the training programmes

When aiming at a successful delivery of a capacity-building programme, the two guiding principles are who we are addressing (our target) and the goals we want to reach with our training course (objectives).

Knowing your target audience is a necessary first step to understand who you are going to talk to. This means to have a clear vision of your audience's background knowledge on the topics, their level of involvement, capacities and expectations from this training. This analysis will allow you to have a better picture on how to deliver the course, on which topics to focus more your attention, and which learning format suits best to your audience. It is possible to conduct a quick survey within your target group with questions about their background knowledge, their current job position, their level of interest in the course topics, and their expectations. This survey will be useful to navigate your audience and to know who you are addressing your programme to. Nevertheless, the survey can be used also to evaluate the course at its end by comparing the initial expectations of the group and the final feedback after the course to check if it met the predicted ambitions. This first exercise of knowing your audience is indeed fundamental for a profitable and successful since it allows the teacher to ensure relevance and engagement throughout the sessions.

The second step when delivering a training programme is to set **SMART objectives**. The acronym SMART stands for:

S -> specific, well defined, clear
M -> measurable, to check progress
A -> achievable, not impossible
R -> realistic, relevant
T -> time-bound, with start and end date

The main goals of each session are underlined in this guide, but facilitators may need to adjust those objectives and methods to better align with their audience and their expertise. Clear objectives are therefore offered as a benchmark for assessing the effectiveness of the programme, the timing and resources we want to spend on that module, and the learning outcomes, while keeping both the audience and the facilitator motivated and committed.

Once the audience's profile is understood and the training objectives are clear, the next step to consider is how to **keep the participation active** and effective. Keeping active participation is indeed crucial for effective learning, and the time available for the session should be well split into passive and active learning. Passive learning refers to receiving information from a teacher and internalizing this information without engagement. This

is the typical lesson where a teacher/facilitator presents a topic to the classroom. Active learning, on the contrary, means that students actively participate, discuss and engage with the others or the teacher. Both types of learning are important, and the suggestion for an effective session is to dedicate enough time to both ways.

While the passive teaching method is well known and practiced, **actively engaging the participants** is more challenging and requires a different structuring of the lesson. Engaging the audience and enhancing active participation can be achieved using the following activities:

- Group discussions and debates on a given topic taken from the course;
- Problem–solving exercises and simulations of real situations;
- Real-world best practices research and presentations;
- Research on case studies or topics from the module;
- Interactive online questions and live polls;
- Sharing of experiences among participants and facilitators.

Another idea to engage the audience is to use **visual aids** in your presentations and lectures. Graphs, images, videos, tables, charts, but also quotes, maps, animations, and so on, are useful to grab the audience's attention, to present difficult ideas in an easier way, to help the audience memorizing the information they received in the classroom, and to retain information.

Finally, it is essential to gather **feedback** from participants in order to understand if the training was effective and collect suggestions on what can be improved in the next sessions. When asking for feedback, participants are empowered and feel more engaged in the programme as they know that their input is valued and impactful. Understanding what participants enjoyed the most and the least from the session is relevant in the shaping of future sessions and it ensures that the quality of the training remains high. Moreover, asking for feedback fosters the collaboration within the group and it creates moments of sharing and communication, leading to a more productive and enjoyable session.

To summarize, the tips for an effective delivery of a capacity-building training programme are:

- **Understand your audience**, their skill level and background, and consequently tailor your message according to their needs;
- **Establish clear objectives** on what you and your audience want to achieve at the end of the capacity-building course;
- **Encourage active participation** with interactive material, questions, exercises, online surveys or polls, and group discussions;

- **Use visual aids** to engage your audience and often refer to real-life examples and best practices to keep their interest high;
- **Allow for constant feedback**, create a satisfaction survey, be flexible and ready to adjust the material and the timing of the training according to your audience's wishes and needs.

These tips are useful for a correct and effective delivery of any type of training programme. Let's have now a look at the three different programmes that are developed in this guide (Transition Manager, Transition Expert and Zero Carbon Community Manager) to understand in which way these training programmes could be developed and made more effective.

The first capacity-building programme is for **Transition Manager**. This programme is divided into nine modules of two hours each, in hybrid form: some as online and some as in presence workshop. Much of the module's content can be delivered by lectures from practitioners in the field with practical experience of implementing these solutions at local level. Discussions amongst participants can be stimulated to pinpoint the most interesting challenges for the local context. Master classes from best practices by cities can be included too, as well as some workshop moments where participants can engage with each other in different exercises and activities. Similarly, participants from municipalities can be encouraged to share their experiences with financial instruments and public procurement for CET, not only in terms of successes but also in terms of "what did not work". Self-study, starting from the provided resources, is encouraged to learn more about the technical aspects depending on the specific interest of the participants. The modules can be complemented by organizing a study visit to e.g. a RECs or a PED under development to increase the engagement of participants and stimulate discussion and sharing of experiences.

Concerning the **Transition Expert** training programme, it consists of ten webinars of one hour each. The webinar is more engaging than the lectures themselves, but it can be improved with the use of best practices and real-life examples to keep the audience interested in the topic. Having some breaks between a speaker and the other is a good activity that can be combined with a Q&A session. The expert presentations shouldn't be longer than 20 minutes and the introduction to the session can be a live poll to test the knowledge and interest of the audience in the topic. The use of storytelling and questions during the presentation is also encouraged, while avoiding information overload.

The **Zero Carbon Community Managers** programme includes four online modules and two in presence modules as facilitated workshops. The online delivery of this training requires facilitators to be very efficient in engaging participants using tools and materials to enhance the communication among them, for example by cerating breakout sessions and assign each group a topic of discussion that they will present later in the main session. This activity encourages peer-to-peer interaction, as well as allowing for networking

opportunities. The facilitators must lead by example actively participating in the discussions and engaging with the audience.

To conclude, implementing these tips can make the delivery of the capacity-building training programmes smooth and successful. The objective is to empower participants to develop new skills and abilities through a purposeful, effective and impactful programme. The above tips are just some ideas on how to effectively deliver the contents, but many more practices can be put into place and gathered after the end of the trainings. We look forward to hear what your tips will be after having delivered the programmes!

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