Establishing a common language

CITIZENS4PED

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Introduction

The project consortium consists of 11 applicant partners and 4 cooperation partners, spanning three countries. Among the applicant partners, there are 4 academic institutions, 4 private entities, and 3 public bodies. Additionally, the cooperation partners include organizations such as the Italian Standards Body (UNI) and Ricerca Sistema Energetico (RSE), which bring specialized expertise to the project. This diverse composition ensures a robust and complementary collaboration, with partners contributing expertise in technical, socio-economic, policy, participation, and standardization dimensions.

Given the diversity of the consortium, establishing a common language is critical to the project's success. With partners from different sectors—academic, private, and public—each bringing unique disciplinary perspectives, the need for shared terminology and mutual understanding becomes paramount. A unified language fosters effective communication, ensures interdisciplinary collaboration, and enables the integration of diverse expertise into cohesive project outcomes. As shown by previous PED projects, this is an important challenge to address. By defining key concepts and creating accessible tools, the consortium can bridge gaps in understanding, streamline workflows, and build a foundation for long-term partnerships.

This deliverable summarizes discussions among partners about the definition of various terms that are used within the project – some are already present in the initial proposal. Indeed, we realized that some of these notions were not equally familiar to all partners and in some cases they carried different meanings..

In Spring 2023, we organized two online sessions to discuss terms that had been collectively selected. . Working in in small groups, we then developed shared definitions Additional terms were added later as our discussion revealed their relevance to the research process and the need for them to be clearly defined as well..

1. On the 27th of March 2023, an online session has explored key concepts of the project with the help of a Miro board. The definitions of basic terms which are used in the initial proposal were established through a "world café" on Miro were developed by working in small groups (3 or 4 people) t. The idea was not to develop a formal definition (or some from the dictionary), but an operational definition that is relevant for our project.

2. On the 24th of April 2023, every participant has chosen 3 concepts or notions that are both important for them and relevant to the project. The terms were selected based on the following criteria: they were not too obvious and were related to the partner's work practice..

Presented below is a list of key terms, whose definitions have been jointly elaborated by the project partners in the context of Citizens4PED the project.

Definitions of key concepts

Social justice

Social justice is about reducing inequalities in access to various kinds of 'resources' (wealth, education, time ...) and must include all citizens by:

- establishing rules for mutual interaction that are considered fair by all (just distribution of resources);
- implementing collective actions to counter inequalities;
- supporting and listening to marginalized individuals;

Social justice includes an intergenerational dimension: while current generations contribute to climate change, future generations will bear its consequences.

The principle of proportionality is central: individuals with greater income, time, or education should contribute more to carbon reduction efforts.

When public goods are managed as commons in energy transitions, some groups may benefit disproportionately, potentially at the expense of others.

Energy transition

Energy transition is a multifaceted process aimed at shifting from unsustainable to sustainable energy systems. It is characterized by:
- moving away from fossil fuel dependency;
- decarbonizing energy production and limiting emissions;
- reducing overall energy consumption through mindset, behavioural, economic and structural changes;
- adapting consumption patterns to energy availability and making renewable energy sources widely accessible.

The transition must avoid replacing one addiction (fossil fuels) with another (critical materials). The energy transition is also a political narrative, often used to maintain growth and social peace in the short term, rather than to address the need for degrowth and sufficiency. See for instance the movie "Don't Look Up".

Living lab

A living lab is a real-life environment where new concepts and technologies are tested and co-designed with stakeholders. It is a physical set up in real-life communities and settings where different stakeholders meet to facilitate open innovation processes and co-design of radical transitions towards more livable urban areas.
Living labs can open up unexpected insights into local energy transitions while also highlighting the limits of the theory.

A question has been raised: what can be achieved within the project timeframe, and will the living labs be sustained beyond it?

Participation / citizen involvement

Citizen involvement is essential for the successful implementation of PEDs, as citizens are ultimately the end users.

Participation is a valuable tool for planning, designing, building, and regenerating safe, resilient, and sustainable cities. It makes it possible to capture of the needs and perspectives of all stakeholders, supporting expert decision-making in proposing solutions and fosters knowledge-sharing while raising broad awareness of urban issues.

Co-creation can yield unexpected solutions but requires long-term energy and vigilance against "false participation," which can lead to disengagement.

Techno-economic model

A techco-economic model is a simplified representation of the reality of a case study. Such a model is based on assumptions and available data and needs be complemented by sociological aspects. The aim is to propose technical solutions and associated economic scenarios that can be compared to examine the consequences of the different choices. This model makes it possible to analyze the constraints related to the implementation of the PED and to assess its feasibility.

Energy poverty

Energy poverty is currently defined as the lack of access to energy for low-income households. It affects health, education, gender equality and social equity. In the future, energy poverty may also be understood as limited access not only to energy in general, but also to specific forms of energy.

Possible solutions include through shared systems (public and private initiatives, energy communities...) and greater self-reliance. In this sense, PEDs could play a role in addressinf energy poverty and enhancing people's well-being.

Just transition

A just transition is a social, economic and environmental transformation of society aimed at achieving a more equitable balance, namely fairer use of and access to energy for all, including low-income households. It involves determining who should bear the greatest responsibility in working toward this common goal. Ultimately, a just transition must ensure that energy is recognized as a human right.

Green energy

Green energy is generally defined usgin carbon-related indicator (e.g. carbon emissions, CO_2 neutrality). However, the label 'green energy' can obscure issues such as the use of non-renewable metal resources, other forms of pollution (including air pollution), biodiversity loss, and greenwashing. A key challenge lies in deciding what to include in life cycle assessment of green energy. Since no form of energy entirely free of environmental impact, energy can be considered 'more or less green".
From the user's perspectives, , unlike fossil energy, green energy is seen as an energy produced and consumed in ways to improve and strengthen both the natural and social environment. In this sense it is synonymous to "sustainable energy", understood as energy derived from sustainable resources (both energy and material) and socially appropriable. Green energy harnesses local energy potentials and creates more local job opportunities. It enables consumers to become producers and to treat energy as a

common good. However, it also requires high investment costs, which are not always accessible to citizens. However, it also requires high investment costs.

Energy flexibility

Energy flexibility refers to adjusting energy use in response to external signals (economic or otherwise) to balance supply and demand. It can be done automatically or manually. It may involve switching modes of production or energy vectors.

Energy flexibility can be seen at the individual or systemic level. In the latter case, it means the system capacity of the energy systemto modulate time, magnitude and type of energy use.

There is a trend to involve small consumers to balancing the grid through flexible energy and grid tariffs, which requires a deepening of the grid digitalization. However, it is not clear if this is the only way to achieve energy flexibility. Socio-technical ability could indeed be improved through communities who would be able to easily and readily redefine the boundaries and possibilities of energy access and use.

Social benefits of energy communities

The fact that energy sources are locally owned by consumers in an energy community can be treated as a common. Various social benefits have been identified:

- a new attitude towards "energy" through various discussions on energy (sufficiency, flexibility...), which can change social norms upon which rest energy uses;
- collective empowerment: strengthening the links between local identity, self-sufficiency and local development;
- cohesion in neighbourhoods through solidarity and the sharing of knowledge and practices; ;
- resilience and climate adaptation (less hit by gas prices, blackouts, etc.)

In essence, , social benefits encompass improvements for each individual agent involved and for the entire community. improvements for each individual actor as well as for the community as a whole.

The link between energy communities and PEDs has still to be explored. PEDs may also foster positive development in dimensions of ecological transitionthat extend beyond energy.

Transdisciplinarity

Transdisciplinarity involves non-academic actors in the research, ideally from start (co-creation of research question) to the end (dissemination of results). It is therefore distinct from interdisciplinarity: involving academic researchers of different disciplines to build a common object. Transdisciplinarity is not the mere simple coexistence or juxtaposition, but a cross-fertilization between disciplines. It is a way to consider all factors and variables, and their mutual influences, by adopting the perspectives of other disciplines.

We could aim at identifying a few "boundary objects" relevant to PEDs, i.e. "concepts plastic enough to foster cooperation between different research fields and yet robust enough to maintain a common identity" across languages and living labs.

Sufficiency

Sufficiency is a principle that emphasizes meeting human needs with the least possible resource use, focusing on quality of life rather than quantity of consumption. It challenges overconsumption and promotes sustainable lifestyles, often supported by collective action and policy.

In all climate mitigation scenarios, sufficiency is required to reach the goal. However, this approach is often neglected. For instance, we have not found any PED that has been developed which the sufficiency principle in mind.

Self-sufficiency

Self-sufficiency refers to the ability of individuals, communities, or systems to meet their own needs—especially energy—with minimal reliance on external sources. In the context of PEDs, it often involves local energy production, resource sharing, and resilience-building.

PED

Positive Energy Districts (PEDs) are urban areas or neighbourhoods that generate more renewable energy than they consume, aiming for a net-positive energy balance on an annual basis. PEDs integrate usually energy efficiency, renewable energy, and smart grids, while fostering social innovation, citizen participation, and sustainable urban development.

PED Action Plan

A PED Action Plan is a strategic document outlining the steps, resources, and timelines needed to implement and achieve the objectives of a Positive Energy District. It includes technical, economic, social, and governance measures, and is developed through participatory processes involving all relevant stakeholders.

Commons

Commons are resources—such as energy, land, or knowledge—managed collectively by a community according to shared rules and principles. In the context of PEDs, commons can include energy systems, public spaces, and shared infrastructure, ensuring equitable access and sustainable use.

Pareto front

The Pareto front (or Pareto frontier) is a set of optimal solutions in multi-objective optimization, where no objective can be improved without worsening at least one other. In PED planning, it helps identify trade-offs between different goals (e.g., cost, emissions, social equity) and select the most balanced options.

CAPEX/OPEX

CAPEX (Capital Expenditures): upfront costs for purchasing or upgrading physical assets (e.g., renewable energy infrastructure, buildings).

OPEX (Operational Expenditures): ongoing costs for running and maintaining assets (e.g., energy management, repairs).

Social practice theory

Social practice theory is a framework that interprets consumption and behaviour as embedded in social practices—routine activities shaped by shared meanings, competencies, and materials. In the context of energy, it helps to analyse how daily practices (e.g., heating, mobility) can be steered towards sustainability through changes in infrastructure, norms, and skills.

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