

IEA EBC Annex 83

Positive Energy Districts

**IEA Energy in Buildings and Communities
93rd Executive Committee Meeting
20th-21st June 2023**

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Technology Collaboration Programme
by lea

Annex 83 Positive Energy Districts (PEDs)

■ Positive Energy Districts (PEDs)

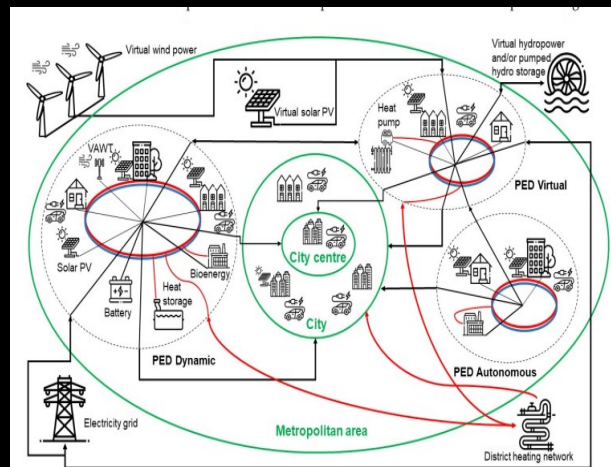
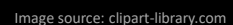


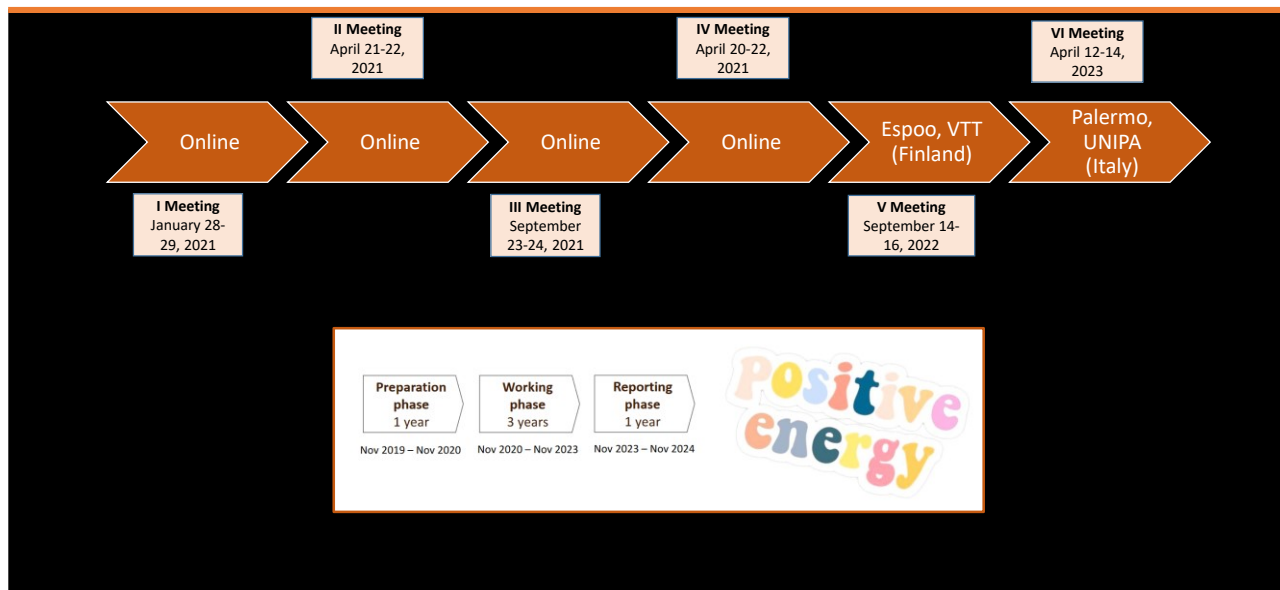
Image source: clipart-library.com

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IEA EBC Annex 83 subtasks



IEA EBC Annex 83: Annex status



Annex 83 ongoing activities

<https://pedeu.net/map/>

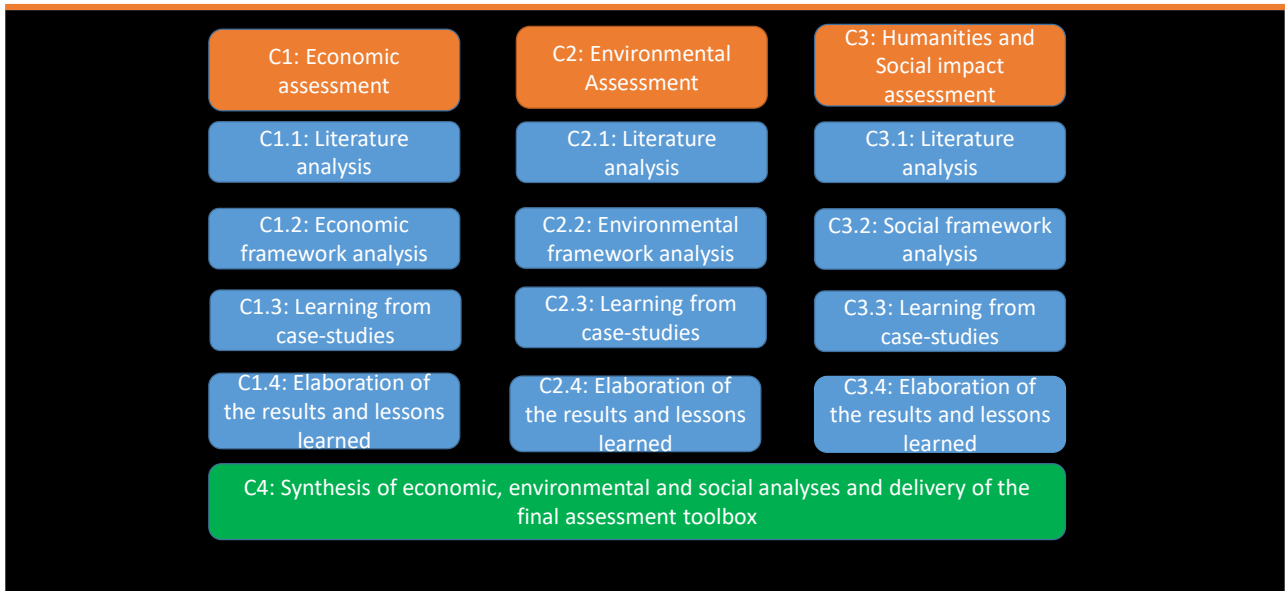
Subtask A activities

	Chapter	Sub-chapter	Connected Papers	Planned Milestones
01	1. State of the art	1.1 Evolution of the concept of PEDs 1.2 Existing PED-related Initiatives 1.3 Existing PED-related Projects (PED definition, project objectives and key concepts) 1.4 Comparison and discussion of existing PED definitions	• PED definition paper	Dec 2023
02	2. Definition of PEDs – Energy Balance Calculation Methods	2.1 Review of energy balance calculation methods in existing PED definitions 2.2 Test of selected PED definitions and energy balance calculation methods: A case study 2.3 Recommendations on ways forward	• Papers: PED energy balance, 'PED-urban' Project case study	Dec 2023
03	3. PED Characteristics and PED Archetypes	3.1 General Characterisation of PEDs 3.2 PED Characteristics: District scale 3.3 PED Characteristics: Technical components 3.4 PED Characteristics: Life quality indicators 3.5 Development of PED archetypes	• Papers: PED characterization, PED archetype • PED streamlined quality of life indicators	March 2024 20 Oct 2023 (31 May 2023)
04	4. PED Processes	4.1 Mapping of stakeholders 4.2 PED-related regulations and legal barriers 4.3 Process flow of PED development	• A Systematic Approach Towards Mapping Stakeholders in Different Phases of PED Development—Extending the PED Toolbox (SEB21) • Follow up to PED stakeholder mapping (process flow of PED development)	Completed Start work in July 2023
05	5. Evaluation of PEDs	5.1 Proposal of KPIs for the evaluation of PEDs 5.2 Validation of the KPIs	TBC	TBC

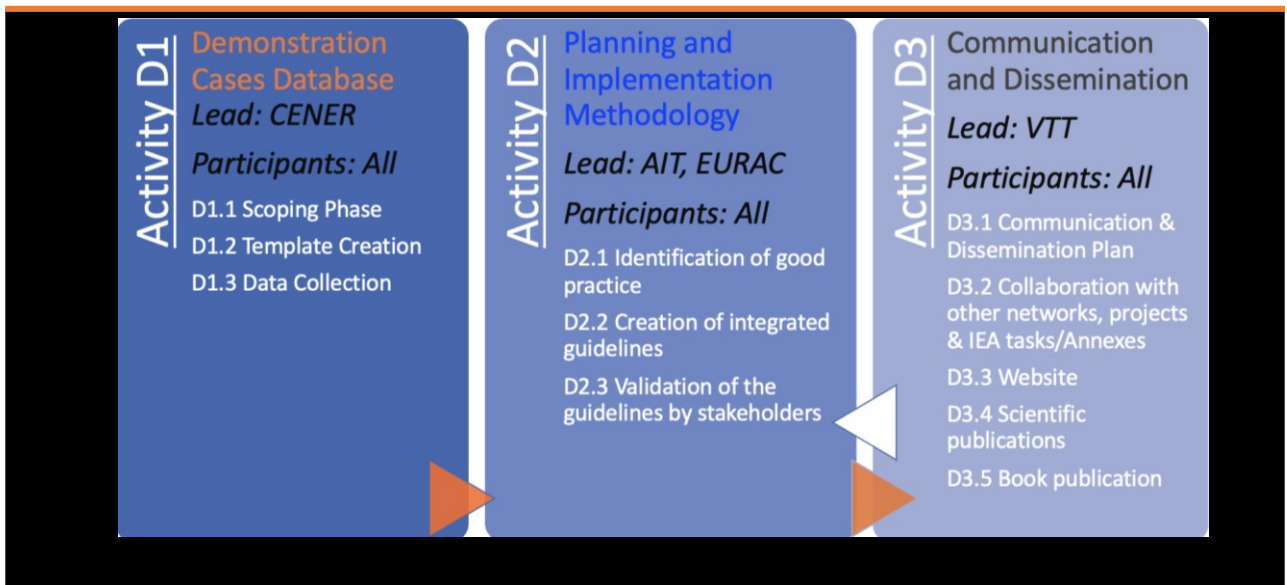
Subtask B activities

Main tasks	Aim & subtasks	Results
B1: Mapping technical solutions	<ul style="list-style-type: none"> Identify the different technical solutions that can be implemented in a PED and assess them (PESTLE analysis, KPIs...) TB1.1: Review of the most common technologies applied in PEDs TB1.2: Create an inventory of the most common technologies TB1.3: Evaluation of the technical solutions	<ul style="list-style-type: none"> Inventory of technologies; structuring data and populate them Paper (or lessons learnt) of the best technologies applied in PEDs --> interviews
B2: Smart solutions for optimization and flexibility of PEDs	<ul style="list-style-type: none"> Investigate how flexibility management can help to balance energy flows within and beyond the PED boundaries TB.2.1: Review on decision making process algorithms for planning/design a PED TB.2.2: Review and assess control strategies (focusing in flexibility)	<ul style="list-style-type: none"> ideas in PED planning phase and operational one (Feasible control strategies in different situations) Paper urban scale modelling of PED districts
B3: Simulation and modelling tools	<ul style="list-style-type: none"> Develop and implement joint international library concepts (B1) and populate them with data TB.3.1: Data necessary (and data organization) for modelling tools used in PEDs TB.3.2: Use libraries for modelling district scale case studies TB3.3: How to document and utilise data from case studies.	<ul style="list-style-type: none"> specification and prototype implementation of PED energy systems libraries; how to process different data sets and used in same model Paper urban scale modelling of PED districts (2-3 cases)

Subtask C activities



Subtask D activities



Joint PED database

PED EU NET is proud to present the PED Database, an interactive database that is continuously updated to provide an overview of a range of PED projects. Using filters, it is possible to view details on some PEDs selectively. There are links to more detailed characteristics of each featured PED project, and a tool to compare characteristics across projects. We hope the tool is actively used, and welcome inputs to expand its coverage.

If you wish to get involved in this effort or simply add a single entry, please contact Michal Kuusimäki: michal.kuusimaki@oulu.fi

MAP VIEW | **TABLE VIEW** | **GENERAL PROJECTS**

All Types | **Any Phase** | **All Projects** | **FILTER**

Clear Filters

Legend: PED Lab, PED case study, PED relevant case study, Both PED Lab / PED relevant case study

Joint PED database

All Types | **Any Phase** | **All Projects** | **FILTER**

Clear Filters
Show
10 entries

Search:

Name	Project	Type
Lund/Brunnshög	Cast Studies – Table View	Ped Case Study
Am Kempelenpark	Cast Studies – Table View	Ped Case Study
Évora, Portugal	Cast Studies – Table View	PED/PED relevant case study / Ped Lab
Kladno, Sletišť (Sport Area), PED Winter Stadium	Cast Studies – Table View	PED/PED relevant case study
Groningen, the Netherlands – PED South	Cast Studies – Table View	Ped Lab
Groningen, the Netherlands – PED North	Cast Studies – Table View	Ped Lab
Maia, Sobreiro Social Housing	Cast Studies – Table View	Ped Lab
Lubia (Soria), CEDER-CIEMAT	Cast Studies – Table View	Ped Lab
Tampere, Ilkkaanpuisto district	Cast Studies – Table View	PED/PED relevant case study
Leon, Former Sugar Factory district	Cast Studies – Table View	Ped Case Study

Showing 1 to 10 of 20 entries

Previous | 1 | 2 | Next

First IEA EBC Annex 83 PhD Summer school



Dissemination: Workshop “Sharing the experiences on Positive Energy Districts: Lessons learned from Annex 83”



Second IEA EBC Annex 83 PhD Summer school



Link to the call

<https://annex83.iea-ebc.org/Data/Sites/14/media/documents/summer-school-2-call-for-registration.pdf>



Active Journal Special issues

Annex 83 Publications (1/2)

<https://doi.org/10.3390/en16010356>

<https://doi.org/10.1016/j.enbuild.2022.111991>

https://doi.org/10.1007/978-981-16-6269-0_37

https://doi.org/10.1007/978-981-16-6269-0_39

https://doi.org/10.1007/978-981-16-6269-0_42

Annex 83 Publications (2/2)

https://doi.org/10.1007/978-981-16-6269-0_38

<https://doi.org/10.3390/en14216990>

[Integrating Plus Energy Buildings and Districts with the EU Energy Community Framework: Regulatory Opportunities, Barriers and Technological Solutions
https://doi.org/10.3390/buildings11100468](https://doi.org/10.3390/buildings11100468)

[District \(PED\) through a Preliminary Review of 60 Existing Projects in Europe](https://doi.org/10.3390/buildings11080318)

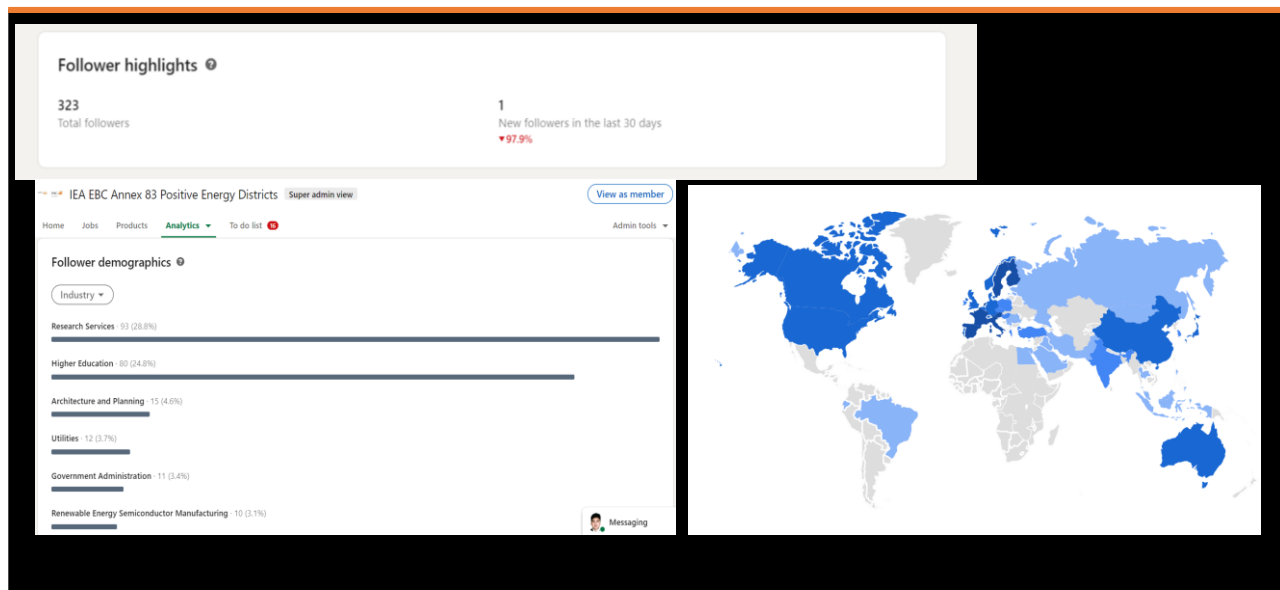
[Characterizing Positive Energy](https://doi.org/10.1016/j.enconman.2021.114041)

<https://doi.org/10.3390/buildings11080318>

[A techno-economic analysis of an optimal self-sufficient district
https://doi.org/10.1016/j.enconman.2021.114041](https://doi.org/10.1016/j.enconman.2021.114041)

<https://doi.org/10.3390/buildings11030130>

Social media



Annex 83 working meeting, workshop and conference, Sept 2023

The screenshot shows the website for cisbat 2023, titled 'THE BUILT ENVIRONMENT IN TRANSITION'. It is a Hybrid International Scientific Conference held in Lausanne, Switzerland, from 13-15 September 2023. The website features a banner with the cisbat 2023 logo and a list of topics: Operation, Well-being and Circularity; the pillars of a sustainable transition of built environments. Below the banner, there is a section for 'Positive Energy Districts - planning, design & interaction with stakeholders' on 13 September 2023, 16h15-18h00. The text describes Positive Energy Districts (PED) as a key element in EU planning for decarbonization of cities, aiming to gain a better understanding of the technologies, planning tools and decision-making processes involved in the creation of PEDs and to share know-how with local stakeholders based on experience and data from demonstration cases. The moderation is by IEA EBC Annex 83 'Energy Positive Districts', Prof. Matthias Haase, ZHWA.

Positive Energy Districts - planning, design & interaction with stakeholders
 13 September 2023, 16h15-18h00

Positive Energy Districts (PED) are a key element in the EU planning for decarbonization of cities. Up to a hundred are being developed throughout the continent: a challenge both at the technical level and from an economic, environmental and social perspective.

The basic principle of Positive Energy Districts (PEDs) is to create an area within city boundaries not only capable of generating more energy than consumed but also agile/flexible enough to respond to the variation of the energy market. The aim of this workshop is to gain a better understanding of the technologies, planning tools and decision-making processes involved in the creation of PEDs and to share know-how with local stakeholders based on experience and data from demonstration cases.

Moderation: IEA EBC Annex 83 "Energy Positive Districts", Prof. Matthias Haase, ZHWA

Positive Energy Districts (Annex 83)

ANNEX **83**



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