



From 100+ PED Pilots to European Practice

A DUT PED Conference Summary



DUT PED Conference

Positive Energy Futures

From Local PED Pilots
to European Practice

1-3 October
Milan

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Overview

- The DUT PED Conference was one of the **largest gatherings** of PED practitioners in Europe!
- **Almost 100 attendees joined**, the majority working on PEDs as researchers and academics, with other notable speakers from industry, finance, and policy.
- The conference represented **a milestone moment for the European PED sector and PED DUT programme**, ushering in the transition from PED piloting to large-scale “scaling up”.
- The morning and afternoon **breakout sessions were the most popular features of the event**. With 8 topics across 4 policy, economic, societal, and technology thematic tracks, discussions were focussed and engaging and aided by “silent conferencing” technology allowing several groups to be held in the same room.
- The afternoon **PED poster session allowed for effective and structured networking**, clustering PED projects by theme and allowing practitioners to easily find others working on similar topics.
- The conference plenary presentations gave the stage to non-DUT speakers, helping to **validate the relevance of PEDs in Europe**. Notable voices included private real estate developers in Italy, the social housing sector in Belgium, and policymakers at the European Commission.



DUT PED Conference attendees, 1-3rd October 2025

Key messages from the PED Conference

The PED Conference validated and enriched the core storyline set out in [DUT's latest Roadmap](#)¹. Within this, the PED chapter describes the future priorities for innovation to transition from the piloting phase to large-scale diffusion.

The primary insights and conclusions from the Conference are set out below.

1. PEDs – now viable, but not yet feasible at scale

More than 100 PED pilots – in diverse contexts, with different focus and strategies – are now documented in the [PED Database](#)² - an impressive outcome of a joint effort under the umbrella of the European SET Plan for driving the energy transition in urban contexts.

Detailed contributions from the guest Plenary speakers and from the Breakout session discussions showed the **strong technical viability of PED solutions within multiple real-world contexts**. PED generation, monitoring, and storage technology components are increasingly mature and affordable, and PEDs can now support access to locally owned clean energy at a grid-competitive cost within many European regions. This helps to support a viable business case for PEDs. **The relevant European PED policies are also already in place** – net-zero renovation, local energy generation, and energy trading are all now recognised at EU level. Recognising varying levels of transposition across Member States, regional authorities are well-placed to lobby for and make available supportive PED policy for their homes, businesses, and communities.

Indeed, for both brownfield and greenfield sites, a net-zero and energy-generating building stock is increasingly *the* default approach for developers, with design and usability features responsive to the priorities of the local resident and business community. **The transformation of the existing building stock remains a key challenge**. Here PEDs can act as transformative vehicles for regeneration, building long-term sustainability and improving the overall quality of life in neighbourhoods.

Looking ahead, **the primary challenges for further scaling PEDs lie in demonstrating viable business and organisational models** - in particular to attract new forms of private finance. **Formal recognition of the PED concept within mainstream urban planning strategy** is also an essential priority. Demonstrating mature and commercially viable solutions to district-level demand-side flexibility is among the final frontiers of PED technical innovation.

But setting the financial, technical and regulatory framework alone is not enough. PEDs are about people and so are highly intertwined with the local specificities. A place-based and participatory approach, allowing people to make sense of PEDs in their own context, is therefore needed. **PEDs will only be successful when recognised as an asset rather than a cost**, and when they improve the lives of those who live and work among them.

¹ <https://dutpartnership.eu/news/dut-updates-its-strategic-direction-new-roadmap>

² <https://peddatabase.dutpartnership.eu/>



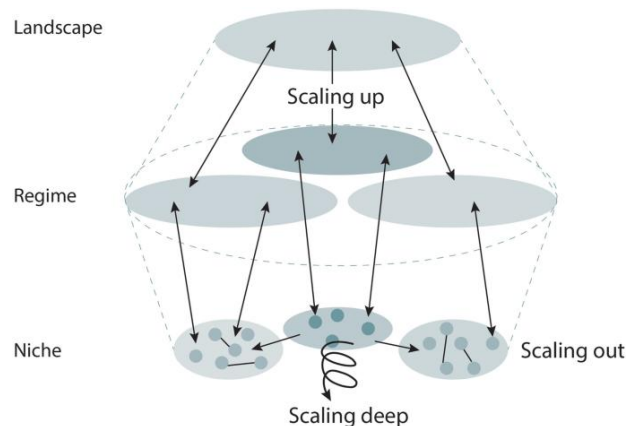
Park Biblioteca degli Alberi di Milano

2. Strategies for scaling - Up, Out, or Deep?

Several of the Conference’s Breakout sessions discussed the different challenges and opportunities for scaling PEDs – considering the different dimensions of “Scaling Deep”, “Scaling Wide”, and “Scaling Up” concept first described in 2015 by Michele-Lee Moore, Darcy Riddell and Dana Vocisano, with regards to dynamics of social innovation.

It was observed that, by focussing on improving local awareness, values, and capacities for PED adoption, “Scaling Deep” is currently the most common innovation intervention addressed by typical PED projects. However, it was agreed that the diffusion potential of this approach is limited.

Beyond improving the PED capacity among just the immediate community, “Scaling Wide” (i.e. replicating solutions in other regions), and “Scaling Up” (i.e. lobbying policymakers to trigger new energy markets and regulations) were recognised as the next phase needed for targeted PED innovation, with greater potential for catalysing and replicating successful PED innovations within new contexts.



Credit: Zheng, C. (2022). *Scaling Out, Up and Deep Understanding the Sustainment and Resilience of Urban Commons*



3. Targeted messaging to secure PED support at multiple levels

The DUT PED Conference attracted almost 100 PED practitioners and advocates from a broad range of research, commercial, industrial, and policy perspectives. Discussions revealed a strong and common need for transformative PEDs innovations capable of going beyond first iterations and developing new forms of outreach able to reframe PEDs from an R&D topic area to a sensible and mainstream urban planning guiding philosophy.

Such targeted messaging could be as follows:

Target audience	Suggested priorities for communication
EU and national policy	PEDs will contribute primarily to the strategic autonomy, energy affordability, resilience, and regional competitiveness of Europe. Environmental, economic and social sustainability are additional benefits.
National innovators and funding (e.g. DUT)	Priority innovations in PEDs should move beyond the common digital toolkits, governance proposals, and policy briefs - towards validated innovations and business models demonstrably able to catalyse large-scale investment.
Cities and metropolitan authorities	PEDs represent an infrastructural foundation for delivering local green energy economies, projects testing and demonstrating new technical typologies, contract models, and investment opportunities for local actors. New-build green and brownfield opportunities are the “low-hanging fruit” of urban PEDs.
Local businesses	A thriving PED sector will stimulate new local investment and green jobs, through requests for feasibility studies, system installation, and maintenance and performance contracts.
Citizen communities	PEDs deliver energy that is at its simplest: 1) affordable, 2) reliable, and 3) green and local, maintained by local and trusted service providers.

Key insights from conference breakout sessions

Parallel Breakout Sessions 1 - Why are PEDs better?

1.1. Track 1: Integrated energy systems

This session highlighted the increasing viability of large-scale clean energy systems. As demonstrated by **ASTER's** work across social housing in Flanders, large-scale clean energy systems (50MWp+) are now both bankable (€100m+), efficient to install (e.g. through technology typologies), and able to sell energy at almost half of grid costs. Furthermore, Dimitrios Karamanis' demonstrated how rooftop + façade PV can together achieve more-than energy positivity when dimensioned to exploit local climate and urban geography (as explored in the **Positive energy communities at Local Climate Zones** project).

1.2. Track 2: Energy markets and commercial viability

Focusing on the significant market and policy barriers facing PEDs, this group concluded that PEDs are not yet commercially viable under current market mechanisms and still require innovations around market-shaping. Success depends on building a simple, compelling "PED storyline" for policymakers, with a clear unique selling proposition (USP). Projects like **HeatCoop** show that stability is just as important as price, while the **Norwich Solar System** demonstrate a model for engaging businesses by offering free solar and energy bill cuts to build a local community.

1.3. Track 3: Urban regeneration

This track emphasised a fundamental shift from a technical to a social and civic focus, arguing that by themselves, the right legal and technological conditions alone are not enough. The core message was that PEDs must be treated as a "commons" good that starts with the community, prioritising "relationship before technology" to build long-term buy-in and stability. For PEDs to be sustainable, they must make sense to people, and citizens must "fall in love" with the concept.

1.4. Track 4: Energy in mission-oriented urban planning

This session concluded that PED success hinges on aligning and integrating them within existing planning instruments, governance structures, and urban growth strategies. Cities must leverage their regulatory powers, engage local communities, and overcome fragmented, siloed approaches. The group also highlighted available tools, such as the **KINETIC project** for screening PED potentials, and impact cards from the **CO-PED project** (for creating local energy hubs) and **MAKING PEDs** (for using digital twins in decision-making).



Parallel Breakout Sessions 2 - What needs to be overcome?

2.1. Track 1: Integrated energy systems

This session addressed overcoming remaining barriers by reframing PEDs as essential urban infrastructures and not just niche research environments. With a focus on resilience, **Daniele Vettorato from the 4A4PED project** argued that PEDs should be instrumentalised as core concepts for reshaping urban governance, and that energy affordability for consumers must be a central design goal, not a hopeful by-product. Then, providing a powerful and urgent real-world example, **Dmytri Petsii from Lviv in Ukraine** demonstrated the need for resilient, independent energy "islands", including Electric Transport networks in his particular case, as a critical and strategic response to ongoing geopolitical threats.

2.2. Track 2: Energy markets and commercial viability

The group agreed that while the technology and social models for PEDs are feasible, achieving full-scale commercial viability requires structural change. This includes scaling successful prototypes (like **ASTER in Flanders** and **HeatCoop in Vienna**), creating new regulatory models that favour local energy sharing, and developing regional models to engage entities like housing companies. Projects like **COPPER** are focusing on citizen engagement and ownership, while **DS4PED** is working to create a much-needed certification process for PEDs.

2.3. Track 3: Urban regeneration

This session identified Urban Living Labs as core instruments of successful place-based PEDs, turning districts into experimental spaces for new forms of community co-creation. Anchoring PEDs in cultural and social centres was seen as a vital method for linking the broader energy transition with a stronger sense of local identity and social innovation. The group also highlighted the use of digital tools and open-data platforms (like digital twins) to enhance governance through data-driven, participatory decision-making, framing PEDs as transformative, culture-led regeneration devices.

2.4. Track 4: Energy in mission-oriented urban planning

This discussion outlined key enabling factors for scaling PEDs, including feasibility studies and flexible governance, while identifying major challenges like the lack of aligned PED policies and related bureaucratic hurdles. The group detailed critical innovation needs, including: policy integration connecting local and national strategies; moving from one-off pilots to long-term structural incentives, especially for building retrofits; clear and specific PED criteria to clearly account for PEDs within planning processes; and new capacities so that municipalities and planners can effectively implement PEDs on the ground. Economically, reforms to public procurement, new tax benefits, and tailored financing are required to encourage contribution from both large and small service providers of PED solutions. Technologically, the group called for open-source platforms, standardised benchmarking tools, and replicable design templates to support cities.

What's next for the DUT PED Transition Pathway?

Future priorities for the PED mission were explored through the conference plenaries and breakout sessions:

1. Refining the role of participation within viable PED business models

Awareness on the importance of stakeholder mobilisation, involvement and management is growing. While the new [DUT PED Framework 3.0](#)³ is designed to be as inclusive as possible, it could also create barriers and underline the differences among EU countries.

Dealing with PEDs in general, and social processes in particular, requires local adaptation. More attention is therefore needed to better define the relationship between PEDs and their particular socio-spatial context: "How can we ensure that PEDs are supportive of a wide variety of urban lifestyles, and offer people an active and meaningful role within the energy transition?"

While participatory approaches and community engagement therefore have a big role to play within a just energy transition, these processes are famously slow, and do not always reflect the most immediate energy, economic, and environmental concerns of most households. As the climate crisis demands increasingly urgent solutions, how will PEDs find an effective balance between 1) real inclusivity, 2) commercial viability of solutions, and 3) the rapid implementation required?

2. Technology integration as the final frontier for resilient energy systems

While individual PED components like solar PV are technologically mature, the key priority for scaling up is systemic integration at the district level. Future research & innovation must focus on innovations that enable this integration. Key areas requiring further attention include: long-duration energy storage to manage and distribute seasonal imbalances; thoroughly integrating mobility through Vehicle-to-X (V2X) technologies; district-level energy management realising the full potential of demand side flexibility, and; evolving digital twins from basic research models to user-ready tools by urban planners and system operators.

³ <https://dutpartnership.eu/news/ped-framework-30-policy-guide-advance-positive-energy-districts-europe>

3. Recognising PEDs within planning and policy

Unlike Renewable Energy Communities (RECs) and Citizen Energy Communities (CECs), PEDs currently lack any formal recognition or organisational form within Europe. Rather, the PED concept is still limited to a niche domain of research. This lack of formal recognition delays the diffusion of PEDs by leaving urban planners and policymakers without legal certainty or a common language needed for supportive policies and regulations. This lack of certainty, in turn, deters the investment required to scale PEDs from bespoke experiments into a mainstream urban strategy.



Graphical conference summary created in real-time, illustrated by HYVE.