atelier
Positive Energy Districts

# A JOURNEY TOWARDS POSITIVE ENERGY DISTRICTS

## Stories of Innovation and Collaboration from Amsterdam, Bilbao & Beyond

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Credits@Project Visuals


Credits@Municipality of Bilbao

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> ***ATELIER showed that stakeholder collaboration is the driver of change. From Amsterdam to Bilbao - and across our six Fellow Cities - Positive Energy Districts became more than a concept, they became communities shaping their own energy future.***
>
> *– Frans Verspeek, ATELIER Coordinator*

# IMAGINE A FUTURE...

**Imagine a neighbourhood where the sun powering your home also lights up the café down the street, and where citizens are not just consumers – they are co-creators of their energy future. This was the vision that sparked ATELIER.**

From Amsterdam's canals to Bilbao's vibrant streets, ATELIER set out to turn this idea into reality by pioneering Positive Energy Districts (PEDs). Along the way, six Fellow Cities across Europe joined our journey, learning, adapting, and shaping their own paths toward sustainable urban living.
Now, as the project reaches its final chapter, this booklet shall capture the essence of that journey. We want to share our stories, lessons, and, of course, our breakthroughs.

But this booklet is more than a celebration of our achievements: **it is a guide for cities, communities, and stakeholders** ready to take the next step. Inside, you will therefore find inspiration and practical tools to help you start your own PED adventure!


Credits@ATELIER

## NOW, TURN THE PAGE AND LEARN MORE ABOUT:

- The origins and objectives of ATELIER, and why PEDs matter for the future of sustainable cities.
- Highlights from our Lighthouse Cities - Amsterdam and Bilbao - including their transformation stories, technical innovations, and the voices of those involved.
- Insights and experiences from our six Fellow Cities, each developing their own vision for energy-positive urban districts.
- Key lessons learned, challenges faced, and solutions found along the way.
- An introduction to the Innovation Ateliers and the PED Learning Platform - practical tools and resources for anyone interested in replicating our approach.
- A look ahead at how the ATELIER legacy will continue through networks, partnerships, and ongoing initiatives.

With this booklet, we aim to ensure that ATELIER's impact lives on beyond the project's lifetime. Our goal is to make the insights and experiences we have gained accessible, actionable, and truly inspiring for everyone who shares our vision of citizen-driven, climate-neutral cities.

Frans Verspeek, Coordinator of ATELIER

# ABOUT ATELIER

Every great urban transformation begins with a spark - and ATELIER's spark was the belief that forgotten places could become the beating hearts of Europe's energy positive future.

ATELIER was born at the intersection of European ambition and local determination. When the EU launched its call to explore Positive Energy Districts (PEDs), Amsterdam and Bilbao were ready! Both cities were already planning major urban transformations and saw the opportunity to combine regeneration with climate neutral energy systems.

In Amsterdam, innovation driven brownfield projects such as **Republica** and **Poppies** provided ideal sites to demonstrate how PEDs could work in practice. In Bilbao, the redevelopment of **Zorrotzaurre** - a former industrial peninsula turning into a new island district - offered the perfect setting to pair urban renewal with a pioneering heat transition.

**In both cities, the story began with reimagining old industrial areas as sustainable, energy positive neighbourhoods.**

From the start in 2019, ATELIER had one clear ambition: **to show how integrated, smart urban solutions can turn PEDs into reality**, and how these solutions can inspire cities across Europe. But it was never just a technical project. ATELIER brought together governance, finance, technology and social innovation, because real change happens when these elements reinforce each other.

## ATELIER IS BUILT ON THREE PILLARS:

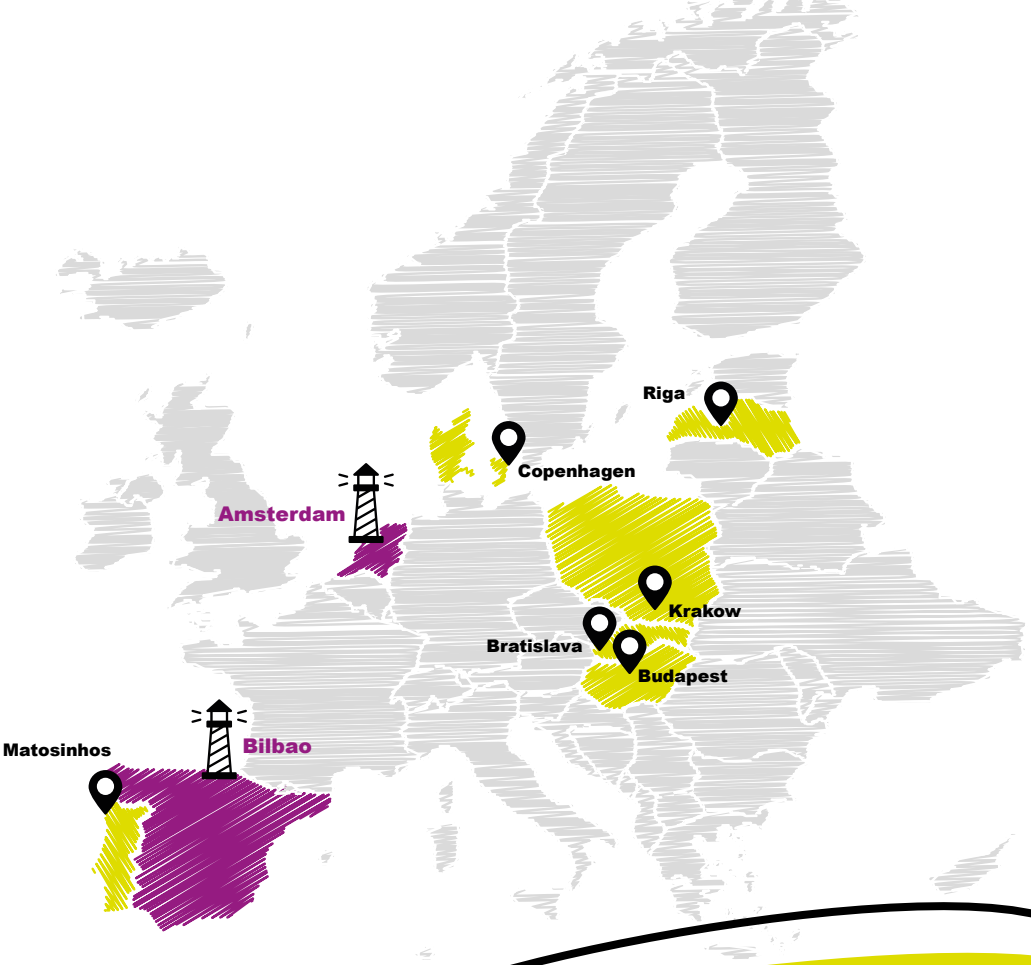
- **$CO_2$ Reduction**
  through renewable energy, lower demand and higher efficiency – supported by legal, social and financial innovation.

- **Sustainable, Secure and Affordable Energy**
  that improves resilience and quality of life for citizens.

- **Collaboration & Knowledge Sharing**
  among cities, researchers, industries and communities, ensuring Lighthouse City insights are transferred to Fellow Cities and beyond.

Now, in 2026, the central question is simple: **Did we succeed?** How much $CO_2$ did we reduce? Did our PEDs perform as planned? And what have we learned that other cities can use?

The following pages offer those answers – with data, stories, and the people behind them. ATELIER shows what becomes possible when European vision meets local action, and when cities dare to transform old places into climate neutral districts of the future.




## ATELIER AT A GLANCE

**DURATION**
6 1/2 YEARS, FROM 11/2019 - 04/2026

**TOTAL FUNDING**
19 607 835,58 MIO. EUR, HORIZON 2020

**CONSORTIUM**
30 partners from 11 countries, coordinated by the City of Amsterdam

**DEMO SITES**

- 2 Lighthouse Cities in Amsterdam and Bilbao
- 6 Fellow Cities in Bratislava, Budapest, Copenhagen, Krakow, Matosinhos and Riga

New to the neighbourhood and wondering **"What is a PED?"**

# PLAN VS. REALITY: OUR KEY LESSONS LEARNED

Every innovation project starts with a plan - but once work begins in real districts, reality quickly reshapes even the strongest ideas. ATELIER showed what it truly takes to turn Positive Energy District (PED) concepts into measurable results.

Across the pilots, one insight stood out: **ambition only works when it fits local conditions**. Cities had to define early what “positive energy” meant in practice, and treat regulation, data governance and grid constraints as core delivery work, not afterthoughts.

External shocks reinforced this lesson. Supply chain issues, geopolitical events and political cycles repeatedly shifted timelines, **making adaptability and contingency planning essential**. Stakeholder engagement also proved more complex than expected. Citizens, developers, grid operators and municipal teams all moved at different speeds. Progress depended on clear roles, realistic participation models, funded monitoring work and strong coordination.
Finally, ATELIER learned that **replication isn’t copy paste**. What travels between cities are the processes - governance, procurement, data structures - while technical choices must be adapted to local context.

## FROM THIS EXPERIENCE, SEVERAL PRACTICAL PRINCIPLES EMERGED:

- **Start with minimum viable pilots** and scale only when evidence is solid.
- **Treat regulation as a workstream**, using pilot insights to guide rules.
- **Design for disruption**, with built in buffers and pivot points.
- **Plan for grid constraints** and prioritise flexibility services from the start.
- **Engage citizens realistically**, with simple benefits and tailored outreach.
- **Make data duties explicit and funded**, not assumed.
- **Keep the amount of involved stakeholders lean or tightly coordinated**, with clear decision rights.
- **Protect institutional memory** through living documentation.
- **Produce usable outputs**, not just long reports.
- **Define replication as adaptable patterns**, not identical districts.
- **Test crucial assumptions early** to reduce rework.

In short, ATELIER showed that PEDs succeed when ambition meets adaptability - and when plans evolve in step with the realities of transforming cities.

Credits@Municipality of Bilbao

**Ongoing construction work at Zorrotzaurre North in Bilbao**

Credits@City of Amsterdam

**Construction work at Republica in Amsterdam**

# LEADING BY DOING: ATELIER'S LIGHTHOUSE CITIES

Every Positive Energy District (PED) begins with an ambition - but it only becomes real when tested on the ground. In ATELIER, **Amsterdam and Bilbao** assumed this role as **Lighthouse Cities**, translating the PED concept into **full scale, real life demonstrations**.

From the outset, both cities committed to implementing **integrated**, **smart urban solutions** at district level. Rather than focusing on individual technologies, they explored how energy systems, buildings, mobility, digital tools, governance frameworks, and citizen engagement can work together to create **climate neutral, liveable neighbourhoods**.

As Lighthouse Cities, their task went beyond local implementation: A central objective was to assess **replication potential**, generate **transferable knowledge**, and identify the **enabling conditions** needed for PEDs to be realised in other European cities. This required navigating regulatory frameworks, aligning stakeholders, and adapting plans to real world constraints - learning by doing.

The following chapters present the Lighthouse City journeys of Amsterdam and Bilbao. They show how PEDs took shape in practice, highlight implemented solutions and supporting frameworks, and reflect on lessons learned, offering concrete insights for cities ready to turn ambition into action.

## POPPIES



## BILBAO


# AMSTERDAM: TURNING BROWNFIELDS INTO LIVING LABORATORIES FOR POSITIVE ENERGY

Amsterdam has long been a city shaped by water, trade, and reinvention. In ATELIER, this spirit took on a new form: transforming the overlooked corners of the city into neighbourhoods that generate more energy than they use - and where people genuinely want to live, work and meet.

The district of **Buiksloterham** offered the perfect setting. Once defined by industry, infrastructure and fragmented ownership, it is now becoming a **model for circular, resilient and future proof urban development**.

What made Amsterdam's journey unique is that the city deliberately tested **two different development pathways** side by side. One area moved forward under a **market driven, developer led approach**, using entrepreneurial speed and design freedom to create mixed use buildings and new services. The other followed a **municipality driven tendering process**, shaped by clear public requirements on sustainability, circularity and community value. Seeing these approaches operate in parallel offered rare and valuable insights into how governance choices influence real urban outcomes.

At the heart of Amsterdam's ATELIER story lies **Republica**, a one of a kind energy community in Amsterdam Noord. Republica is not a single building, nor a single purpose district. It is a dense mix of homes, offices, retail, hospitality and shared spaces woven into multifunctional blocks - a microcosm of the city itself. Here, an energy community is not an abstract concept; it is a daily, real life coordination effort between different energy users, rhythms and needs.


The vision of what Republica should look like one day… (Credits@Project Visuals)

What made Republica especially instructive is that the energy community **did not emerge automatically** from technology or regulation. It depended on **leadership, risk taking and clear rules**: someone willing to champion a new model of community based energy sharing, and a framework defining how decisions are made, how benefits are distributed, and how everyone contributes. ATELIER supported this process by co designing the governance structures that turned a vision into a functioning community.


… and the reality of it now in 2026 (Credits@Maikel Samuels)

Alongside Republica, Amsterdam advanced a second landmark development: **Poppies**. Here, the municipality pushed the boundaries of **circular construction**, with a strong focus on timber buildings and modular, prefabricated 3D apartments. These methods reduce waste, shorten construction time and improve quality - but Poppies went further. The project placed exceptional emphasis on **shared spaces and community life**, embedding collective areas into the design from the very beginning rather than adding them as an afterthought.


Poppies “before”…. (Credits@MaMa Pioneers)


...and “after” (Credits@MaMa Pioneers)

But Amsterdam’s work in ATELIER reached well beyond energy systems. The city used the project as a platform for **integrated resource planning** across water, waste, energy and mobility. A particular focus lay on **water retention measures** built directly into the neighbourhood which is crucial in a time when climate mitigation and climate adaptation increasingly meet at street level. A district that is low carbon but not climate resilient would be no district of the future!

Yet one of the biggest real world tests came from outside the original plans: **grid congestion.** As in many European regions, electricity capacity became a limiting factor for new development. Rather than seeing this as an obstacle, Amsterdam treated it as a **learning opportunity**. Through ATELIER, the city explored flexible assets, local coordination, and smarter resource use to reduce peak demand and delay the need for major grid upgrades. These experiments now inform wider strategies for managing constrained grids across the city.

Taken together, Amsterdam's PED journey became a **living laboratory**. It demonstrated that urban transformation requires more than advanced technologies: it needs **new governance arrangements**, **realistic business models**, open **collaboration** with residents and developers, and **procurement** approaches that prioritise circularity. Above all, it showed that **energy communities are not plug and play solutions**. They are built on trust, clear rules, and a deep understanding of how people actually live - supported by smart planning and the urgent demands of the energy transition.

And with every new building, every shared kilowatt and every lesson learned, Amsterdam shows that this journey is only beginning - and many more exciting chapters are still ahead.


Aerial view of Republica (Credits:@Maikel Samuels)

Scan for more

# BILBAO: GIVING AN INDUSTRIAL ISLAND A POSITIVE-ENERGY FUTURE

Bilbao's demonstration takes place in **Zorrotzaurre** - one of the city's most significant urban transformation areas. Once a declining industrial peninsula, it is now being redeveloped into a vibrant district of homes, workplaces and public spaces. Over recent decades, Bilbao has become recognised for its successful urban regeneration, turning many former industrial zones into lively, high quality neighbourhoods. Zorrotzaurre is one of the last large brownfield sites to undergo this transformation: a process that began more than 30 years ago and is only now becoming visible through the construction of the first new buildings.

## THROUGHOUT ITS DEVELOPMENT, THE PROJECT HAS FOLLOWED A CLEAR SET OF PRINCIPLES:

- **Preserving heritage and avoiding gentrification**
  Many existing buildings, residential and tertiary, have been refurbished and upgraded for accessibility, ensuring that local identity and historic structures remain part of the district's future.

- **Ensuring a balanced mix of uses**
  New investment has brought urban technology parks, workplaces, sports and training facilities, alongside new housing and community spaces.

- **Preparing the ground for new uses**
  Extensive soil decontamination has made the area safe for redevelopment.

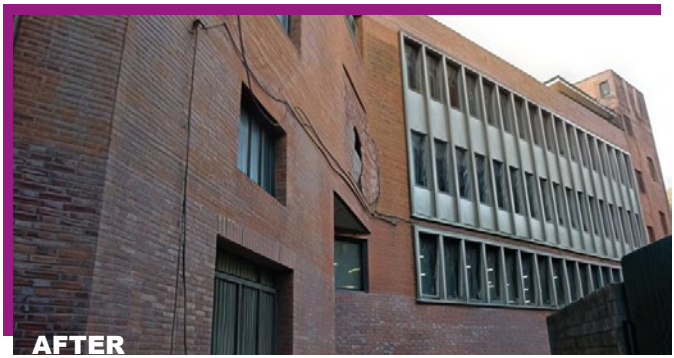
- **Building essential infrastructure**
  The opening of the canal transformed the peninsula into an island, while lowering the estuary level has reduced flood risk and improved climate resilience.

- **Embedding sustainability**
  A district wide environmental strategy aims to achieve a low carbon, energy efficient area.


*Credits@Municipality of Bilbao*

In line with this ambition, Bilbao explored several non-combustion options for heating and cooling. This work resulted in a milestone for the city - and for Spain: the country's **first 5th generation**, **low temperature geothermal network**. This District Heating and Cooling (DHC) system captures groundwater at around 14-15°C and circulates it through the island, where individual buildings use water-to-water heat pumps to meet their heating and cooling needs. Piping for both the north and south parts of the island has already been installed.


Building Beta 1 at University of Digipen before...




… and the after of it now in 2026 (Credits@Municipality of Bilbao)

As the network expands, it is expected to serve all residential and tertiary buildings on Zorrotzaurre.

A 5th generation DHC system offers significant advantages. It is compatible with multiple renewable heat sources - in this case supported by hydrothermal intakes - and allows buildings to act as **prosumers**, injecting or receiving heat depending on their needs. Heating and cooling can occur simultaneously across the network, dramatically improving efficiency and minimising energy losses.


Building Beta 2 at University of Mondragon before...


...and after (Credits@Municipality of Bilbao)

Within ATELIER, the PED demonstration focuses on **three zones** of Zorrotzaurre - North, Central and South - together forming a single Positive Energy District (PED). These zones include a diverse mix of renovated buildings and new constructions, used for both residential and tertiary purposes. All buildings within the PED are connected to dedicated **geoexchange boreholes**, which use geothermal energy to meet local demand. As the district continues to grow, additional boreholes will be added, and future buildings will be connected to the scalable DHC network to optimise performance.

Energy efficiency lies at the core of the demonstration. Buildings are designed to meet high standards, most are equipped with photovoltaic panels and smart metering systems continuously monitor and adjust consumption. The district also includes a pilot for **smart public lighting**, providing a replicable model for other neighbourhoods in Bilbao.

The ATELIER demonstration in Zorrotzaurre represents an important step forward - helping the city pair its long term urban transformation with forward looking energy solutions that support a more sustainable, resilient future.

And with every new building, borehole and bright idea, **Zorrotzaurre shows that even the most forgotten corners of a city can become places where a climate neutral future quietly begins to take shape.**


*Credits@Municipality of Bilbao*

Scan for more

# STORIES FROM THE SIX ATELIER FELLOW CITIES

Across Europe, the six ATELIER Fellow Cities - **Bratislava, Budapest, Copenhagen, Kraków, Matosinhos** and **Riga** - have spent the past six and a half years exploring what Positive Energy Districts (PEDs) can mean in their own unique contexts. Inspired by the work of their Lighthouse Cities, they moved from curiosity to action: testing new ideas, forming partnerships, and translating ambition into concrete steps on the ground.

Each city began this journey from a different starting point: by battling smog, rethinking mobility, restoring rivers, or aligning energy systems with climate neutrality goals. Yet a shared narrative runs through all six stories: **change becomes possible when cities learn by doing, and when technical solutions meet local identity, community needs and long term vision.**

On the following pages, you will discover how each ATELIER Fellow City approached PED development in its own way. Together, these stories show that there is no single path towards PEDs - but a shared direction.

BRATISLAVA

*Credits@Marek Velček*

BUDAPEST

*Credits@Budapest Capital Urban Planning Ltd*

> ***From Plans to PEDs - ATELIER helps cities turn ideas and collaboration into real change. communities shaping their own energy future.***

COPENHAGEN

*Credits@Kirsten Dyhr-Mikkelsen*

KRAKÓW

*Credits@Zarząd Zieleni Miejskiej*

MATOSINHOS

*Credits@Matosinhos Municipality*

RIGA

*Credits@Riga Municipality*

**Fellow Cities**

*Different cities but one shared ambition: turning climate goals into everyday urban reality.*

# BRATISLAVA: MAKING THE INVISIBLE VISIBLE – COMMUNICATING CLIMATE MITIGATION IN THE CITY

In Bratislava, climate change is no longer a distant threat – it is something we see, feel, and live with every day. We plant trees, create green spaces, and redesign streets to retain more water. These adaptation measures are visible; people can watch the greenery grow and transform their surroundings.

**They bring shade, beauty, and a sense of hope.**

But there is also another side to the coin – one that often remains invisible. Measures to mitigate climate change involve reducing greenhouse gas emissions, increasing the energy efficiency of buildings, and transforming the city's energy systems. They take place in technical solutions, data, regulations, and infrastructure behind the scenes. They are essential for long-term resilience and future generations, but their benefits might not be immediately visible.

This is where Positive Energy Districts (PEDs) play an important role. They combine energy-efficient buildings, local energy production, smart management, sustainable mobility, and the quality of public space into one comprehensive concept. They are **not just about technology**, but **a new way of planning cities**, where climate goals become part of everyday urban life. As a Fellow City, Bratislava is systematically addressing this challenge.

Bratislava's story is therefore about connecting two worlds – the visible and the invisible – and creating a clear narrative of change, where adaptation measures on the streets complement systemic solutions in energy and emissions.

*(Credits@Marek Velček)*

## TO MAKE THIS POSSIBLE, WE FOCUS ON THREE SIMPLE PRINCIPLES:

1. **MAKE IT VISIBLE.**

   Even invisible processes can have visible outcomes, such as energy-efficient buildings, solar panels on roofs, shared energy within a neighbourhood, or PEDs.

2. **CREATE EMOTION.**

   People take an interest when they feel a personal connection. And when PEDs lead to lower energy bills, healthier living, quieter streets, and better public spaces, climate goals become part of everyday life.

3. **EDUCATE, DON'T JUST PROMOTE.**

   Communication should build understanding of why PEDs matter and how decisions by cities, experts, and residents contribute to transformation.

We want to reach city officials who design and implement these measures, as well as citizens who live with their results. **Together, they warm the heart of Bratislava's climate story.**

What makes this story urgent is that climate change is no longer theoretical. Heat waves, floods, and droughts show that adaptation alone is not enough. Without systematic emission reductions and energy-positive districts, climate neutrality cannot be achieved.

The key lesson from Bratislava's participation in ATELIER is this: what we do not see – energy flows, data systems, new planning approaches, and PEDs – can be just as powerful as what we see at first glance.

And if we do one thing tomorrow, let it be this: **let's start making the invisible visible, and show that the future of Bratislava is also being created where it might not immediately be apparent.**

*(Credits@Marek Velček)*

BRATISLAVA

# BUDAPEST'S PATH TO SMARTER, CLEANER, BETTER NEIGHBOURHOODS

For Budapest, Positive Energy Districts (PEDs) represent far more than a technological tool or upgrade - they are a pathway to a stronger, safer, and more resilient city. As architect and urban practitioner Almos Papp explains, Budapest views PEDs as a way to strengthen local energy independence, cut and stabilise energy costs, and **create healthier and more resilient neighbourhoods** for residents.

PEDs offer something powerful: they do not just lower emissions, they transform how a district or a neighbourhood operates. They introduce smarter, more sustainable mobility options, reduce pollution and energy consumption, and create more liveable public spaces. They help energise local economies by supporting neighbourhood focused shops and services. In short, **PEDs make cities better places to live.**

### "What's in it for a developer?"

Almos is often asked. The answer is: a lot.
PED developments increase market value, improve visibility, and offer a real competitive edge. By investing in future ready, high performance buildings, developers expand access to clean energy solutions and appeal to sustainability minded buyers and tenants. At the same time, they position themselves in line with rising ESG expectations across both investors and the broader real estate market.

*Credits@Budapest Capital Urban Planning Ltd.*

But the benefits extend far beyond the construction phase. Initial investments in PED ready buildings can significantly reduce operational costs, enhance indoor comfort and improve overall building ratings. They also lower long term risks, and open doors to green financing, incentives, and grants, also through public private partnerships. Developers gain stronger city support, build lasting partnerships, and benefit from greater community acceptance, reducing opposition to new projects.

Over the past six and a half years, Budapest has set up a **Climate and Environmental Affairs Department** and built a reliable, collaborative team that works closely on PED related projects and challenges. The city realised it must carry this work beyond ATELIER. The team will continue to act as a **strategic coordination hub** for energy related urban projects - organising workshops, facilitating cooperation, and linking emerging initiatives. This is extremely important nowadays, when cities are exposed both to housing and energy crisis.

Thanks to ATELIER, Budapest has learned the essentials of PED development and is now already scaling these solutions across the city. And with this knowledge, the team is eager to continue cooperation with public authorities and future partner cities.
Because - as Almos says - **working together, and especially from each other, makes us stronger.**


*Credits@Mayor's Office of Budapest*

BUDAPEST
A VÁROS, AMELY EGYESÍT

# NO SIMPLE ANSWERS: WHY TRUST IS COPENHAGEN'S MOST IMPORTANT CLIMATE TECH

Copenhagen has set an impossible goal: to become climate positive by 2035 while the population continues to grow. This goal cannot be achieved by a single institution, and it cannot be solved top-down. So, it is time for a new approach.

In January 2026, Copenhagen City Council agreed to a bold, new climate strategy that looks toward 2035. The goal is for Copenhagen to become climate positive, reduce the use of biomass, and cut global emissions linked to the municipality and its citizens in half. And the PED philosophy has been applied not just to a district, but to the entire city.

Achieving a liveable, sustainable Copenhagen for all meant the municipality had to radically rethink its method of cooperation with stakeholders in developing urban spaces and the energy system of the future. This is because we are faced with what is referred to as "wicked problems".

**"Wicked problems"** are challenges **with many interdependent factors with no straightforward answers**. Solving them requires deep listening, intense collaboration, shared understanding, and honest conversations about dilemmas and potential trade-offs.

Over the past three years, Copenhagen dedicated significant time and attention to exactly that. Together with internal teams and external partners, the city built a common understanding of the challenges ahead.

## A key outcome was the identification of three major challenges for the energy system of the future:

1. **Space**: How do we identify and secure the space required for renewable energy production within the city such as large heat pumps and energy storage, and how can they add quality to the city landscape?
2. **Integration**: How do we bring about system-wide sector integration and energy flexibility?
3. **Speed**: How do we speed up an implementation process that would traditionally take years?

Our biggest challenges are not technical, but organisational, and human.
They require a very different approach to planning.

We do not have all the answers yet to tomorrow's challenges. But the City of Copenhagen discovered during its climate strategy development process that the path to tackling our wicked problems and achieving impossible goals starts by building trust and collaboration between all parties.

# "A liveable city for all"

is the ambition of Copenhagen. This means that everyone has a role and responsibility in achieving this ambition, and everyone must be given the opportunity to contribute.

*Lille Langebro, Copenhagen*
*(Credits@Guiseppe Liverino)*

*The Arc – Shipwreck or meeting place?, Amager Fælled*
*(Credits@Kirsten Dyhr-Mikkelsen)*

# KRAKÓW: FROM FIGHTING SMOG TO SHAPING A CLIMATE-RESILIENT FUTURE

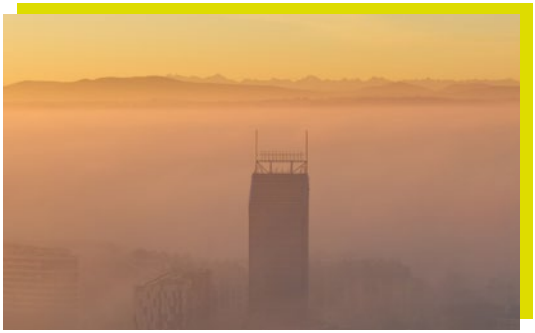
Kraków was once known as the Polish city with some of the worst air quality. Coal based heating dominated homes, filling the air with pollution. But the city took bold, determined action. It phased out individual coal heating systems, introduced effective support schemes, and built strong cooperation with residents. Today, burning coal in Kraków is prohibited - and the air is visibly cleaner!

This success became the foundation for Kraków's next big step. The people and institutions that once fought smog are now driving climate action, improving building energy efficiency and embracing renewable energy solutions. Their experience laid the groundwork for Kraków's participation in ATELIER.

**Joining ATELIER became a key moment in Kraków's journey** toward climate neutrality. What started as a broad vision for a resilient, inclusive, and prosperous city evolved into a clearer path for action. Through ATELIER, Kraków embraced the concept of Positive Energy Districts, strengthened collaboration among stakeholders, and sharpened its approach to planning and budgeting. Today, clearly defined climate actions and coherent project portfolios guide the city's long term transformation.

Climate change, increasing energy prices, and uncertainty around energy supply, especially following Russia's invasion of Ukraine, have shown how important energy independence truly is. **Cities must rethink** how they produce and use energy, protect communities from rising costs, and build local resilience.

Two groups are especially important on this journey: residents, who shape the success of every local initiative, and businesses and institutions, which provide the technical and affordable solutions needed for the transition.



*Credits@Jan Graczyńsk*

*Credits@Zarząd Zieleni Miejskiej*

If there is one message the city wants people to remember, it is this: **the old way of supplying energy must change. We need local sources, smarter systems, and new habits.**

And if there is one thing to do next, it is this: **form Kraków's first energy community - a group of buildings sharing and balancing their energy, becoming more resilient, and taking an important step away from dependence on external sources.**


*Credits@Jan Graczyńsk*

Kraków

# MATOSINHOS: A CITY REDISCOVERING ITS FUTURE

The **story of Matosinhos is one of transformation** - a city rediscovering how people, nature, and technology can thrive together.

With ATELIER, we found our pathway toward becoming carbon neutral by 2030. Today, this vision is taking shape in Custió neighbourhood and along the River Leça, where we are piloting our Positive Energy Districts. Renewable hydric and solar energy, smart and soft mobility solutions, and strong community involvement are coming together to create spaces powered by clean and local energy.

In Custió, the project focuses on the creation of a renewable energy community within a renovated neighbourhood. Residential buildings have been intervened to improve energy efficiency, reduce energy consumption and directly combat energy poverty. Local solar energy production, through decentralised photovoltaics installations, ensures cleaner, more affordable energy for residents, while strengthening social cohesion and promoting a fair and inclusive energy transition at the neighbourhood scale.

The second envisioned PED location is centred on the River Leça, whose restoration has enabled the **creation of a continuous green corridor**. Along the river, historic water mills are being considered for rehabilitation as small-scale renewable energy sources, capable of supplying electricity for public lighting and electric bicycle docking stations. This approach **reconnects natural heritage, renewable energy and sustainable mobility**, transforming the river into a living infrastructure for climate resilience and urban quality of life.

Our story speaks to local and European decision makers, to urban planners, and to community leaders who are ready to replicate what works. And it comes at a moment of urgency: the climate crisis and growing energy insecurity are already shaping people's lives. **Cities**, as both major emitters and the places where innovation happens fastest, **hold the key to leading the transition.**

*Credits@Matosinhos Municipality*

If there is one action we hope our audience takes tomorrow, it is this: support and invest in integrated solutions that unite renewable energy, sustainable mobility, and nature based restoration.

And if there is one message to take away from Matosinhos, it is this: **technology, nature, and community can power a PED - and inspire a carbon neutral future.**

*Credits@Matosinhos Municipality*

**Only bold, connected action will make climate neutral cities a reality.**

Câmara Municipal de Matosinhos

# INSPIRED BY ATELIER: RIGA'S JOURNEY TOWARD CLIMATE NEUTRALITY

Climate change is no longer a distant warning. It is here, shaping our cities, our seasons, and our sense of security. And while some prefer climate goals to remain safely on paper, Riga has chosen courage over comfort. Step by step, the city is moving toward climate neutrality, driven by a simple belief: **a better future is worth the effort it takes to build it.**

Yes, there are voices urging caution and delay, arguing that climate goals are too bold or too disruptive. But Riga - together with its stakeholders - is moving forward deliberately, placing climate smart urban development at the heart of its future.

Riga wants to build Positive Energy Districts that produce more energy than they consume. It wants streets where **traffic slows down and life speeds up**, where cyclists and pedestrians reclaim space, and the city centre becomes a place to live rather than pass through. Riga envisions vibrant neighbourhoods where people linger, businesses thrive, and public spaces invite.

Transformation, however, does not happen overnight. We know that lasting change begins with learning. That is why the first steps take the form of **pilots and experiments**: new bike lanes, walking priority zones, and road safety measures that temporarily reshape urban life. These pilots are more than technical trials - they give people a glimpse of a different rhythm for their city.

*Credits@Martti Salmi*

Riga's ambition is bold: **to become the first climate neutral city in the Baltic States** and one of the first 100 climate neutral cities in Europe. But this ambition is not about rankings. It is about dignity, health, and the everyday well being of the people who call Riga home. This understanding led to the creation of the Climate City Contract - not just as a policy tool, but as a promise to align vision with delivery and ambition with responsibility.

Real change must also begin within. Before asking residents, businesses, and communities to transform, Riga is transforming itself, becoming a climate neutral municipality with sustainable institutions, infrastructure, and services that cut emissions and prepare for a changing climate.

Along the way, something remarkable is happening: more and more inhabitants now see **climate neutrality not as a sacrifice, but as an opportunity** - cleaner air, quieter streets, lower energy bills, and confidence in the future we leave to our children.

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REA
Riga Energy Agency

# INNOVATION ATELIERS: WHERE CITIES LEARN TO INNOVATE TOGETHER

Every city trying to navigate the energy transition knows the same truth: change does not happen in isolation. It happens when people come together - when **governments, businesses, universities, and citizens** sit at the same table, share what they know, and imagine what the future could look like.

This is the heart of the ATELIER **Innovation Ateliers**: a shared space of collaboration - a governance structure that brings people together to explore ideas, cocreate solutions, learn from each other, and build the skills needed to innovate. By connecting different actors, an Innovation Atelier becomes a living ecosystem - one that helps cities not only design new approaches but also test them, refine them, and weave them into everyday municipal practice.

Originally created within ATELIER to support Positive Energy Districts, Innovation Ateliers grew into something much bigger. They became living, collaborative spaces where cities explore a wide range of energy-transition topics, from regulatory barriers to business models, digitalisation, and community engagement. They **bridge worlds that usually work apart** - technical experts, policymakers, community groups - and turn them into one coordinated innovation ecosystem.

And how does it work? An Innovation Atelier develops much like a story: **step by step.**

*Credits@City of Amsterdam*


**Innovation Atelier Publication**

At the **Innovation Capacity stage**, cities begin by aligning the people, resources, and policies needed for collaboration. They then **establish** a shared vision. The **Maturation** stage strengthens partnerships and processes, cross city learning accelerates and values, services and activities are refined. Over time, the Innovation Atelier becomes part of everyday municipal practice - a **stable** structure that continues beyond projects, budgets, and political terms. Eventually, it grows roots of its own: as part of **Long-Term Continuation**, the Innovation Ateliers become sustainable, with stable governance models, viable business models, and replication across new districts and even new cities.


*Credits@City of Amsterdam*

**Innovation Atelier Guide**

# THE 5 STAGES OF IMPLEMENTATION OF THE INNOVATION ATELIERS


*Credits@AMS Institute*

What makes Innovation Ateliers unique is their ability to work on **multiple governance levels** at once. They respond to local needs, build learning communities across cities, and connect projects that would otherwise move in parallel. Through workshops, co creation sessions, deep dives, and peer exchanges, they help cities surface barriers, share concrete examples, and design strategies that last longer than any single initiative.

To make this approach accessible to others, ATELIER developed **practical tools and guidelines** - from setting up an Innovation Atelier to scaling it citywide. A dedicated monitoring and evaluation module helps cities understand how their Ateliers grow, stabilise, and continue over time, while learning from the experiences of others.

The message is simple: **cities accelerate faster when they innovate together.** Let us have a closer look at some practical examples from ATELIER cities, illustrating how each Innovation Atelier was adapted to fit local contexts and priorities:

### AMSTERDAM – FROM PILOT LESSONS TO CITYWIDE CHANGE

In Amsterdam, the Innovation Atelier grew from a PED-focused pilot into a driving force behind the city's wider energy transition. It brought the municipality, researchers, and industry together to tackle real challenges - grid congestion, local energy sharing, new energy communities. Workshops turned pilot experiences like Republica into insights shaping policy, regulation, and Amsterdam's Climate City Contract. By linking hands on experiments with city strategy, the Amsterdam Innovation Atelier became a backbone of the city's energy innovation ecosystem.

### BILBAO – SHAPING ZORROTZAURRE'S FUTURE AND BEYOND

In Bilbao, the Innovation Atelier united the municipality, Tecnalia, EVE, the University of Deusto, Iberdrola, and the Basque Energy Cluster around one shared goal: transforming Zorrotzaurre into a future PED. Through focused workshops, the team aligned geothermal networks, district heating concepts, and energy sharing models with Bilbao's 2050 vision. The Innovation Atelier helped municipalities implement new regulations and explore business models for energy efficiency and community energy. Its work laid the foundation not only for Zorrotzaurre's decarbonisation, but also for scaling these solutions across the Basque region through the Cluster's broader Innovation Atelier.

### KRAKÓW – TURNING PED CONCEPTS INTO REALISTIC NEXT STEPS

In Kraków, the Innovation Atelier became a space to translate PED ideas into solutions for existing neighbourhoods. The city worked with local businesses to explore renewable energy, smart systems, and retrofitting options - and to confront financial and regulatory barriers head-on. Through practical workshops, the Innovation Atelier developed clear recommendations for Kraków's climate strategy, from energy audits to piloting solar installations, turning big ambitions into concrete first steps.

# “AND NOW IT’S YOUR TURN”: THE PED LEARNING PLATFORM

The PED Learning Platform is ATELIER’s invitation to cities, professionals and innovators across Europe to continue this journey beyond the project’s lifetime.

This free online platform offers a growing collection of courses, tools and interactive features dedicated to Positive Energy Districts. Whether you are just discovering PEDs or already planning your first district, the platform provides accessible, real life insights to support your next step.

## YOU WILL FIND:

1. **PED Start Guide**
   - a clear introduction for newcomers.

2. **PED Business Ecosystems & Stakeholder Engagement**
   - an advanced module developed by the SPARCS project.

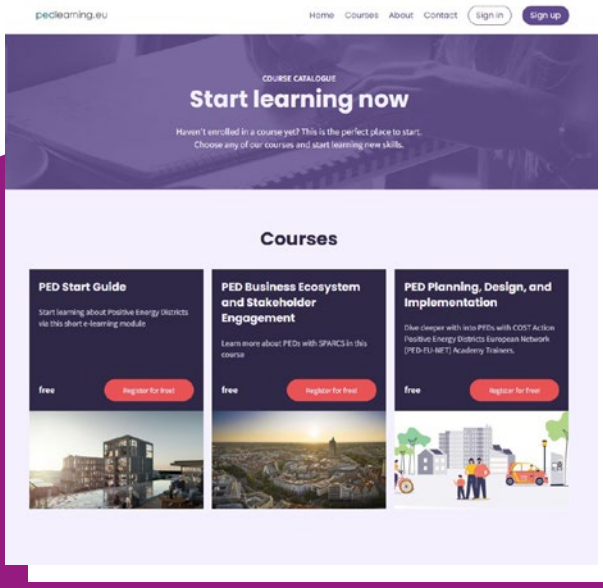
3. **PED Planning, Design and Implementation**
   - created by the COST Action PED EU NET network.

These are not just lessons but real experiences from cities across Europe, including ATELIER’s Lighthouse and Fellow Cities. Users can explore at their own pace, join community discussions, share resources and exchange knowledge with peers.
If you are part of a PED project, you can also contribute as an expert, developer or moderator - strengthening the network for others who will follow.

Born from ATELIER and expanded through collaboration with other EU initiatives, the platform is designed to live on. It connects people who believe in **climate neutral, citizen centred urban transformation** and want to accelerate it together.

Learn more and join the community at **pedlearning.eu.**

**pedlearning.eu**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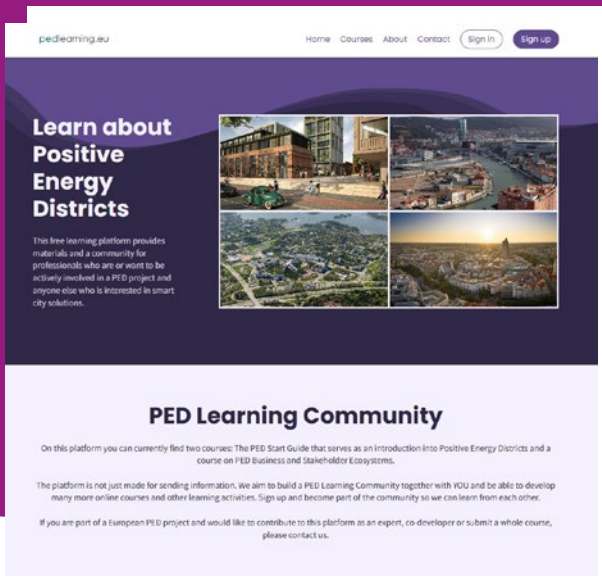
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Learn about Positive Energy Districts
This free learning platform provides materials and a community for professionals who are or want to be actively involved in a PED project and anyone else who is interested in smart city solutions.
PED Learning Community
On this platform you can currently find two courses: The PED Start Guide that serves as an introduction into Positive Energy Districts and a course on PED Business and Stakeholder Ecosystems.
The platform is not just made for sending information. We aim to build a PED Learning Community together with YOU and be able to develop many more online courses and other learning activities. Sign up and become part of the community so we can learn from each other.
If you are part of a European PED project and would like to contribute to this platform as an expert, co-developer or submit a whole course, please contact us.

# RESOURCES & NETWORKS

Are you curious to learn more about the journey behind ATELIER? Then have a look at our website www.smartcity-atelier.eu and explore our **full story.**

But ATELIER's impact extends well beyond the project's duration.
For those seeking in-depth insights, all our public deliverables are accessible through CORDIS (doi.org/10.3030/864374).

ATELIER is also deeply embedded within a broader ecosystem - actively engaging with networks and initiatives like **NetZeroCities**, **Driving Urban Transitions**, and the **Smart Cities Marketplace**.

Through these connections, the project fosters knowledge transfer and collaboration well into the future, supporting cities across Europe in advancing their sustainable energy and urban transformation goals.

## WANT TO DIVE DEEPER INTO THE ATELIER STORY?

Discover further ATELIER Booklets at

**Website ATELIER**


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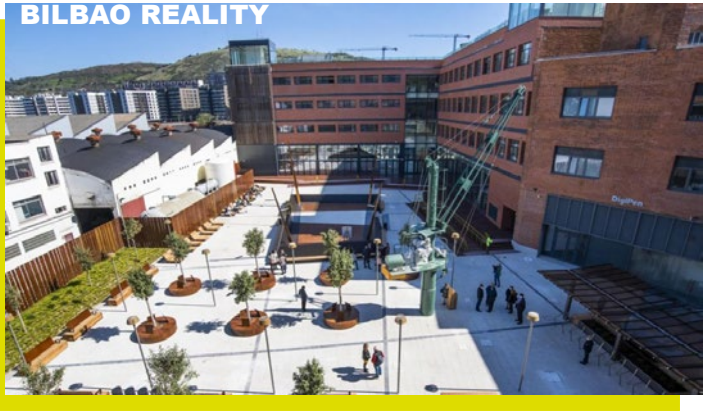


Credits@Municipality of Bilbao

**Let's stay in touch!**

in AtelierH2020

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