

Syn.ikia's newsletter

Summer edition - June 2022



Dear friends and colleagues,

We are landing in the middle of the project with a smooth workflow. Our goals to design better neighbourhoods with low carbon footprint remain clearer and more relevant as ever.

The [Dutch demo](#) reached the first milestone, construction was finalized, and residents are moving in. We had the chance to visit the site and meet with the first tenants during our project meeting in the Netherlands in the springtime. What a pleasure to finally meet in person all together!

Six thematic workshops were organized to nurture the sharing of ideas, identify lessons learned, challenges and approaches on the Design and Implementation of Sustainable Plus Energy Neighbourhoods (SPEN). The great teamwork and the active participation fostered a good cooperative spirit.

Our consortium is evolving with the entry of ARCA NOVA BOLIG AS and ARCA NOVA ENTREPRENEUR AS. The new Norwegian demo case is part of a new development in Fredrikstad, called Verksbyen. This is the largest development of plus energy houses in Norway, and it has a strong focus on energy sharing and flexibility at neighbourhood level.

The sustainable energy perspective is also reflected in [our demonstration project in Austria](#), one of 4 real-life projects that are part of syn.ikia. This neighbourhood in Salzburg will be energy positive and provide 3 shared services: heating system, electricity, and mobility. The services are planned together with the community to ensure an integrated and participatory design.

Our neighbourhood concept gains attention. The syn.ikia project was part of first edition of the New European Bauhaus Festival in [Brussels](#) and in [Spain](#) which brought together citizens. Together with the [ZEN Research Centre](#) and [ARV Green Deal project](#), syn.ikia has been included in Oslo Architecture Triennale's [neighbourhood index](#).

Our different levels of implementation results in contributions that span from the energy sharing and flexibility, the advancement of digital twins, the enforcement of social sustainability and the framing of regulatory frameworks.

Enjoy reading the fresh news items below.

Summer is calling for inspiration!

The syn.ikia Coordinator
Niki Gaitani, NTNU

HIGHLIGHTS

News from the Dutch demo: construction is finalised and residents are moving in!

On March 24-25 partners met in Uden, The Netherlands, for the syn.ikia project meeting, where they had the opportunity to visit the Dutch demo. Located in Loopkantstraat, Uden, the new building is developed by Hendriks Coppelmans and commissioned by the social housing provider Area Wonen. Watch the live visit [here](#) and [here](#)!



Consisting of 39 units, the building includes state-of-the-art technologies, such as integrating sensors for smart controls and diagnostics, and innovative processes were engaged in its development, including a digital (predictive) twin of the building to optimise its performance.



Thijs van den Oord, Project Manager at Area, explains: *'To this predictive twin we have added all physical characteristics, both the installation and insulation. On the basis of this, we can finally predict how much energy the building will be using at a certain moment. By doing so, we aim to find a balance between the energy generated by the solar panels and the energy usage of the residents.'*

A very important aspect of this demo neighbourhood is the 'social beautiful' concept which is developed in collaboration between Labyrint (Support in sheltered housing), Area (housing company), the municipality of Uden, and Hendriks Coppelmans (developer). The concept aims to



provide an answer to changes in various policy areas and the changing demands of society.

[Read the press release](#)

[Learn more about the Dutch demo](#)



Syn.ikia workshops - let's get to work!

During the project meeting, partners organised six thematic workshops to foster the sharing of ideas, identify lessons learned, challenges and approaches on the Design and Implementation of Sustainable Plus Energy Neighbourhoods (SPEN). With the active participation of all consortium members, discussions and knowledge exchange were fruitful and inspiring!

Topics ranged from integrated energy design guidelines for SPENS, business model challenges and excess electricity sharing between buildings to the conceptualization of multiple benefits at neighbourhood level and the design process for SPENS.

Some key findings include:

- An energy flexible strategy is needed to involve occupants and facilitate their interaction with the systems
- The quantification question of multiple benefits at the neighbourhood scale is still unanswered
- The key to solving energy flexibility and sharing in the neighbourhood is both a technical and regulatory challenge. It is therefore important to have a predictable business model.
- There are many positive benefits of SPENS ranging from social (social cohesion, sharing of amenities, increased well-being...) to environmental (energy sharing, limited use of resources...) and economical (reduced costs linked to health related issues thanks to an improved environment).



Deep-dive into Friedrich-Inhauser-Strasse, our demo neighbourhood in Salzburg

With the refurbishment and extension of the residential complex on Friedrich-Inhauser-Strasse, Heimat Österreich has created a lighthouse project that combines climate and environmental protection and affordable living.



This innovative construction project is completely extraordinary and has already won numerous awards. The official handover was celebrated on May 20th 2022, with the participation of the inhabitants and top-class guests from politics, research and business.



In addition to the state councillors Andrea Klambauer and Josef Schwaiger and the managing director of the climate and energy fund Theresia Vogel, Section Head Henriette Spyra, Head of Section III “Innovation and Technology” in the Ministry of Climate Protection (BMK) on behalf of Climate Protection Minister Leonore Gewessler.

[Learn more about the Austrian demo](#)

Events



Oslo Architecture Triennale, 2022

Oslo Architecture Triennale is an international architecture festival and arena for exploration, development and dissemination of architecture and urban development. syn.ikia and [ARV](#) together with the [ZEN Research Centre](#) are included in Oslo Architecture Triennale's neighbourhood index. The [Neighbourhood Index](#) is Oslo Architecture Triennale's catalogue of neighbourhood projects, practices and perspectives. Together these contribute to the Triennale mission: creating more sustainable, diverse and thriving neighbourhoods.

Past events

Workshop at the International Social Housing Festival 2022 (Helsinki)

The 3rd International Social Housing Festival took place in Helsinki from 14 to 17th June and 900 people participated in discussions about social housing and explored the idea of housing as the foundation of good life. Syn.ikia and NTNU co-organised a workshop for housing providers, urban planners, architects, citizens, and students 16.06.2022 that took place in the National Museum. Representatives from Norway, Belgium and the Netherlands participated in the workshop.

The theme of the workshop was "[People-centred energy transitions in neighbourhoods](#)", where the intention was to highlight the challenges of including low-income households and vulnerable sections of society in the sustainable transition. The workshop had particular focus on ambitious energy renovations and examples were used from syn.ikia's demos to highlight challenges and solutions associated with creating affordable, inclusive social housing.

The first half of the workshop included presentations by representatives from syn.ikia – Clara Mafé from Housing Europe, Pere Riutord Picorelli from Incasol and Ruth Woods from NTNU. Wendy Broers from Zuyd University presented her research about Environmental justice and social housing.

The second half of the workshop included an interactive co-creation exercise. Here we asked how can the principles of environmental justice be applied in social housing neighbourhoods? 5 principles – distribution, recognition, participation/procedure, responsibilities, and capabilities were connected to different resident engagement methods that were described in a set of pre-prepared cards.



New European Bauhaus Festival (Brussels): Living in a Plus Energy Neighbourhood, June 9-10, 2022

The first edition of the New European Bauhaus Festival brought together citizens from all walks of life to debate and shape our future landscape.

It was an opportunity to explore the New European Bauhaus values of beauty, sustainability and togetherness, and their power to address societal challenges.

Syn.ikia was showcased throughout the Festival at different locations in Brussels (Mont des Arts, place de Brouckère, Marché aux Poissons, Gare Maritime).



Time to get creative!

As part of the Festival, BPiE and Housing Europe organised a workshop on *Living in a Plus Energy Neighbourhood*, where participants were asked to think about how their ideal neighbourhood could look like.

They also took part in a short quiz about the syn.ikia after watching the project's video.

[More information](#)

consumers to power generators, June 9, Barcelona

Syn.ikia's partner Incasol held a side event at the New European Bauhaus Festival on June 9 in Barcelona. With the experience from the syn.ikia project, speakers spoke about the changes in energy consumption and how to get ready for the challenges and opportunities in 3 areas (technical, regulatory and social) when it comes to the roll out of plus energy buildings in Europe. Speakers also discussed the role of the government in assuming and compensating the costs of energy-contributing buildings from the point of view of those responsible and those affected.



Recording of the session: **Edificis, de grans consumidors a generadors d'energia**
(in Spanish)

[More information](#)



2nd Building Digital Twin International Conference, Barcelona May 26, 2022

On May 26 TNO presented syn.ikia's innovation DigiTwin (Neighbourhood Scale Digital Twin) on the second Building Digital Twin International Conference, with the focus on the Dutch demo case of Area in Uden. This conference addresses Digital Twin Urban issues, how to connect Building Digital Twins with Smart Grids, the simulation process and the use of platforms and software. The collaboration of world experts, offered exclusive presentations about Building Digital Twins.

Watch TNO's presentation on [YouTube!](#)

XVIII Congreso Ibérico y XIV Congreso Iberoamericano de Energía Solar

Syn.ikia participated in the workshop organised by its sister project ARV on Climate Positive Neighbourhoods in Europe - key strategies and approaches.

The workshop included presentations from syn.ikia partners Jaume Salom (IREC), Inger Andresen and Niki Gaitani (NTNU).



[Learn more](#)

Plus energy in planning, design and realisation of buildings and neighbourhoods. Lessons Learned from ZEN/SPEN/PED

The event was hosted by Concordia University, Montreal Canada, as part of [Annex 83 Ph.D. Summer School](#) "Positive Energy Districts: Towards a holistic approach to modelling and performance assessment". The lecture was focused on **Design strategies to realize plus energy buildings (PEBs), neighbourhoods (SPENs) and districts (PEDs)**. These involve how to organize the process, what technologies to use, how to combine sustainable solutions with good architectural design. Lessons learned from implemented project i.e ZEN Research Centre and syn.ikia project were used to reflect on innovative concepts and challenges in different climates, markets and cultures.

Niki Gaitani (NTNU) participated with a lecture on **Plus energy in planning, design and realisation of buildings and neighbourhoods** - lessons Learned from

Coming soon...

[Upcoming report] Guidelines for realizing energy flexibility

The report on guidelines for realizing energy flexibility is coming soon, and here is a sneak-peek of the main results.

The objective of this report is to provide generic guidelines for utilizing the energy flexibility of building components, by investigating the flexibility potential of the [Dutch](#) and [Spanish](#) demos at the component level. For each demo, components which can provide energy flexibility were identified, and their potential for flexibility was quantified via dynamic building simulations. Specifically, the report focuses on utilizing the flexibility of HVAC systems (i.e. space heating) or domestic hot water (DHW) production, to promote the consumption of on-site generated solar energy and to reduce the imported electricity from the grid.

The flexibility potential of a component is strongly dependent on the design of the system, the occupant's behaviour, comfort constraints, the penalty signal and control algorithms used. Space heating can provide more flexibility in the heating season if the heating system includes a storage as in the case of the Spanish demo with centralized heating. The domestic hot water production offers flexibility throughout the whole year, although its flexibility capacity can be limited by the actual DHW demand, the capacity of the tank and the comfort restriction. The insights derived from the flexibility analysis in the two demos were formulated in terms of guidelines for flexibility, and will be taken into account in designing smart control systems.

News from other projects

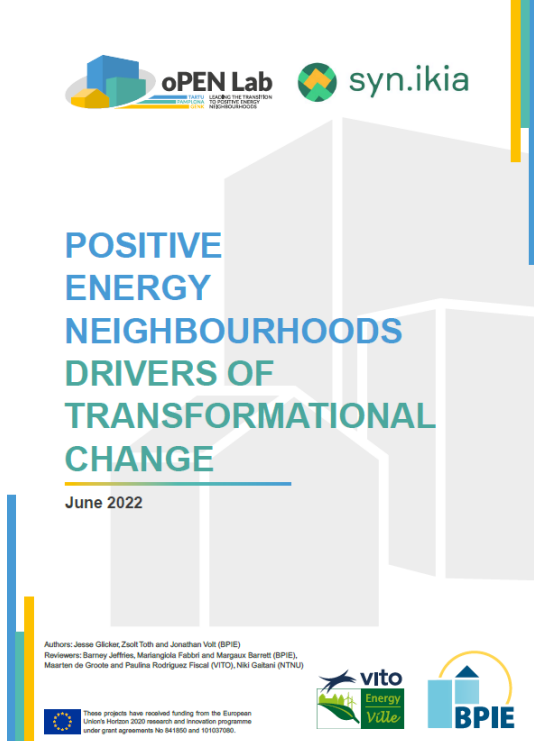
[Report] Positive Energy Neighbourhoods: drivers of transformational change

In light of EU climate goals and Russia's invasion of Ukraine, significant measures are needed to decarbonise the economy, reduce energy use and future-proof the building stock.

Successful decarbonisation of the EU building stock calls for an integrated, participatory and neighbourhood-based approach for various reasons:

the aggregation of projects enables industrialised renovation processes, which are achieved at a lower cost and in a shorter timeframe. A

neighbourhood approach empowers local communities to take an active role in their energy use, while accelerating



the market uptake of novel technologies and business services at scale.

In order to scale up the implementation of positive energy neighbourhoods, BPIE, under the H2020 project [oPENLab](#) and building on the syn.ikia report '[Policy mapping and analysis of plus energy buildings and neighbourhoods](#)', provides four policy recommendations:

- Endorse Member States to identify appropriate neighbourhoods to implement integrated renovation programmes.
- Establish a harmonised definition of positive energy neighbourhoods (PENs), which should clarify the boundaries of the built environment, covering aspects related to use of renewables, energy communities, mobility, density and social cohesion.
- Reinforce existing policies with PEN solutions, including forthcoming national building renovation strategies.
- Overall, redesign energy efficiency solutions as a dynamic concept.

Read the policy paper



Welcome to syn.ikia's new sister project, ARV!

ARV is a H2020 EU-funded project, led by [NTNU](#), aiming at creating climate positive circular communities in Europe and increasing the building renovation rate in the continent, which kicked off in January 2022. ARV is the Norwegian word for “heritage” or “legacy”. ARV will provide guidelines and a policy framework for future energy-efficient, circular, and digital solutions in the construction industry.

Find out more about ARV!



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