Press Release

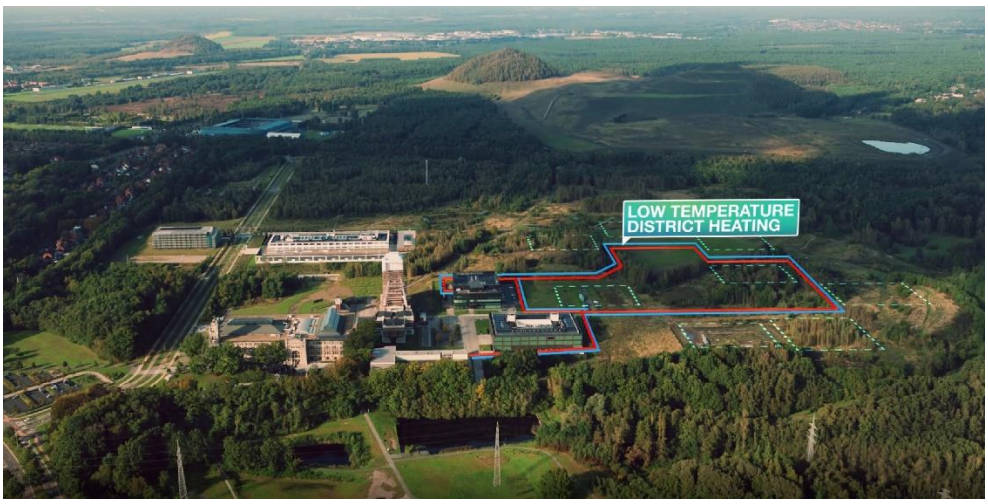
EnergyVille expands Open Thor Living Lab with innovative thermal network & research buildings to test latest construction and renovation techniques

Genk, 15 September 2022 – Today, with the help of Flemish Minister of Economy and Innovation Jo Brouns, Flemish Minister of Energy Zuhal Demir, and Mayor of the City of Genk Wim Dries, two new infrastructure projects of the EnergyVille research collaboration – CollecThor and THOREAQ – have officially been inaugurated. Both projects are part of the Open Thor Living Lab – a living energy lab that spreads its wings over Thor Park, the New Texas social housing estate, the Waterschei garden districts, and KRC Genk – and form an important steppingstone for innovative research into new construction techniques and heating technologies.

CollecThor: underground exchange of heat and cold

It does not need much explanation these days that heat and cold are important energy carriers. Additionally, the heating and cooling of buildings offers great potential for sustainability. CollecThor – the 5th generation district heating network launched at Thor Park today – aims to explore the maximum potential of intelligent district heating networks. The intention is to heat and cool buildings sustainably, and to exchange and store a maximum of residual heat and cold via an underground district heating network. In this first phase, the existing buildings of Thor Park (Thor Central, IncubaThor, EnergyVille 1 and 2) and 8 additional vacant plots will be connected to this network.

Gerrit Jan Schaeffer, General Manager of EnergyVille: “The potential of 5th generation district heating networks, in which energy surpluses are used to the maximum through mutual exchange and storage, is very large. These types of thermal grids, where in principle no additional heat source is required, will be very important to maximize the level of renewable energy in local energy cycles. By industrializing the approach, developing an intelligent control system, and clarifying organizational and business models, we aspire to be an accelerator for future projects.”



Picture: location of the district heating network

THOREAQ: testing new construction and energy techniques in two identical test buildings

There is also work to be done in the field of sustainable construction and renovation. 40% of European energy demand takes place in buildings, resulting in a share of 36% of all European CO_2 emissions.

Innovation and upscaling are therefore essential. THOREAQ – which, like CollecThor, was presented today – aims to develop a permanent research infrastructure in which – together with industry – innovations in renovation techniques, improvement of indoor air quality and integration of energy systems in real conditions can be tested and validated. This entails, for example, product innovations (integrated techniques, improved heat pumps or ventilation systems), but also the smart control and seamless interaction between these techniques.

The infrastructure will consist of four units: a technical hall, a site lab and two identical buildings with the morphology of residential buildings, equipped with redundant techniques and an extensive set of measuring equipment. In the two identical test buildings, these technologies can be tested alongside each other via so-called A/B tests. For example, if we want to know how different heat pumps perform in combination with different insulation techniques, storage systems or sun blinds, we can do this in the two test buildings, which will be inhabited by virtual inhabitants.

“With THOREAQ we aim to realize a safe test environment in real conditions”, Gerrit Jan Schaeffer continues. “From 2024, the infrastructure will be opened to companies so that they can test their innovative products and services in interaction with many different systems and components at building level. A second part of THOREAQ is the test infrastructure for construction innovation. Through new forms of automation and prefabrication, we will also focus on automation in collaboration with local and international partners from the construction sector and technology domains such as robotics, and thus develop scalable, more sustainable, safer, and high-quality construction methods.”

Open Thor Living Lab: a living lab with real end users

Both infrastructure projects are part of the Open Thor Living Lab, the large-scale energy lab that spreads its wings over Thor Park, the New Texas social housing estate, the Waterschei garden districts, and KRC Genk. It is a unique infrastructure environment where innovation comes to life, and where governments, companies and citizens are also actively encouraged to exchange knowledge.

“Through co-creation, open innovation and collaboration between companies, governments, research institutions, but especially local citizens, issues surrounding social themes are taking shape, which makes the Open Thor Living Lab a unique test environment to provide meaningful answers and solutions to the climate objectives. I am extremely proud that we can add two beautiful puzzle pieces to the living lab today”, says Gerrit Jan Schaeffer.

Minister of Innovation **Jo Brouns**: "The current crisis shows how important the transition to sustainable and circular energy solutions is. That is why we can be proud of EnergyVille, who develops research and innovation specifically within these topics. By the way, they do not merely limit their innovative sustainable solutions to the lab, but just break out to test them in real life via their Open Thor Lab, for example with the latest heat networks in their own buildings or the best renovation techniques in their test homes. Here the solutions of tomorrow are tested."

"The energy crisis presents us all with challenges. Innovation hubs such as EnergyVille in Limburg prove their worth in the constant search for sustainable and affordable energy solutions. Here, the latest heating and cooling techniques are tested in real-life situations. But more importantly, the foundation is laid to provide energy to all of Flanders and even far beyond. Innovative projects such as these can count on Flanders. Through the call ‘Groene Warmte’, we have provided more than 400,000 euros to give the smart minds in Thor Park every opportunity to help set out and test the energy supply of the future in realistic situations," says Flemish Energy Minister **Zuhal Demir**.

Wim Dries, Mayor of the City of Genk, is proud that this unique test environment is taking shape in his city: “With this expansion, even more stakeholders will have access to a state-of-the-art

infrastructure, knowledge and an extensive ecosystem to implement and validate innovative energy solutions in a real and secure environment with end users. The co-creation and collaboration at Thor Park is crucial to put the pieces of the energy puzzle together and will help the City of Genk achieve its ambitious climate goals."

Partners

Partners CollecThor

This project is supported by the Green Heat Call and was set up according to the 5GDHC principles from the Interreg project D2Grids.

Partners THOREAQ

This project is made possible by ERDF React EU and the Flemish Fund for Innovation and Entrepreneurship.

Partners Open Thor Living Lab

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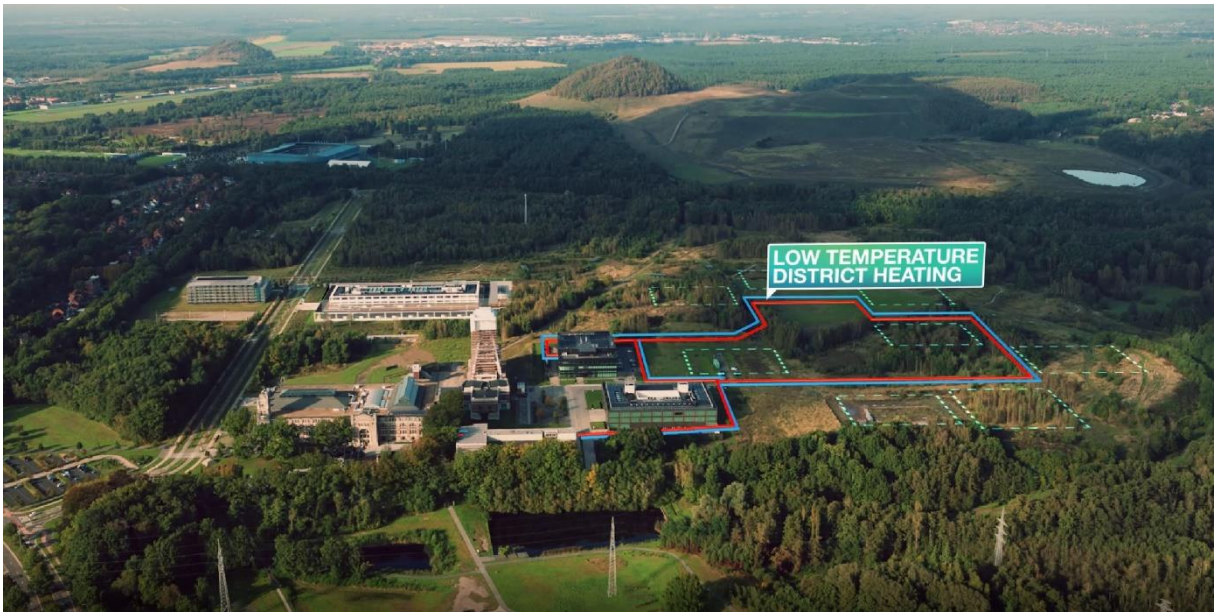
Images



About EnergyVille

EnergyVille is a collaboration between the Belgian research partners KU Leuven, VITO, imec and UHasselt in the fields of sustainable energy and intelligent energy systems. EnergyVille develops technology and knowledge to support public and private stakeholders in the transition to an energy efficient, decarbonised and sustainable urban environment. The unique complementarity of the research partners allows us to integrate the energy system value chain in its entirety, ranging from materials and components to the level of entire energy systems, business models and strategies. Our activities are clustered in eight interdisciplinary domains: solar energy, battery storage, power electronics, power-to-molecules, thermal systems, electrical networks, energy for buildings and districts, energy strategies and markets.

With approximately 400 researchers and state-of-the-art research facilities, EnergyVille is a top European innovation hub in the energy field. it bundles research, development and training under one roof and collaborates closely with local, regional, national and international partners from industry as well as public authorities.

As an energy R&D innovation hub, located in the industry-oriented ecosystem of Thor Park (Genk, Belgium), EnergyVille offers an attractive environment for energy research, industrial product development and business creation. The collaboration is supported by the city of Genk, the Province of Limburg, LRM, Nuhma, POM Limburg and the European structural funds.

About Thor Park

Thor Park in Genk is a global redevelopment project on the former Waterschei mining site. The site has the ambition to become the center of competence in the field of smart manufacturing industry, sustainable energy solutions and innovation, and houses EnergyVille 1 & 2, IncubaThor, the T2-Campus, FacThory and Thor Central. Thor Park brings together specialized infrastructure, knowledge and partners in one location, bridging the gap between ideas and valorisation. Thor Park is an initiative of LRM, the City of Genk and KU Leuven.