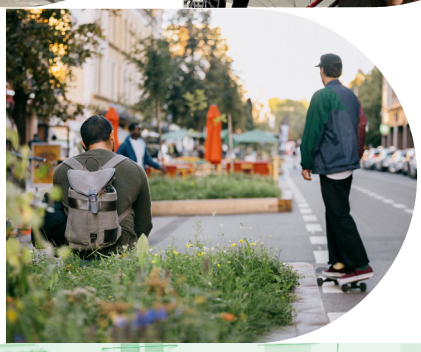
Urban Doers Community

Energie in Ekkergem

Editors: Lisa Hudson-Bushart | FFG, Johannes Riegler | FFG



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Energie in Ekkergem

Name of author(s)	Lander Cnudde, Herman Vande Putte
Contact Details	Website: http://ekkergem.net/ Email: lievevds999@yahoo.com

Abstract

The 'Energy in Ekkergem' project is located in a district on the outskirts of Ghent, a Belgian city with a population of around 270.000. The district contains around 3.500 houses and is functionally mixed: in addition to housing, it also includes small businesses, a prison, two university campuses and the police headquarters. These businesses are mainly located in the inner zones of the city blocks which are bounded by an unbroken wall of terraced houses, mostly dating from the 19th century. To meet the technical challenge of the energy transition in such a built environment, a 5GDHC district heating system is being investigated by a group of citizens.

By integrating cooling with heating, this project aims to prevent the neighbourhood from being cluttered with individual heat pumps (the 'buzzing city') which dump excess heat outside when temperatures are already high. This, combined with the heat island effect, makes the situation worse, particularly for residents who don't have the means to install individual air-cooling systems. A collective district heating and cooling system could provide an environmentally and socially sustainable solution.

At the same time, there are some major challenges in pursuing a collective system in a district like Ekkergem. Not only does the Flemish mentality tent to be individualistic (as reflected in the legislation), but the property ownership structure in Belgium is also highly fragmented. If a collective heating system is to be installed in a typical narrow street section of a city district, there may be as many stakeholders as there are buildings, which poses a substantial challenge in terms of its ownership and exploitation.

Last but not least, collective solutions will only be preferred if they also offer a financial benefit. Given the current pricing of electricity and gas in Belgium, it seems almost impossible to build a business case for collective sustainable solutions.

These four perspectives (technical, social, legal and financial) are the pillars on which the 'Energy in Ekkergem' project is built. Only by combining all four can the energy transition be made easy and affordable for everyone living in the district. Once a solution has been found, it will be translated into a Local Energy Action Plan, supported by the residents themselves, paving the way for Ekkergem to become a Positive Energy District.

Based on the Telheiras Renewable Energy Community experience, we envisage an energy future aligned with the Positive Energy Districts pathway with multiple energy communities blooming across the European Union, not only increasing renewable energy generation and reducing greenhouse gas emissions but also mitigating energy poverty, strengthening community bonds, and promoting values of energy justice and energy democracy. This pathway remains, however, a mirage, and much more needs to be done to support local communities in developing their own energy-related initiatives. Sharing lessons, building capacity, and inspiring others in the context of European networks can be fundamental to

Key Lessons:

We develop the Local Energy Action Plan for Ekkergem using four working groups. These correspond to the four perspectives that we felt should be covered and integrated for a successful energy transition project. The lessons learned, per perspective:

1. The entrepreneurial perspective. start with a high level of ambition;
    - you need to have the courage to fail;
    - a project like this needs both expertise and resources to succeed, so fundraising is essential.
2. Second, the legal and governance perspective:
    - municipalities cannot easily cope with innovative concepts and bottom-up initiatives like ours, which makes our story particularly relevant to them;
    - legislation is a social construct that is all too often mistaken for a law of nature.
3. From the beginning, we stated that the social perspective was more important than all other perspectives. What we learned:
    - involve stakeholders from the start;
    - you can't get a reliable sense of people's opinions and interests until you have been there, so don't just sit at the desk in your attic drawing up idealistic plans;
    - people do want to talk, despite the 'don't bother me' mentality;
    - you should be careful about assuming what people already know, if only to avoid depriving them of the opportunity to discover something for themselves; instead there is nothing wrong with telling the whole story time and time again;
    - don't underestimate the profound and diverse expertise that exists in a district and the willingness of citizens to impact their neighbourhood;
    - communication is key and all stakeholders must be taken into account throughout the entire process.

4. Like with the entrepreneurial perspective, we have seen that the social perspective also applies to the project team:
    - a process like this requires a lot of time and energy, which makes it very intense;
    - in addition to manpower and commitment, it is essential to have someone with the drive and knowledge to take the group in tow;
    - even if your interventions don't produce the effect you dreamed of, you still strengthened the local tissue by getting in contact with people in your neighbourhood.
    - communication is key: open and transparent communication within the working groups is essential
5. On the technical perspective:
    - predicting is hard, especially when it comes to technology; no one knows for sure what the most successful solutions will look like, so don't be afraid to join the search;
    - innovation thrives on resistance.

The Ekkergem district is located on the outskirts of Ghent, a thriving mediaeval city of some 270.000 inhabitants in Belgium. It is a district of about 40 hectares with 3.500 houses and is a functionally mixed neighbourhood: in addition to housing, the district includes small businesses, warehouses, the central prison, two university campuses and the police headquarters. These corporate premises are mainly located in the inner areas of the blocks and are slowly diminishing.

As awareness of the impact of climate change is rising all over the globe, it also does in Ekkergem. Recently a PhD student's thesis showed irrefutably what impact the heat island effect already has on our neighbourhood and this will only become worse. For newly built houses multiple solutions exist to cope with heating and cooling challenges but how can this be achieved in a neighbourhood with houses more than 100 years old with, on top of that, a fragmented ownership structure? And how can this be done in both a socially and environmentally sustainable way? Exactly these questions are being addressed by a group of neighbours living in Ekkergem, who investigate how they can turn their district into a Positive Energy District (PED).

In June 2023, the City of Ghent awarded the Energy in Ekkergem Theme Group a grant from the district budget for the development of a Local Energy Action Plan for Ekkergem. This has given a boost to the group by giving it the opportunity to acquire social and technical know-how. The district director for Ekkergem made the theme group aware of the DUT Urban Doers Community and a project proposal was submitted in mid-2023.

In the writing below, the story of the 'Energy in Ekkergem' project is depicted by a selection of fictional core team members. It is composed of conversations that could have taken place during the first year of the group, which gathers on a three weekly basis.

Resemblances to existing people might however not be too coincidental.

AUTUMN 2023

Frank

"With the 'Energy in Ekkergem' project, we want to make the energy transition in the district of Ekkergem easy and affordable for all people living in our neighbourhood. Through an action plan created and supported by the residents themselves, Ekkergem will ultimately become carbon neutral and turn into an energy-positive district in which everyone is part of the solution", Frank reenacts how he presented our project to the jury that awards the district budgets.

Being born in Brussels, Frank moved into the neighbourhood some 10 years ago, taking both his trunks full of sprouts and his architectural gaze with him. One can only wonder where this lecturer on architecture gets the energy to commute multiple times a week to Rotterdam, The Netherlands, where he challenges students to innovate the built environment. In return for sharing his expertise, he takes with him some of the Dutch decisiveness and confidence in one's own ideas that Belgians lack ever so often. Even in the most progressive city of Flanders, innovative ideas are valued higher when their outcomes can be guaranteed beforehand, their promises have been scientifically investigated and therefore the ship has almost sailed at this point. When lingering along the many canals of the marvellous city of Ghent during a hot summer night, one can only wonder why we don't take the plunge more often...

One of the ways the city of Ghent tries to channel bold ideas of enthusiastic citizens is through so-called 'district budgets'. As a successor of the 'citizen budget' (2016-2019), the district budget allows residents of each district to suggest concrete interventions with which they want to meet problems and challenges in their neighbourhood. Suggestions that get through the full selection procedure are rewarded with a budget that is proportional to the aspirations of the project and allows the citizen-volunteers to realise what they proposed. In providing a forum and means for local initiatives, the city not only succeeds in involving its inhabitants in policy but simultaneously also benefits from the social skills and technical expertise that is present in its districts.

"Given the specificity of our undertaking and its long-term horizon, it wasn't evident at all that we would be granted a part of the sum that was available for Ekkergem," Frank added, "so we profoundly appreciate that the city of Ghent decided to accept our submission and to put confidence in our project. Through this decision the city also acknowledges that the belt of 19th century houses around the historic city centre poses severe challenges to the energy transition. This is also one of the reasons the city is currently working on a high-level vision on the future of energy use on the whole of its territory. However, as far as I'm aware, for Ekkergem a clear answer is lacking as to what energy sources and systems are needed. As is the case with the energy transition in general, at the moment a multitude of initiatives exist that in the end have to realise the ambitious goals, but it remains unclear how the gap between those two will be bridged."

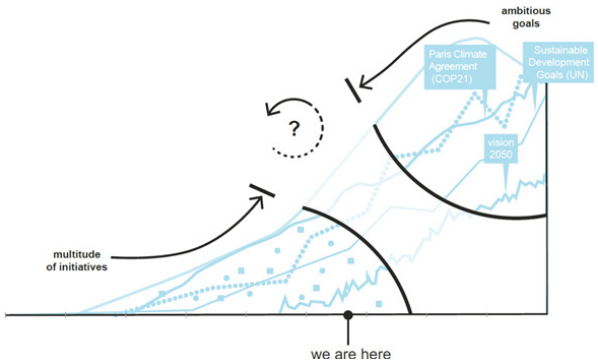

Figure 1: There is a link missing between the many initiatives and the ambitious objectives of the climate agreements. Source: IABR

"While the speed at which climate change is taking place is not at all evolving in a positive sense, it at least has the effect that its consequences get more and more visible in peoples' own lives and they get aware of the challenges it brings along for them too. We join the Department of Environment and Spatial Development of the Flemish Government in its conviction that the district level will be the one supporting and enabling the transition and we'd better develop a neighbourhood reflex in policy making. Talking about energy, this implies that districts produce and consume the heat and cold locally instead of obtaining it from far away and that the district is the size for the design and implementation of that future energy system. A system that, moreover, may be owned by the residents themselves."

Waldek

"In that respect," Waldek continued, "the city of Ghent particularly appreciated how we take into account multiple perspectives throughout the entire project", thereby referring to the social, technical, legal and entrepreneurial viewpoints that are identified in the proposal, which became four specific working groups during the course of the project. "A viable and socially embedded action plan that allows for an inclusive transition can only be achieved by keeping all four of them in scope."

Waldek is himself one of the technical profiles in our group and has an engineering job in the automation and mechatronics industry. His inside view on technical innovations and his experience with quotations and formulating technical specifications provide our group with a convincing professional flair. Given the clear and strict deadline of the district budget, he urged the group to design a roadmap that could both serve as a backbone helping to keep ourselves on schedule as well as a touchstone for deciding what challenges we should and should not dive into along the road. The guideline also allowed us to formulate clear and realistic expectations on a personal level, which meant a great deal to many others in the group as to safeguarding time and energy to be invested in, let's say, a family life and a 1-year-old daughter.

"Talking about which," Waldek continues, "now that we are approaching our first pilot project, it seems a good practice to develop a questionnaire to collect some basic technical data from the dwellings of the first street segment we'll focus on. As a member of the technical working group, to get a more detailed view on the current status of the houses in this street segment seems indispensable, in particular when in a next step we want to contact a design office to evaluate how viable different energy solutions are when applied to the buildings at hand and the way they are being used."

The first pilot project Waldek refers to concerns a case study where different energy strategies are being evaluated with respect to a specific, limited subregion of our neighbourhood. In total the project intends to identify three such cases, this way collecting pieces of a puzzle that might in the end allow to solve the problem on the scale of the full district.

For the selection of our first street segment, we relied on conversations that were carried out by the members of our group with two to three randomly chosen inhabitants per street. By addressing this small sample of residents with some high-level questions (e.g. "How concerned are you about the energy transition?", "What plans do you have with the house you live in?"), the team got a first, rough view on people's concerns and willingness to be involved more directly.

The main finding of this first survey is that one of the key beliefs of the project team holds true: the energy question sure is about heating, but ever more about cooling too. On a technical level, a collective energy system that includes both of these aspects is called a '5GDHC': a District Heating and Cooling system of the 5th Generation. In such a 5GDHC all connected buildings can be a consumer at one

moment and a supplier at the other. A key feature of such a system is an appropriate buffering of residual heat (and 'cold') in a way that it can be consumed when needed. One could even think about seasonal storage, allowing to consume summers' residual heat during cold winter days, and the other way around!

Wrapping up these first findings, the future energy system for Ekkergem will consist of renewable energy sources combined with appropriate energy storage, both of which can be achieved in a multitude of ways. The former will be some combination of locally generated solar energy (PVT panels) and shallow geothermal energy, given the geological subsoil conditions under the biggest part of Flanders and the city of Ghent in particular. Districts that are lucky to have moving water on their territory, could also dream of aquathermal energy, or riothermal in case of wastewater flow. Energy storage, on the other hand, can be achieved through Borehole Thermal Energy Storage (BTES). However, confronted with uninterrupted walls of terraced houses, the only terrains that are sufficiently accessible to realise these boreholes most of the time happen to be public domain, which yields its corresponding legislation...

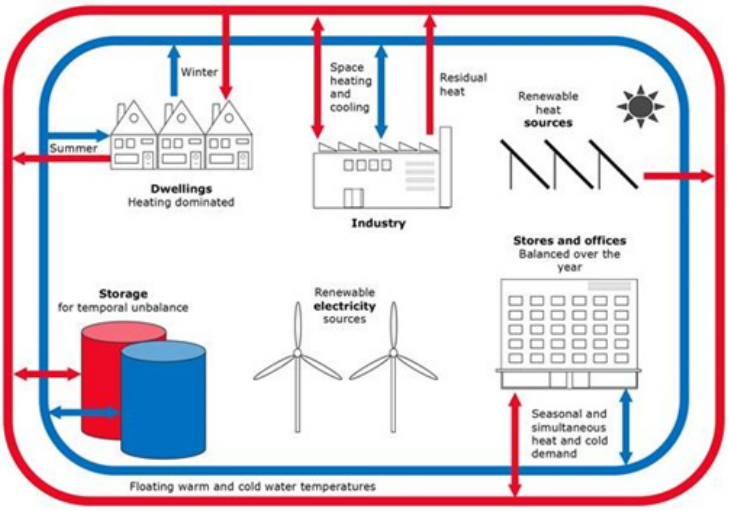

Figure 2: In a 5th generation district heating and cooling network, all connected buildings are a producer and consumer of heat and cold. The residual heat in summer is used in winter. A computer organizes the energy exchange. The storage system (e.g. a BTES field) buffers the temporary imbalances. Source: Stef Boesten

"In order to wrap up this meeting," Frank takes the floor again, "allow me to briefly inform you about the temperatures at a specific site in our neighbourhood past summer. Rumour has it that it was impossible to keep the temperature in the newly constructed apartments at a decent level during the first years after their construction because of the heat island effect in Ekkergem and the high thermal insulation of these new premises. I sincerely hope by now a solution has been found?" Some chairs to the right of Frank, one of the team members that happen to live in these apartments, jumped up as if stung by a bee. "Decent levels?! Frank, it is a true disaster. I tried everything to keep the heat out of my apartment – ranging from aluminium foil in front of the windows to putting ice underneath our ventilator - but nothing helped! But as long as my name is Pierre, I will bravely continue the quest to control the temperature in my apartment."

WINTER 2023

Simonne

"I'm happy to let you know", Simonne started the meeting, "that the greening project of our neighbours at the end of the street has also been selected by the district budget. They want to make Ekkergem more climate-resilient by adding

several hundred of metres of façade gardens to the streets of Ekkergem and by involving Ghent University to remove tiles on their campuses in our district.

I think it's great that our two projects have been selected because of their complementarity: while it's certainly a good idea to mitigate the heat island effect in the short term by greening the district, with the 'Energy in Ekkergem' project we are addressing the bigger, longer-term challenge of a systemic energy transition and preventing even higher temperatures in our neighbourhood in summer by offering collective geothermal cooling as an alternative to individual air cooling."

As a teacher in International Trade at a University of Applied Sciences in the East of Flanders, Simonne is the first to admit that the way we currently buy and burn fossil fuels is unsustainable from environmental, societal, human and many other perspectives. Eager to apply the science herself, she has been reaching out to neighbours and fellow do-gooders for several years, setting up and coordinating projects in our neighbourhood. The underlying philosophy? While there is a limit to what you can do to reduce your footprint, there is an almost infinite capacity to expand your handshake by reaching out to your neighbours.

"Some of you may find it surprising that both projects for Ekkergem come from this rather small cul-de-sac", Simonne continues. "But there's a simple explanation for this. For decades, Ekkergem has had an active neighbourhood committee in which many of the residents of our little street have participated. This committee is an open association of citizens living in the area and has promoted cohesion and inclusion in our neighbourhood through festivities, urban actions and, most recently, the collective greening of our public spaces, for which they obtained a grant from the European Blue Deal. Moreover this association is in close contact with the municipality of Ghent and enjoys its full support. In short, it shouldn't be too surprising to find both project initiators in this same little street."

Simonne is taking a shortcut here, skipping the fact that this cul-de-sac provided the breeding ground for yet another grassroot project only years ago. In this alley of about 60 houses, with a history of cooperation and involvement, a group of residents got together to create as many façade gardens in the alley as possible. An experienced networker, a landscape architect, a builder, a carpenter, a teacher, an architect, a nanny, an economist and the many do-it-yourselfers and residents in the alley pooled their knowledge. In the summer of 2020, the future façade gardens were visually represented with ivy and green elements. Where there might be water features, children coloured the paving stones with blue chalk. Neighbours discussed the plan at consultation tables. In February 2021, the pavements were broken up, and in the spring of 2021 a coordinated variety of plants were planted that encourages biodiversity. The City of Ghent helped residents with the logistics. It was a success. In the months that followed, the collaborative approach in the alley became city policy. Spontaneously, the action turned into a Green Theme Group within the Ekkergem neighbourhood committee that promoted greenery and biodiversity in the neighbourhood, and residents from other streets joined in.

After this successful project, some neighbours broadened their gaze to the whole district and observed how both local and higher government as well as private real estate developers have missed opportunities to make Ekkergem as a whole more climate-resilient when implementing projects on their sites. The opportunities offered by these large developments are even more valuable when they also affect the inner zones of the large blocks in our district, which are surrounded by an unbroken wall of terraced houses. When greening and renewable energy interventions in our district's streets and squares are limited or even prohibited, the private inner spaces made accessible by large developments are the only alternative. These projects already include renewable energy solutions for the new homes themselves. However, the mere fact that the remaining 3500 houses in our district are not suddenly going to be rebuilt in the coming decades, means that every single opportunity to integrate energy solutions that serve these mostly 19th century houses into these redevelopments must be seized with both hands.

"Why are the neighbours of that cul-de-sac so eager to involve the whole district in their plans?" Simonne herself introduces the question that popped up in everybody's head. "Because they're triggered by the overwhelming potential of this place! Ekkergem is a dynamic and lively district where residents launch lots of bottom-up initiatives and which has an ambience comparable to that in a little village. At the same time, the presence of several university campuses attracts a lot of students who in turn apply their refreshing ideas on the streets of our district. Typically, a great share of them sticks around after their studies, adding to a diverse population. However, the latter also implies an extra challenge: while historically a great share of Belgian houses is owned privately and renting a house is less common, in a student city like Ghent you also get houses that are split up completely into smaller units being rented out to students. At this moment, it remains challenging to convince those lessors to invest in cleaner energy systems, too. Given that other districts in this city are confronted with the same challenges, our project can probably generate some valuable inspiration for them, too."

The vast majority of privately owned houses that Simonne was talking about is a symptom of an underlying cultural trait of individualism. For people in Belgium and Flanders, owning a house privately is synonymous with establishing a kind of freedom and independence. This mentality, together with the accompanying legal and administrative framework, creates a major threshold for collective solutions, even if the latter are more efficient in solving a problem faced by all residents. When it comes to energy saving and consumption, residents and property owners are nowadays on their own and have to put the puzzle together themselves. Dealing with this individualism is one of the aspects the project wants to address in order to create a clear path towards a local and collective renewable energy system.

Marianne and Dré

"It is precisely to overcome this self-reliance philosophy and the slow pace of the energy transition which is a consequence of this mentality, that we put a lot of effort in involving the broader neighbourhood in the project", Marianne and Dré add in unison. "Such can only be done by directly reaching out to the people in our district, even though our story in this early phase remains rather abstract. Still, we think it's a good practice to already reach out to our fellow residents in an embryonic phase so they get involved from the beginning and we can address their doubts and concerns from the start. In addition, it boosts their ownership and creates more support for the final solution. The harder challenge, however, is to identify the most effective way to reach out to them. Similar to the technical challenge, also the social side of the puzzle requires a thorough search for those options that fit our specific context best. And of course this yields lots of trial and error..."

Apart from ringing doorbells in the streets of Ekkergem, one can also encounter Marianne and Dré buying tickets in the local train station for a hiking trip in Germany. They both joined the project in times when it almost exclusively consisted of technical profiles. While most people in this situation would kindly retrace their steps, they instead dived in enthusiastically and demonstrated their openness to new adventures. Moreover, Marianne and Dré devoted themselves to the aspect those technical profiles tend to struggle with most: how to explain our pursuit to people with non-technical backgrounds and stir up their belief in a better future, also on the local level of our neighbourhood. Together with Simonne, Marianne and Dré form the social working group of the project.

A first attempt to bridge the gap consisted of the door-to-door conversations that have already been mentioned. While these conversations certainly ask a lot of time and energy, we are convinced that our position as a group of citizen-volunteers is advantageous when it comes to asking people about their opinions on energy transition, both because of the easy language that is used and because the topic turns out to be surprisingly sensitive. For us as well it took quite some

courage in the beginning to just ring a doorbell without the slightest idea of what was about to happen. To overcome our hesitance, we contacted a local organisation that instructs people on having conversations on heavy topics, with climate change as a specific focus. Their key message: Don't start a conversation with the intention to convince. Instead, let it evolve on itself and leave room for the thoughts and concerns of your interlocutor. While the first kind of conversation generates a feeling of failure when one doesn't succeed in convincing the other, the latter perspective guarantees a success because you let someone else think about a subject you find important, while that wouldn't have happened if you hadn't started this conversation.

Based on their insights and guidelines, we adapted our original technical questionnaire to a collection of questions we could choose from depending on how the chat evolved. Still, we hoped to ask some technical questions as well but they were mostly reserved for a follow-up discussion with those neighbours who indicated to be open to it at the end of the first chat.

A second track aiming to involve the broader neighbourhood, consists of open evening sessions that alternatingly focus on different aspects of the energy theme. These sessions are promoted through old-fashioned flyers that are provided to all mailboxes three weeks before the event and through specific channels and groups on social media. In an attempt to make people more familiar with the energy subject in the broadest sense, sessions have been organised on questions like "What is district heating?", "How do I speak to others about a sensitive topic such as climate change?", "What similar projects are being developed in our city?", "What is a heat pump and how does it work?", "What is the current legislation with respect to heating networks?", "How resilient is our district with respect to possible disasters?", and so on. While most of these sessions attracted a modest number of participants, piece by piece they added to our knowledge, made the challenge more comprehensible and allowed us to get more and more familiar with the corresponding terminology and language. Time after time, these sessions enlarged our network and made our group more visible, both within Ekkergem and the broader city of Ghent.

Next, each pilot project requires an additional communication track focused on the residents of the selected street segment. The most intensive part of this track is to contact as many neighbours as possible and collect their contact details. Given the diversity of residents (from homeowners to businesses to tenants to students who need to contact their landlord…), this effort is not to be underestimated. Once this first hurdle has been overcome, all residents of the pilot are invited to a first open meeting where the project for a 5GDHC in Ekkergem is presented in detail and people are asked to get involved. In particular, they are encouraged to request an energy scan of their homes from the municipal energy transition experts, who also make recommendations on how to improve their energy use. This service is available free of charge to all landlords and citizens of Ghent, but the city has agreed to give priority to the residents of our pilot projects. The scans ensure that the data collected on building characteristics and energy performance is accurate and comparable. The scan reports will later be shared with the engineering firm that will carry out the feasibility analysis for the pilot's heating and cooling network. In a final meeting, the results of this study will be presented to the residents and it is up to them to decide whether and how they want to continue.

"Probably the biggest challenge with respect to communication (and thus the social perspective of the project)," Marianne wraps up, "is establishing a broader network. When reaching out to other organisations and stakeholders, we most of the time get a genuinely positive reaction and they indicate to be open for some kind of collaboration or are willing to share their expertise during a follow-up meeting. To name a few, we are happy to be in touch with multiple branches and directions of Ghent University and of course to be part of the DUT Urban Doers Community. The challenge for a small group as ours, however, is dosing our limited energy and time and distributing it proportionately across our ever-increasing list of tasks, aspirations and dreams. To be honest, if our group were

double the size it is today, we would still know what to do! [laughs] Of course we already tried attracting some more people (e.g. through introducing ourselves at new year receptions and similar events in our district) but with limited success. Is that because the capacity of a district is limited and we have already reached some kind of upper limit? Or are we still missing potential participants despite our continuing efforts to make ourselves known? Or do we reach our intended audience but are they doubting whether an initiative as ours can really make a difference? We can only guess…"

"Meanwhile a quarter of our project's lifespan has passed so let's hope the current size of our group is just a warming up for the rest of the trajectory." "Just a warming up?!", Pierre intervened, "Please don't take that too literally because this is the only season where we succeed in keeping the temperature in our apartment at a decent level. Later on this year no extra warming up will be needed!" Dré: "Luckily a team doesn't have to be big to be amusing!"

SPRING 2024

Kristoff &Joeri

Today's spring meeting is started by Kristoff, even though he doesn't say a word. Meanwhile we got quite used to the fact that, despite Frank's opening question "Who is taking notes today?", Kristoff pushing the button of his voice recorder is the real sign we have lifted off again.

As doctoral researchers at the department of Political Sciences at Ghent University, Joeri and Kristoff investigate how bottom-up initiatives that want to speed up the sustainability transition organise themselves. Based on voice recordings of our meetings they study the roles that are taken up in such groups and what kind of interactions are taking place between their members, as to get a grip on what dynamics are to be favoured with respect to grassroots movements. Two things can be said about having meetings recorded: first, it increases one's awareness and the number of corresponding jokes. Second, though the recordings release them from the need to attend our meetings in person, Kristoff and Joeri sometimes even show up both, just because they are so eager to see our project evolve from the first row.

Fernand

"Meanwhile our first focal project has been running for about three months and I am happy to announce we are ready to enter a new phase", Fernand introduces the main topic of today's meeting. "Thanks to the work of our team and our collaboration with the municipal energy transition department, we have collected a valuable amount of data on both the buildings in this street segment and how they are used. Based on this information, a specialised engineering firm should be able to develop one or more possible solutions for a renewable energy future for this street segment. This will in turn allow us to produce an action plan that identifies the steps that need to be taken (and the associated constraints that need to be met) to get there in a feasible and affordable way. We sent out an invitation for this case study to multiple engineering firms and, based on the quotes we received, we can now decide together who we will grant the study to."

Fernand's ties with Ghent go back quite some years – a family tree that even includes one of the more famous keepers of the local soccer team. After a career as a dentist, he now, together with his wife, enjoys having their grandchildren come over. One day, when his grandchildren are old enough, he will surely guide them around in the same Ghent University Museum he took us to during the team building last July. With the same hospitality he offers to his grandchildren, Fernand also welcomes our group to his living room if the usual community

room is occupied or if we really need an internet connection. Given the wealth of cookies he puts on his dining table to make us feel as welcome as possible, one would hardly believe to be sitting in a chair of a former dentist. Then again, the precision with which he detects holes in our reasoning during our meetings, can only be the work of a true dental specialist.

“It goes without saying”, Fernand continues,”that this is quite an exciting moment. Based on our efforts of the past months, this is the first time our ideas are put to the test for real and have to endure a reality check. Can a business case be constructed on the scale of a single street, given the specifications of its buildings and residents (e.g. 19th century houses, a mix of residents, tenants, students and small firms), or are we currently lacking necessary levers to make this work? The conclusion of this first case study will obviously influence the choices we will have to make later on in our project, in particular when identifying the two remaining pilot cases. “

Fernand’s entrepreneurial working group gave the engineering firm a whole list of criteria, based on both common sense and guidelines that were used in other energy projects in Flanders, as researched by the legal working group. Of course, affordability is one of them, given the ambition to design a roadmap that is inclusive and leaves no one behind. Intuitively one would hope that a collective system would be chosen over a system where each resident signs a separate contract with an energy supplier and gets his or her fuel from the other side of the world, if only for the fact that the money that goes into it does not disappear into distant regimes but is spent locally and creates local jobs. A local energy provision should also make energy prices less dependent on external factors such as oil and gas price. However, this common sense may not prevail in current Belgian policy.

“By the way,” Fernand finished, “how are you all coping with this miserable weather? The last time we had a week without rain was five months ago!”. “Miserable weather?!” Pierre replied, “Even with this weather I can barely keep the temperature in my apartment at a reasonable level! I don’t dare to imagine what other meteorological conditions would have done to me by now. I’m exploring some ideas to solve this overheating issue, but I prefer not to go into too much detail here…”

SUMMER 2024

Werner

“I have always been intrigued about the way our democratic society is constructed nowadays”, Werner introduces the subject of the legal working group he is being part of. “We are blessed with having a say in local governments (city, province, region), federal governments and European governments. This however also means that even when looking at solutions for our relatively small Ekkergem, we need to be aware of what plays on several levels above our heads.“

Werner grew up at the seaside and is a typical example of how students from the west of Flanders stay in Ghent after having finished their studies here. Together with his girlfriend and 1-year-old son, he occupies a house in the street that was chosen for our first pilot study. While waiting for the outlines of a greener energy future, he spends his time greening up the street with a little 40 cm wide garden along the façade of their house and by sharing the juridical background and contacts he uses in his job at the federal government.

As mentioned before, the space available for energy production and buffering on private property in Ekkergem is limited. Therefore, an important focus of our project is the legal framework regarding public and private property. For example, the simplest solution for all parties involved in a district heating network is for it to be owned and maintained by a single party. This means that both public and

private property rights are transferred to that party. This is a challenge in view of the fragmented property ownership in Belgium, which is also the case in Ekkergem. Although there are several legal constructions for this, a major concern at the moment is the lack of a general legal framework for district heating and cooling systems. As a consequence, contracts get overly complex and specific because they cannot just refer to corresponding legislation. As the project moves forward, this aspect deserves more attention from the legal working group and requires further coordination with the authorities.

"It is good to read that on all governmental levels, the need to strive for more climate resilient, energy positive districts is present. The detailing on how to get there is however sometimes missing", Werner concludes. "It is also seen that in Belgium some obvious actions, such as lowering taxes on (green) electricity and increasing fossil fuel taxes, are implemented only partly or spread over a long period of time. It seems that brave policy makers are required to further pave the path towards energy positive districts. On a local level - city of Ghent - the group is feeling lots of positive steps and incentives, with a genuine interest and commitment by the city."

Leontine

"The various topics and aspects that have been discussed during all our team meetings, illustrate the enormous complexity of the energy transition, and this only on the level of a small Belgian district. Therefore the ultimate challenge will be to translate all of these thoughts to a clear and concise roadmap for our fellow residents," adds Leontine, thereby already looking ahead to the final stage of the 'Energy in Ekkergem' project. "We are however convinced that such a tool is indispensable for the transition to become a reality. The oversupply of advice citizens are currently confronted with, either has a paralysing effect or paves the way to even greater dependency of the fossil system – the so-called 'lock-ins'. As soon as we have a clear and substantiated roadmap for our district, we can use this to provide guidance to the people in Ekkergem and communicate it to the whole neighbourhood. Moreover, by having this one common goal where everyone is part of, people will be encouraged to align with it and experience a strong sense of ownership."

Despite living on the wrong side of one of the limiting streets of the neighbourhood and thus strictly speaking not being part of Ekkergem, Leontine was warmly welcomed in the group, certainly after bringing some delicious Manner waffles back home from the DUT Urban Doers Community kick-off in Vienna. In the course of the last year she accidentally started a postdoc at the heat transfer research group of the local university, making the experts and researchers on district heating her direct colleagues. Awaiting a district heating and cooling system, she resides in a typical south-facing 19th century terraced house where inside temperatures tend to follow the outside weather forecast as soon as they transcend 21 degrees Celsius. According to the getting-to-know-each-other questionnaire she launched in the team, she is one of the three members feeling most comfortable supplying dry jokes during the meetings.

Ideally the Local Energy Action Plan for Ekkergem does not only consist of an embedded overall plan and a definition of executable chunks in it, but also a programme of projects with concrete commitments from partners and actors related to our district. Or at least, that is the goal we agreed to pursue with the city of Ghent. On top of that, special attention will be required for different target groups in the district, if we really want to achieve our goal of making it an inclusive transition.

In the long run, we can only hope that the methodology we are following in Ekkergem, can be inspiring and instructive to other districts as well. Maybe the results we achieve can even become a mould that can readily be applied to similar districts in Ghent, Flanders, Belgium or even abroad, e.g. driven by the DUT

network. To achieve this, we hope to be taking part in a DUT project consortium in the nearby future and thereby further broaden our view and expertise.

Pierre

"By the way, Pierre, can I ask how you ultimately tackled the cooling problem in your apartment?", Leontine whispered at the end of the meeting. "Hmm," Pierre reacted, visibly doubting whether or not to proceed, "well alright, there you go: against all principles of our project, in the end I succumbed and put an air conditioning unit at the wall. In the absence of a proper heating and cooling network, getting the heat out of my apartment and adding it to the already elevated temperatures outside, thereby enlarging the problem of all other residents of our street, is quite the only option I currently have to keep my place liveable."

All seasons all over again?

In our first pilot project, everything was new and had to be created from scratch. Looking ahead, we are convinced that the energy we have put into this pilot will serve as an investment for future case studies, in a similar way as how the seasonal storage we are dreaming of will prevent us from throwing away residual energy to the environment and inventing and generating the hot water each year all over again.

We hope that the three pilots will bring the insights for the design of a realistic and feasible plan for the installation of a 5GDHC in our district. When we succeed, this plan will be the first one that is situated in an existing neighbourhood with a high diversity of property types and owners.