Interreg
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RegEnergy
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NEWS
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Renewable Energy Regions

7th Newsletter

NEWS

May 2022

Contents

RegEnergy in Germany

Climate Alliance

In Germany, the RegEnergy project partner Climate Alliance identified the lack of regional energy coordination structures to be a major obstacle for the establishment of renewable energy regions. To face this obstacle, the Region-N initative was founded to support German regions in being supplied 100% from renewable sources by 2030.

Challenges

Transforming the German energy supply system towards a regional full supply of renewable energies (RE) requires a better connection between urban areas with high energy demand and surrounding rural areas where capacities and land for renewable energy production are available. This requires better networking of decentralised stakeholders from German regions.

However, due to the important number of different actors with heterogeneous needs that would be involved in a potential RE network, a challenge is to reconcile their different requirements and to find compromise between the actors.

Another issue in building a national network for RE is the lack of structures. Not every region has a coordination office for urban-rural planning or it is undersized.

To better connect urban and rural areas for the development of RE, a more precise observation of GHG emissions in both types of areas is also needed, as well as a methodology for “cumulating” urban and peri-urban GHG emissions. Because of the different calculation methods currently used by diverse stakeholders, there is no uniform accounting basis for GHG monitoring.

Solution

Climate Alliance created an initiative, Region-N, a network of German regional actors that promotes the transformation of our current energy system into a renewable, local and citizen-oriented one. The goal is for regions to be supplied 100% from renewables by 2030, to use their energy saving potential and thus strengthen climate protection. The initiative builds bridges between German regional actors through different activities such as providing

an exchange platform, developing joint campaigns, exchanging knowledge and experience in expert forums and working groups or developing best practices and implementation tools.
To make the network more independent from public funding, a business case and an organisational model were developed at the beginning of 2021.

Regular events and meetings between members were organised and two working groups were established: the first is developing components of a campaign called “Roof PV for power, heat and mobility” aimed at SMEs. The second works on a planning and implementation guide for “regional heat supply”.


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The **Climate Alliance** city network stands for a holistic approach to climate action, linking concrete local solutions with global responsibility.

With nearly 2,000 members spread across more than 25 European countries, Climate Alliance is the largest European city network dedicated to fair and comprehensive climate action. Each Climate Alliance municipality commits to reducing CO_2 emissions by ten percent every five years and promoting climate justice with the indigenous peoples of Amazonia.

Moreover, Climate Alliance improved its CO_2 monitoring tool, the “Climate Protection Planner”, with new functions to evaluate regional RE potential. The tool allows to model scenarios in which rural production and urban consumption of renewable energy are set in relation to each other. In addition a set of new indicators were identified, e. g. Share of RE in total energy consumption, Share of RE in heat, Share of RE electricity and Renewable generation by energy source, which are now implemented in the Climate Protection Planner and shall support municipalities in their decision-making processes with regard to RE expansion.

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Outlook

The network is intended to grow and is everyday including new members such as administrative districts. The network will develop further its own business model in order to reach an independency from public funding and both communication and marketing activities will improve visibility and to attract further members, especially thanks to the creation of a newsletter and an official website.

For further information visit **region-n.net**

RegEnergy in the Netherlands

Waterstromen Etten BV

The RegEnergy partner Waterstromen Etten BV in the Netherlands created a partnership promoting biogas usage in its region: Carbon rich waste water from a paper mill and residential sludge from the city are being used to extract biogas which will supply the paper mill. Furthermore, by direct injection of the upgraded biomethane into the grid, it can be easily provided to households and industries without creating microgrids to balance demand and supply.

© Waterstroemen

Doetinchem is a city located in the Province of Gelderland, in eastern Netherlands, which comprises around 60,000 inhabitants. A paper mill is situated in the centre of Doetinchem, producing annually more than 1 million cubic metres carbon rich water as a by-product. This water is currently transported together with communal wastewater from Doetinchem city over a distance of 5 km to the waste water treatment plant (WWTP), located in the rural surroundings of the city. By using anaerobic water treatment technology for the treatment of the carbon rich water of the paper mill biogas could be produced instead of electricity consumption for the aerobic treatment in the current situation.

In this project Paper Mill Doetinchem, Waterstromen and Waterschap Rijn IJssel work together aiming to treat the water of the paper mill in an innovative water treatment installation at the WWTP generating renewable energy and supplying energy back to the papermill and inhabitants of Doetinchem.

Challenges:

- Piping is necessary between the city and the WWTP, which is complex because it is a city area with many existing pipes, crossing of roads, railways, rivers and private land.
- Biogas produced at the WWTP can not be efficiently used at the WWTP location as there is almost no heat demand at this location.
- Biogas produced at the WWTP could also be supplied to households by upgrading the biogas to biomethane and making a connection to the grid.
- Existing tariff structures with low tariffs for large industrial consumers, high investments for piping, tax regulations and regulations for trading energy makes the supply of biogas to industrial consumers and households complex and the financial feasibility a challenge.

Solutions

- Piping is realized between the Paper Mill and the WWTP for transporting the waste water from the Paper Mill separate from the communal waste water to the WWTP location. -> By keeping it separate, it is possible to treat the water with anaerobic technology, for which a new anaerobic treatment installation is realized at the WWTP site.
- Biogas produced in the anaerobic treatment installation and biogas from the existing sludge digestion installation at the WWTP is supplied to the Paper Mill and to households.
- To supply the biogas to the Paper Mill a biogas pipeline is realized in the same trench as the water pipeline between the Paper Mill and the WWTP.
- To make it possible to supply biogas to households a biogas upgrading unit is realised in which biogas is converted to biomethane.
- In addition a connection to the natural grid is realized to inject the biomethane in the natural grid, which makes it possible to supply it to households.

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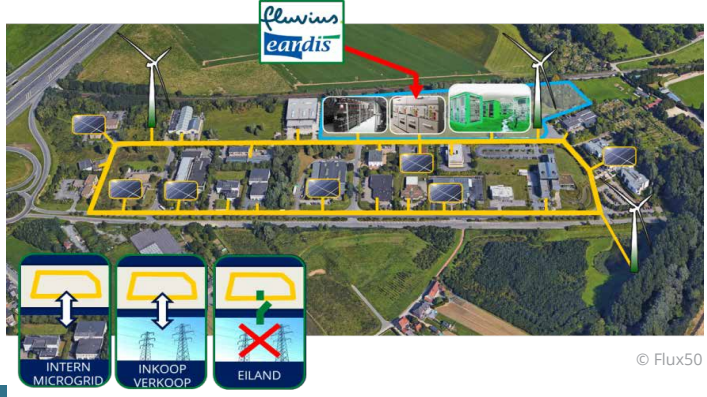
This project is a big improvement in sustainability as biogas is produced instead of electricity consumption for the treatment of the industrial water. The produced biogas is efficiently used by supplying it to industry and households as alternative for natural gas. By producing biogas instead of using electricity and using the biogas as alternative for natural gas a total saving of 2,300 tonnes of CO_2 per year is realized, representing the natural gas consumption of around 1,000 households per year.

Outlook

The partners will work together to investigate and realize options to increase the biogas production at the WWTP and to connect more biogas producers and consumers along the pipeline. The combination of direct supply of biogas to large industrial consumers and the injection into the natural gas grid, is expected to give opportunities to come to an optimal balance between demand and supply of sustainable energy to replace natural gas.
It is the intention to implement the learnings in this projects to other industries with carbon rich water. Carbon rich water should be treated separately from communal waste water to make it possible to produce biogas.



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RegEnergy in Belgium

Flux50

The RegEnergy partner Flux50 in Belgium has taken up the challenge of balancing supply and demand in local microgrids. The Flemish Green Energy Park is designed to facilitate solar energy to cover the electric and thermal demand of over 70 companies, a data centre and a nearby residential area. All companies inject renewable energy into the microgrid which is supported by storage systems. The Smart Village Lab monitors the interaction of batteries, photovoltaic-collectors and e-mobility charging stations to optimise self-consumption and grid stability.

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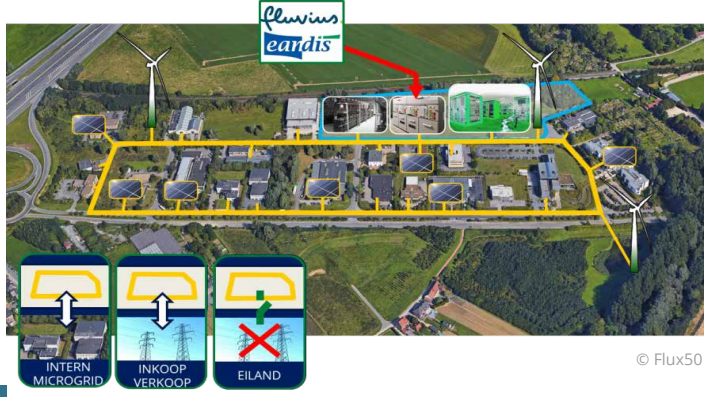
The Green Energy Park (GEP) is located in Zellik, Flanders, in the countryside surrounding Brussels. It aims at stimulating collaboration between companies, knowledge institutions, governments and end users by offering a living lab where innovative technology and forms of cooperation can be tested in a realistic environment. The research park focuses on three areas: Energy and mobility transition, Hospital of the future and Smart regions.

The Green Energy Park (GEP) will be equipped with a multi energy grid that consists of a (mainly) low temperature thermal grid and a large electric grid. The idea is to generate solar and wind energy directly on the GEP and use it as much as possible within the business park. All buildings of the Park can participate in the "CO_2 neutral smart multi energy grid" by supplying and consuming energy. Due to the park's location nearby a residential area, the thermal part of the grid can be extended to the residential development and to the adjacent existing business area. The system can supply electricity and thermal energy to more than 70 neighbouring companies. This creates a bi-directional interaction between the business park and the residential area.



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Challenges

The challenges of the project are both a technical challenge to establish a microgrid and a social challenge to persuade the companies to actively participate in the project by connecting to the microgrid.

Other challenges need to be overcome, such as:

- Finding technical solutions: in order to cope with the intermittence of renewable energy sources and provide a stable energy supply throughout the year (also in case of outage in DSO network);
- Peer-to-peer energy exchange: sharing of electricity between companies in a business area is not yet allowed according to Flemish regulation. The pricing scheme in Flanders triples the price for peer-to-peer energy exchange over public networks – adapted cost reflective pricing is needed for shared distribution networks. Transferring electricity from one entity to another is subject to grid costs and as such it is very difficult to create a profitable business case for electricity transfer;
- High requirements for the battery: the energy consuming applications (data centre, data communication) need a reliable power supply.

Solutions

The innovative living lab accommodates a wide variety of technologies, allowing testing them in real life situations. Large renewable energy sources (in total 18 MW) are being developed and connected to the business park as well as to the test facilities. To test and start on a smaller scale the Smart Village Lab is created, based on the concept of residential houses and an SME building, interacting with collective neighbourhood services. The Smart Village Lab contains 6 houses with typical technical installations such as digital meter, PV, inverter, electric switchboard, home battery, physical and power-simulated consumer devices, heat pump and electric vehicles (EV) chargers. The collective systems are a new digitalised distribution cabin, two neighbourhood batteries (each 350kWh/ 150kW), collective PV and a collective parking with 16 EV-charging outlets.

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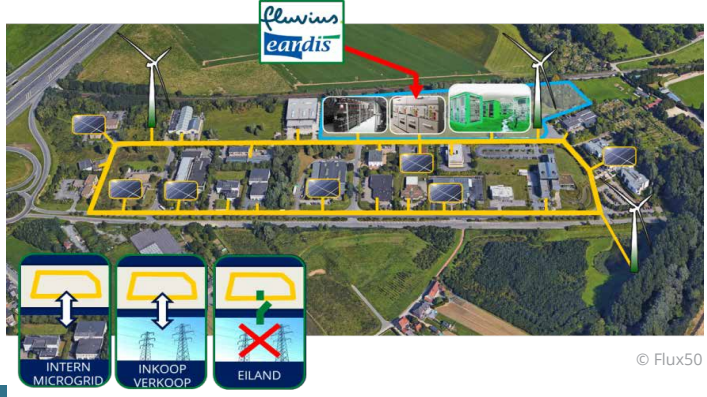
The success of the Green Energy Park lies in the important teamwork between the GEP's stakeholders. Each stakeholder is involved in



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this big living lab project and brings its own contribution (e.g the data centre provides waste heat). Moreover, GEP has built good relationships with the responsible Distribution System Operator (DSO) of the site, who is interested in exploring the possibilities for similar situations, e.g. for the re-use of the existing grid as micro-grid. The municipality of Asse, the province of Flemish Brabant and the Flemish government are interested to position this project as strategic and to enable international parties to visit the area as one of the flagship innovation centres of Flanders.

Outlook

A new co-operative innovation project uses the results from this project to further investigate technical and business options to bring 5G district heating into practice for local district heating networks, mainly based on waste heat from the data center.

The site is used as a showcase that attracts people from similar industrial areas to replicate lessons learned. The living lab is organised to attract visitors to learn, see demonstrations, get trainings, get inspiration and to use the built infrastructure in their own innovation projects.

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Events

May 2022

Brest métropole, France

RegEnergy Final Conference

The final conference of the RegEnergy project, labelled as an event organised under the French Presidency of the European Union, took place in Brest, France, on 18 May 2022.

More than 110 actors of the energy transition in France and in Europe - partners and representatives of the European institutions, local elected members, territorial agents, representatives of energy unions, renewable energy professionals, academics, etc. - gathered on Wednesday 18 May 2022 at Océanopolis (Brest, France) to discuss the strengthening of territorial cooperation for a successful energy transition.

The final conference allowed on the one hand, to make an assessment of the experiments implemented within the framework of the project and their impacts, both at the local and North-West European levels. On the other hand, the conference was an excellent opportunity to discuss the issues and strategies implemented by European, national, regional and local authorities and the perspectives offered by cooperation between urban and rural areas.

The day was punctuated by different moments of exchange such as the “poster session” during which the RegEnergy partners were able to present their results in small groups, the insight into Océanopolis’ energy retrofitting works and photovoltaic self-consumption or the visit of a part of the Océanopolis aquarium.

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June 2022

Climate Alliance & Brest métropole

RegEnergy's at the European Energy Transition Conference!

Since 1999, the European Energy Transition Conference has been an annual key event for players engaged in the energy transition. Each year, the Conference unites more than 3,500 participants (communities, scientists and experts in the ecological transition, as well as economic players and associations), for 3 days of discussions and debates.

This year, the European Energy Transition Conference took place from 31 May to 2 June 2022 in Geneva, Switzerland.

RegEnergy was present to lead a workshop on "Urban-rural partnerships as levers for energy transition". The workshop, organised by Climate Alliance and Brest métropole, tried to create a collective reflection on how the complementarity between urban and rural territories can accelerate the energy transition.

Through a serious game developed by Transitions, a French consultancy agency, the case of Brest Métropole and the county of Centre West Brittany (Pays COB) was studied with about 25 people. Splitted into 5 tables and divided into 2 groups within each table (an urban group, Brest Métropole, and a rural group, Pays COB), the participants read the information sheets of each territory from which they were able to define the offers and demands of each territory. They then reflected collectively on the synergies existing between these offers and demands in order to compose balanced "baskets of transactions" that would make it possible to satisfy the needs of neighbouring territories jointly engaged in the energy transition. The aim was to ensure that no territory felt disadvantaged and to build a win-win partnership.

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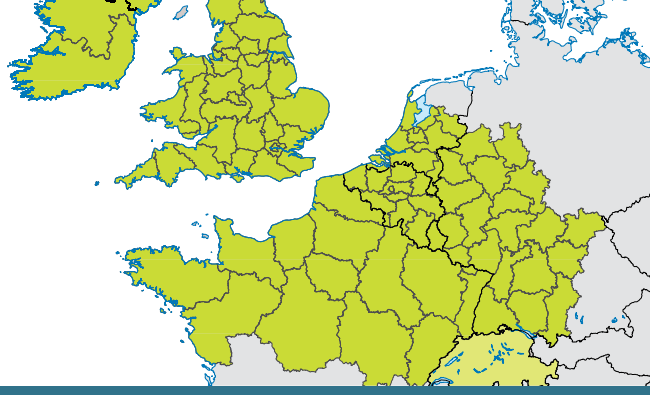


Facts & Figures

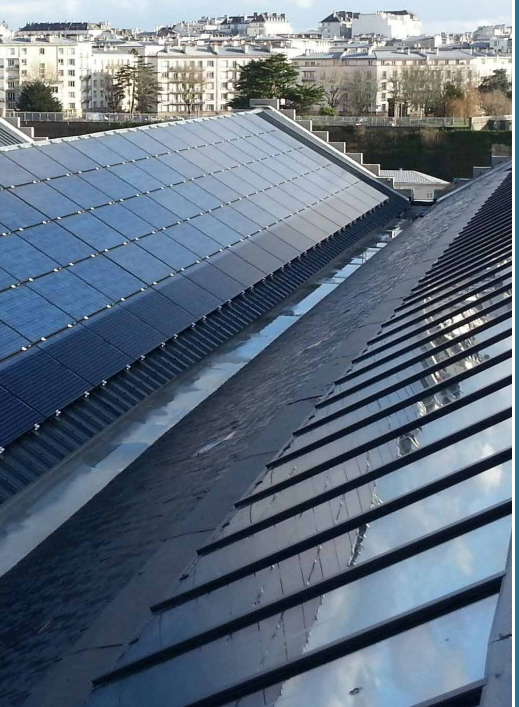
The Partnership

Climate Alliance (Lead Partner, DE)
Brest Métropole (FR)
Flux50 (BE)
Plymouth City Council (UK)
Waterstromen Etten BV (NL)
3 Counties Energy Agency (IE)
Planair (CH)
Waterford Institute of Technology (IE)
Ormonde Upgrading Limited (IE)

Project Facts

Duration:
October 2018 – September 2022

Funding:
€11.08 million total project funding
€6.1 million funded via ERDF



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