

# New Clean Energy Communities in a Changing European Energy System (NEWCOMERS)

*Summary case study report*

## Buurtmolen Herbaijum

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## About NEWCOMERS

NEWCOMERS is an international research project that aims to deliver practical recommendations about how the European Union as well as national and local governments can support the development and growth of energy communities across Europe. The project involves a consortium of eight partners across Six European Countries: Sweden, UK, The Netherlands, Germany, Slovenia and Italy. For more information, please visit our website: <https://www.newcomersh2020.eu/>

## About this document

This case study report provides a short summary of a full case study report on Buurtmolen Herbaijum, a place-based energy community in Northwest Netherlands. The full case study was guided by 14 research questions, across four themes. The themes and questions are presented in the following table.

Theme	Research questions
<b>Actors</b>	Who is involved in the EC and what are their roles? What knowledge and skills are needed to develop and operate ECs?
<b>Technologies</b>	What technologies are employed in ECs? What are the advantages and disadvantages of certain novel technologies, including smart applications? What implications do they have for the viability of different EC BMs? What influences the choice of technologies employed in ECs?
<b>Values</b>	What forms of value do case study communities currently generate and for whom? What values do ECs provide to the energy systems they are connected to?
<b>Business models</b>	How are actors and technologies connected to deliver products or services? How do ECs emerge? How do they operate? How replicable and/or scalable are ECs likely to be? How might scaling/replication occur?

This summary document focuses on the emergence and operation of Buurtmolen Herbaijum, showing how it creates and delivers different types of value to citizens, consumers, and energy systems, as a business model. It concludes with a brief discussion of the potential for Buurtmolen Herbaijum to grow or to be copied in new contexts. It presents – in a highly reduced format – the interpretation of the researchers. It does not necessarily reflect the opinion of those involved in its development and operation. Any factual errors remain the responsibility of the authors.

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## Buurtmolen Herbaijum

Buurtmolen Herbaijum is a place-based energy community that enables members to access renewable electricity through joint investment in a local wind turbine. The community uses the cooperative structure as a legal vehicle to access a government rebate on electricity costs (in the form of reduced energy taxes) for owners of renewable energy generation assets (the 'postcoderoos' regulation). In addition, collaboration with a green energy supplier enabled a viable investment model for the community. Investment costs are settled via a fee on households' electricity bills. As this cost is lower than the savings from the renewable generation rebate, households still enjoy reduced overall electricity costs.

## Emergence

The Buurtmolen Herbaijum was initiated by two local community members in collaboration with EWT (a wind turbine manufacturer and provider of distributed energy solutions) and Qurrent (a cooperative green energy supplier). As an older turbine (in the same location of the current one) had come to the end of its life and needed replacement, the owners and EWT were looking for a solution that would make a new turbine viable.

At the same time, EWT and Qurrent had both started considering a new solution for renewable energy generation projects based on the observation that an existing, primary subsidy scheme for renewable generation was geared towards larger scale generation. In addition, they noticed that most community projects relied on community members providing upfront capital funding which created a significant barrier to participation. They began looking into the postcoderoos regulation<sup>1</sup> (PCR), which was predominantly used by smaller scale generation, as an alternative. By setting up a cooperative, securing crowd finance and using the postcoderoos regulation, a viable business model could be created.

In the setup process, information evenings were organised in the village as a means of recruiting members. Qurrent also contacted prospective (eligible) members by post and telephone. EWT led project development and was responsible for the installation of the wind turbine. They continue to be involved through monitoring and maintenance activities. The turbine was financed via a combination of bonds and loans. In 2017, the cooperative issued bonds with a total value of € 630,000 (and an interest rate of 4.0% for 7 years) to private individuals via a crowdsourcing website. Purchase of these bonds did not automatically make these private individuals members of the cooperative (however, bonds may well have been purchased by people who also became members). The remaining €600,000 was provided by Fûns Skjinne Fryske Energzy (FSFE) (Fund for Clean Frisian Energy) in the form of two different loans.

In 2017, DOEN, the parent company that had set up Qurrent only a year earlier, sold its majority shareholding in Qurrent to Greenchoice, who subsequently took on all activities previously undertaken by Qurrent.

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<sup>1</sup> Dutch reduced-rate regulations, commonly referred to as the 'postcoderoos' scheme, offer a partial tax exception for owners of distributed renewable generation technologies who live in the postcode area of a project (the central postcode), or in postcode areas adjacent to it (the 'rose petals'). These regulations have resulted in a reasonably standardised postcode rose model in the Netherlands. Households invest in cooperatively-owned distributed generation assets in their own or a neighbouring postcode. Generated electricity is sold exclusively to an energy supplier who then sells it back to cooperative members. A portion of cooperative members' electricity imports are matched to their share of power generated by the cooperative installation. The proportion of a customer's electricity supplied through this scheme is then eligible for a tax deduction of approximately 12 c/kWh (at 2020 tax rates) up to 10,000 kWh/year for 15 years. Use-of-system charges still apply. The regulation promotes penetration of distributed energy resources and local balancing and is only open to cooperative enterprises. A number of changes to the scheme were introduced at the beginning of 2021.

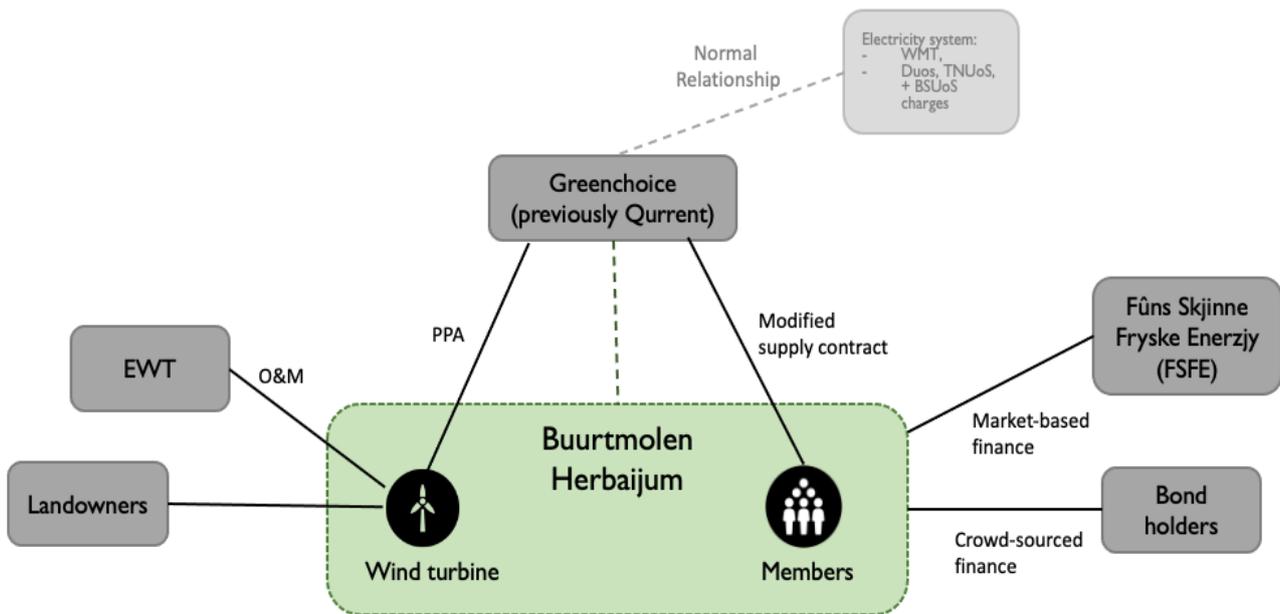


Figure 1: Central actors and relationships within Buurtmolen Herbaijum

Buurtmolen Herbaijum is the first cooperative project under the postcoderoos regulations that does not require upfront member investment. Despite the risk and difficulty involved in financing the project, Greenchoice and others continue to see value in this model and are seeking to develop it further.

## Operation

To create and deliver value Buurtmolen Herbaijum operates under the postcoderoos regulations. In doing so takes on the legal form of a cooperative enterprise. To collectively consume electricity generated by the Buurtmolen's wind turbine, generated electricity is sold to Greenchoice via a power purchase agreement (PPA), who then sells it back to members of the cooperative within modified supply contracts. Members pay a 'members fee' on their electricity bills to cover the initial costs of setting up the cooperative (principally capital and installation costs). These costs are expected to be repaid after 7 years. The member's fee is applied to each kWh of electricity supplied to members. Combined with net metering, this means that members' entire electricity bills can be offset through participation in the cooperative. An additional benefit of the model is the removal of the need for upfront capital expenditure on the part of members.

Greenchoice acts as the administrator of the cooperative and supply partner. In doing so it handles all regulatory compliance issues and delivers a range of back-office services that are required for selling energy, including wholesale trading, billing, metering and customer services as well as managing annual membership statements and 'Guarantees of Origin' certifications. Moreover, Greenchoice handles the financial accounting involved. The central actors and relationships are depicted in Figure 1 and the primary electricity and financial flows are depicted in Figure 2.

## Business model

Buurtmolen Herbaijum's business model incorporates and relies upon the activities of multiple actors. Greenchoice (previously Qurrent) and EWT each perform activities for the cooperative (supply partner and operations and maintenance respectively) but are outside the cooperative's direct control. They do so to support their own business activities. Indeed, the cooperative was set up by these two actors and the landowners for this purpose. The cooperative, in turn, is reliant on these actors to deliver value to members. The business model is governed by these actors, and the creation of the cooperative can be seen as an activity geared towards increasing the total value creation for all parties involved.

Buurtmolen Herbaijum's primary value proposition or offer to members can be summarised as the collective consumption of local wind energy. This offer to members includes financial savings on electricity bills without

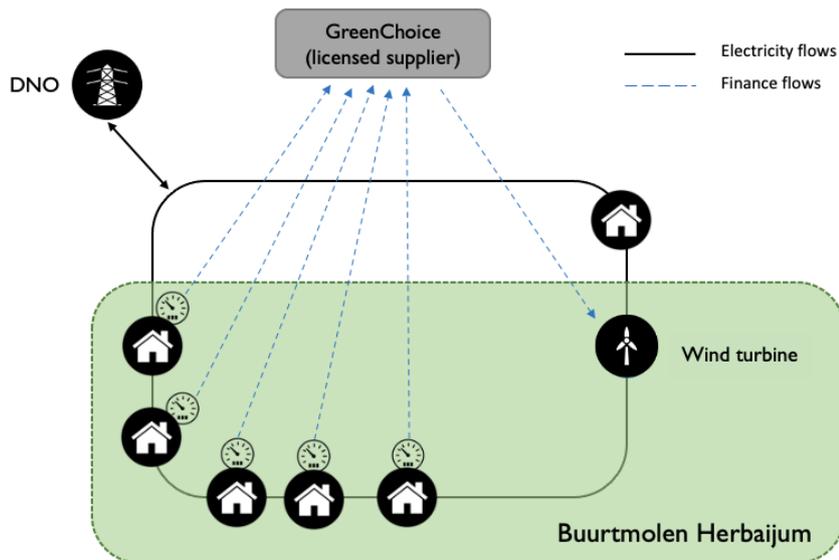


Figure 2: Primary electricity and financial flows in Buurtmolen Herbaijum

any upfront investment in renewable generation technologies, as well as knowledge that their entire household consumption can be linked to locally generated renewable power.

Yet, to create a viable business model, the Buurtmolen also provides value to its partners. To the landowners it presents a new income stream. For EVT, it provides a new ongoing client for which it can provide operation and management services. For Greenchoice, the Buurtmolen provides a means through which to develop a new service offering based around local energy. It is in this sense a precedence case for Greenchoice, where they could experiment in developing new relationships with consumers, gain and potentially retain new customers whilst continuing to extract share-holder value (profit). These secondary value propositions sit within the wider business model and can be seen as critical to making the overall business model viable.

The principal value delivered by the model to the energy system is the generation of renewable energy and the concomitant decrease in the carbon intensity of national power systems, as intended under the postcoderoos regulations. Through the collective consumption of renewable electricity, the model also conceivably lowers demand on public transmission grids. Conversely, because the business model relies on the postcoderoos regulations which allow for net metering of supply and demand, this in effect implies the grid operating as a *defacto* battery, providing free power storage for members.

Because Buurtmolen Herbaijum operates within the postcoderoos regulations and is governed by a variety of actors working together, the extent of participation by members in its design, operation and management is limited. Consultation with members occurred only at key times, principally over decisions whether to accept the project and participate in it, or not. The turbine was financed via crowd funding and private institutional investment. Meanwhile, the resulting initiative does not require any direct member participation in its operation.

## Prospects

Theoretically, postcoderoos-enabled projects could be advanced through smart metering and half-hourly settlement of supply and demand. This would create a context in which members could learn generation and demand, fostering energy literacy. It would likely result in multiple system benefits but would require advanced contractual relationships and accounting techniques, as well as new tools to convey information about generation to households. By allowing for net metering of generation and demand the current postcoderoos regulations offer no incentive to do this. Conversely, the regulatory and market context created by the postcoderoos regulations creates a strong basis for replicating the model in other localities. Greenchoice, as supplier and central partner in the model is perhaps best positioned and motivated to replicate the model, through seeking to acquire a larger market share and attract new customers via the innovative value proposition Buurtmolen Herbaijum offers.