

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

*Summary case study report*

## Buurtmolen Tzum

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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 Tzum, an energy community underdevelopment since 2019. 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?<br>What knowledge and skills are needed to develop and operate ECs?   |
| <b>Technologies</b>    | What technologies are employed in ECs?<br>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?<br>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?<br>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?<br>How do ECs emerge? How do they operate?<br>How replicable and/or scalable are ECs likely to be?<br>How might scaling/replication occur?   |

This summary document focuses on the emergence and operation of Buurtmolen Tzum, 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 Tzum 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.

## Suggested Citation:

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## Buurtmolen Tzum

Buurtmolen Tzum was founded in 2019 to facilitate the installation and use of a wind turbine for the benefit of the local community within the village of Tzum, in the province of Friesland, The Netherlands. Once funding is secured and the turbine installed, the cooperative structure will enable members – as co-owners of the turbine – to access a tax break on their electricity bills via the postcoderoos regulation. Income generated from the sales of excess wind energy to the network will be re-invested into local sustainability initiatives and will thus also flow back into the community.

### Emergence

The Buurtmolen Tzum is a cooperative wind energy project at the planning and design stage. The idea for the project was inspired by an old turbine, which had been set up in 1994. Run by the MAST Foundation (*Stichting Miljeu en Activiteiten Stipe Tsjom*, meaning *Foundation for Environment and Support Activities*) which promotes sustainability in the area, revenues from the sale of electricity generated by this turbine were used to support sustainability-oriented or local communal causes (e.g. new equipment for the local football team). The new turbine is meant to continue offering such benefits to the local community, whilst providing an opportunity for locals to gain ownership of renewable generation assets and participate more actively in the energy transition.

The current chairman of the MAST Foundation has been the key driver of the new project. When the old turbine came to the end of its life in 2016, the decision was made to replace it with a larger, new turbine. The process of getting approval for a higher turbine and developing a viable business model, lacking support from authorities, as well as a complicated and fast-changing regulatory environment, have since posed challenges to the realisation of the new shared wind energy scheme.

Nevertheless, on December 13th, 2019 a new cooperative, TOER (*Tzummer Organisatie voor Energie in de Regio / Tzum Organization for Energy in the Region*) was set up as the project's official legal and governing entity. The cooperative is currently in the process of recruiting prospective members. A website was set up (<https://buurtmolentzum.nl>) as a source of information and to facilitate the sign-up process. By the end of 2021 just over 500 interested parties had signed up, reaching the required number for the project to proceed. In the next stage a separate crowdsourcing campaign will be launched to raise the funds required to finance the new turbine (approximately € 1.2 million). The model's development is being supported by Greenchoice who will act as the supplier if the project goes ahead. It is anticipated that the turbine will become operational in 2022.

### Operation

Value creation and delivery within Buurtmolen Tzum relies on the creation of a new cooperative (TOER) to operate under the postcoderoos regulations. TOER offers members the possibility of matching their demand to the wind turbines generation via a supply contract with Greenchoice. Under this arrangement generated power is sold to Greenchoice via a power purchase agreement (PPA) who then sell electricity to members under a modified supply contract. Members are under no obligation to take up this offer and may remain shareholder members only, participating in the governance of the cooperative and receiving a share of the profits. Under the postcoderoos regulation, members will benefit from net metering arrangements and a reduction in the amount of tax paid per kilowatt-hour of electricity consumed from the project. An additional charge will be allocated to each kWh supplied, to cover capital investment costs associated with the turbine.

Greenchoice will be responsible for metering generation, modified supply contracts, and all regulatory compliance issues. TOER will be responsible for managing the cooperate and repayment to bond holders. Central actors and their relationships are depicted in Figure 1 and primary electricity and financial flows are depicted in Figure 2.

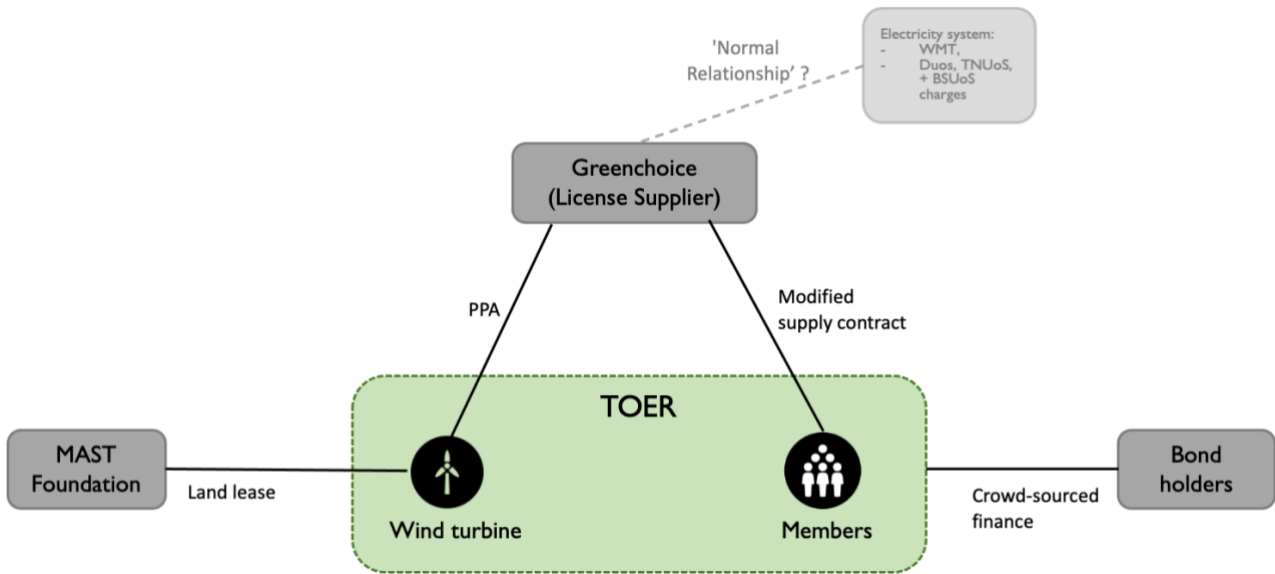


Figure 1: Central actors and relationships within Buurtmolen Tzum

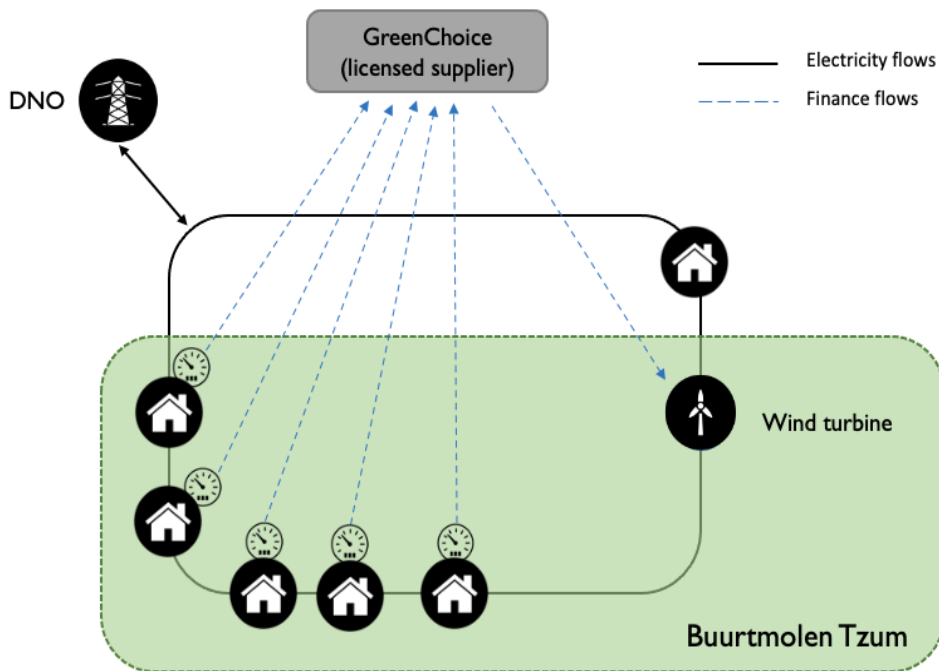


Figure 2: Primary electricity and financial flows in Buurtmolen Tzum

## Business model

Multiple actors, each with discrete but interdependent roles are involved in the business model underpinning Buurtmolen Tzum. TOER is a cooperative enterprise, through which local shareholders will own the wind turbine. As a cooperative, TOER will be eligible to participate in the Dutch Postcoderoos regulations. Greenchoice acts as the supplier and interface to members as electricity customers. The MAST foundation acts as a landowner and initiator of the business model. All three actors are involved in the governance of the business model, with TOER and Greenchoice undertaking regular business activities required in its operation.

Buurtmolen Tzum's primary value proposition to members (i.e., the service it offers customers) can be summarised as the collective ownership of local wind energy, with the potential for members to link their consumption to generation from the wind turbine. Because members will be able to participate in the cooperative (owning and financially benefiting from the wind turbine) within a nominal one-euro annual fee,

one of the principal values Buurtmolen Tzum offers prospective members is participation in the energy transition, that also benefits the wider community through reinvestment of cooperative profits in community services. Prospective members are also offered lower energy bills (depending on the current service contracts) and knowledge that their entire household consumption can be linked to locally-generated renewable power, if they also switch their energy supply contracts to Greenchoice.

To create and deliver value the business model also provides value to the MAST Foundation (revenue) and Greenchoice, who benefits from a PPA with a renewable generator, customer acquisition and, potentially, higher retention rates. More broadly participation in Buurtmolen Tzum expands the service offer Greenchoice provides its customer base thereby creating a new income stream.

The model also holds value to the energy system it is embedded within: It increases generation of renewable energy and decreases in the carbon intensity of national power systems, as intended under the postcoderoos regulations. Yet, because the model incorporates net metering under the postcoderoos regulations – a billing mechanism crediting cooperative members the electricity supplied to the grid for use later – it relies on the continued functioning of existing energy system value chains to balance supply and demand in real time.

## Prospects

The project could be advanced through smart metering and half-hourly settlement of supply and demand. This would likely improve energy literacy amongst members and increase the value of the Buurtmolen to the energy system by incentivising demand to meet times of local supply. However, to achieve this, would require advanced contractual relationships and accounting techniques. The current arrangement of the postcoderoos regulations means there is no incentive to do this.

Nonetheless, the model, as it currently stands, holds strong potential for replication by other communities within the Netherlands depending on how revised postcoderoos regulations, brought in in January 2021 are implemented. The primary incentive for replication is likely to reside with Greenchoice, who as a profit orientated company may wish to replicate the model elsewhere to attract new electricity supply customers.