Compilation of Good Practice Cases

Contents

1. Context and purpose of this document

This compilation was prepared in the context of the project *Rural Energy Communities*^{LV} - *Catalysing and building capacities for renewable energy communities in rural Latvia*. It provides a brief overview on selected rural energy communities in Schleswig-Holstein that can provide orientation for similar initiatives in Latvia. The project *Rural Energy Communities*^{LV} is funded by the German Federal Foundation for the Environment (DBU) under its thematic project cluster *Citizen Energy*. Project partners are the Heinrich Böll Foundation in Schleswig-Holstein and the Latvian Rural Forum (LRF). The project is running from January 2024 until September 2025, with the overall objective being to enhance the development of renewable energy communities (RECs), especially in rural areas of Latvia. This will be accomplished through a virtual policy dialogue, a study visit of Latvian policy makers and other experts to Schleswig-Holstein, the elaboration of relevant good practice cases, regional awareness raising, networking and capacity development activities in the four rural planning regions of Latvia, and creation of regional task forces and ‘REC ambassadors’ as well as ‘train the trainers’ workshops. Moreover, the proposed project aims to catalyse and facilitate the development of one rural pilot renewable energy community in Latvia.

2. Methodology

The good practice cases have been compiled based on desktop research. They provide a brief overview on selected rural energy communities in Schleswig-Holstein, the motivation of key

actors, legal forms, business models, and financing sources. This task included a screening of existing Local Action Groups under the LEADER programme in Schleswig-Holstein and Latvia and their respective Local Development Strategies, with the purpose of identifying promising good practice measures that promote and facilitate the development of RECs. The compilation uses the model guide for initiating local climate networks and citizen energy projects which was prepared by the Heinrich Böll Foundation in the context of the INTERREG project Energise Co2mmunity. It also capitalizes on a good practice case study prepared in the frame of the Horizon 2020 project COME RES.

3. Community wind farm in *Wiemersdorf*

General information

Wiemersdorf is a village between *Hamburg* and *Kiel* and has 1,600 inhabitants. The development of the community wind farm was initiated in 1997 by 12 farmers/landowners. At that time, several community wind farms had been already operating in the coastal regions of Northern Friesland in the north of Schleswig-Holstein, close to Denmark. However, community wind farms were not yet common in the southern regions of Schleswig-Holstein. The landowners were encouraged by an expert from the Chamber of Agriculture to join forces and follow the model of Northern Friesland by organizing wind energy production in their own hands. The first operating company was founded in 1997 under the legal form of a limited company (German: *Gesellschaft mit beschränkter Haftung*, *GmbH*). Between 1997 and 2023 the wind farm underwent several phases of expansion. In 2000, 2009 and 2014 further operating companies were founded in *Wiemersdorf* and *Großenaspe* with a total number of 188 limited partners.

Type/Key activities

Thus far, the main activity has been the collective production of electricity from wind turbines, with the electricity feeding into the public grid. Repowering of the oldest wind turbines started in 2020. The managers of the operating companies are planning to repower older turbines, to develop open space solar plants and to develop hydrogen production.

Legal form/business model

The first operating company was founded in 1997 under the legal form of a limited company (German: *Gesellschaft mit beschränkter Haftung*, *GmbH*). Later, further operating companies were founded for the extension of the plant. The managers of the company decided in favor of a limited partnership with a limited liability company as the general partner (German: *Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft*, *GmbH & Co. KG*). This specific legal form is a limited partnership (German: *Kommanditgesellschaft, KG*) and can be regarded as a hybrid of a limited partnership and a limited liability company. In contrast to a typical limited partnership, the liable partner (so called general partner) is not a natural person, but a limited liability company. The rationale of this corporate model is to exclude or limit liability risks for the people behind the company. This legal form also has the advantage that many natural persons can financially participate as shareholders and no natural persons are liable with their private assets. Today, there are more than 100 shareholders (limited partners) primarily from the region. In the case of the first wind farm, each shareholder was required to invest a minimum of 5,000 EUR.

Motivation

The key motivation of the landowners and farmers who initiated the first community wind farm was the diversification of their income from (agricultural) land and to generate local added value.

Benefits

The municipality benefits directly from annual business tax revenues (German: *Gewerbesteuer*) in the amount of 100,000-200,000 EUR. This allowed the municipality to implement numerous projects benefitting the community including supplying hot water for the local outdoor swimming pool, developing a community centre, and implementing projects fulfilling social purposes. Construction of the wind farm allowed also to raise local added value, creation of other enterprises (including in the energy sector), business development and job creation.

Financing sources

Financing is usually secured by 20% equity and 80% debt-financing, which is quite typical for projects of this kind. The Renewable Energy Sources Act provides operational support in the form of legally guaranteed feed-in tariffs, fixed in premiums and market premiums for a period of 20 years.

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4. Collective electricity self-supply at the ecological housing estate *Alte Gärtnerei* in Kiel

General information

The ecological housing estate *Alte Gärtnerei* is located in the south of Kiel, the capital of Schleswig-Holstein. The community housing estate is the second of its kind in Kiel. It consists of wooden houses with other ecological building materials, a local heating supply based on pellet heating (in the early years: wood chip heating), solar thermal energy as well as a photovoltaic system, high passive solar energy use, minimal soil sealing, façade and roof greening and other ecological aspects. The development consists of 13 detached and terraced houses, single and multi-family homes and a community building. The houses were completed in 1999 and 2000. This was preceded by a joint planning phase lasting several years. The housing estate consists of privately-owned buildings, embedded in community owned areas and facilities of a registered housing association. The low-energy buildings comply with ecological building standards. The buildings are privately owned by the residents with each having a small plot of land. Heat supply for the estate is organized centrally via a wood pellet heating plant. The housing estate has its own internal lines, and only one electricity connection with the public grid (via the community centre). In 2020, PV panels were installed on the community centre building with a total capacity of 9 kWp. Initially, the electricity from the PV panels was fed into the public grid and remunerated through a fixed feed in tariff. Since 2023, the association has been able to share the electricity with its members (so called collective self-supply; German: *kollektive Selbstversorgung*).

Type/Key activities

The energy-related activities include the operation of a PV plant and sharing of electricity among the members of the housing association. Heat production is based on wood pellets and solar collectors using a local heating grid operated by the housing association. The estate and its community centre offer space for social, cultural and ecological initiatives that are used far beyond the estate itself. A special non-profit association called *Stadt-Ökologie-Bildung e.V.* was founded which promotes sustainable living through educational programmes based on practical, real-life examples.

Legal form/business model

Initially, surplus electricity from the PV panels was fed into the public grid and remunerated with a fed-in tariff, with part of the electricity being used for consumption in the community centre and common areas. Since 2023, when the so-called Easter Package was adopted by the federal government, a package of several energy laws and legal amendments, the association has been able to pass the electricity on to its members (so called collective self-supply). Residual electricity supply is organized via a joint supply contract.

Motivation

Electricity sharing ‘behind the meter’ allows the community of building owners to benefit from cheaper and renewable electricity from their own solar panels.

Benefits

Electricity sharing ‘behind the meter’ allows the community of building owners to receive cheaper and renewable electricity from their own solar panels.

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Information provided by Jürgen Meereis during the Study Visit organized by Heinrich Böll Foundation Schleswig-Holstein on 9 October 2024.

5. Non-profit association *Boben Op Klima- und Energiewende e.V.* and local heating cooperative *Boben Op Nahwärme eG*

General information

The local non-profit association *Boben Op Klima- und Energiewende e.V* was founded in 2015 by local citizens in the village of *Hürup*, close to *Flensburg* and the Danish border. Together with the neighbouring villages *Maasbüll* and *Husby*, the municipality has 2,400 inhabitants. *Boben Op* is Low German dialect and means 'on top' or 'a nose ahead'. The association initiated several citizen and community driven energy projects.

- **Citizen solar advisory service**: Since 2020, this initiative offers voluntary citizen solar advice in cooperation with the municipality of *Hürup*. This can be regarded as extended neighbourhood help, which includes free of charge, manufacturer-independent initial consultation for homeowners in *Hürup*. Volunteer consultants check whether a PV system can be implemented on the roof, roughly estimate the economic viability and answer the homeowner's questions. If there is interest in implementation, they record the building-specific data and obtain (comparable) offers from local/regional electrical installation companies.
- **Electricity and gas pools**: Anyone who is/will be a member of the *BobenOp* association or lives in *Hürup* can join the pools, which are communities for the purchase of electricity and gas. These pools represent well over 200 electricity customers, many of whom have been members since 2012. Once a year, a meeting is held for all involved in the pool. Various offers from suppliers are compared and a decision is made on which supplier/provider to purchase electricity or gas from in the coming year. Selection is based on sustainability, reliability and service. As a bulk buyer, the pools can negotiate discounts.
- The **local heating cooperative** *Boben Op Nahwärme eG* was founded in 2016 and started to construct and operate local heating networks in *Hürup*. The cooperative was founded as an independent structural entity that does not aim to make profits, but rather to supply affordable and sustainable heat for everyone. Its main purpose is to install and operate local heating networks in *Hürup* and neighbouring villages, an idea inspired by nearby Danish communities. As of 30 August 2024, the heating network was approximately 12 km long, with an additional 2.6 km under construction. The cooperative supplies a constantly expanding network consisting not only private households but also a furniture store, one of the two kindergartens in the area and a retirement home. The *Boben Op Nahwärme eG* co-operative aims to use only regionally available, carbon-neutral energy sources. The heat is currently produced in small-scale CHP plants and based on the combustion of wood residues from landscape management (hedgerows). The hedgerows serve important erosion protection and landscape/biodiversity protection functions. To preserve these functions and the traditional shape of the hedgerows, these must be regularly pruned. In the medium to long term, the cooperative plans to combine solar thermal energy (to be on a conversion area), underground storage, large heat pumps and biomass boilers.
- Other projects and initiatives implemented in *Hürup* and the neighbouring villages include the promotion of a local tiny house settlement, smart mobility concepts including local ride-sharing bench[1] (German: *Mitfahrbank*), and a repair café.

[1] Persons who sit on this bench signal that they want to hitch a spontaneous, free ride in a passenger car to a certain destination.

Type/Key activities

The non-profit association pursues several projects and activities (see in detail above). The local heating cooperative is organized as an independent entity in the form of a registered cooperative (German: *eingetragene Genossenschaft eG)* named *Boben Op Nahwärme eG*.

Legal form/business model

The local heating cooperative is organized as a registered cooperative *Boben Op Nahwärme eG (*German: *eingetragene Genossenschaft)* As of 30 August 2024, the cooperative had 255 members, including the municipality which connects public buildings and estates to the heating grid. The main purpose of the cooperative is not to make a profit, but to ensure an affordable and sustainable heat supply for everyone.

Building connection cost from 1 January 2024:

- Cooperative shares (25 shares of 100 EUR each)
- Building connection costs of 2.975,00 EUR (single payment, including VAT)
- To be added: House transfer station, Civil engineering work on owner's property: Connection of house transfer station: Possible dismantling of heating boiler and tanks:

Heat price:

- The heat price is made up of the basic price and the variable price (German: *Arbeitspreis*) for the quantity of heat supplied.
- Basic price: Up to a provided heat output of 15 kW: monthly 62.20 EUR including VAT, up to a provided heat output of 25 kW: monthly 83.38 EUR/MWh (including VAT).
- From 1 January 2024, the heat price amounts to 89,00 EUR/MWh (including VAT).

Motivation

The basic idea behind the local heating co-operative is to generate affordable heat based on locally available renewable energy sources including solar thermal energy, biomass, and underground storage and thus become independent of traditional utility companies and large corporations. Its aim is to install and operate local heating networks in the *Hürup* municipality. The main purpose of the cooperative is not to make a profit, but to ensure affordable and sustainable heat supply for everyone.

Benefits

From a full cost perspective, local heat from the cooperative is in many cases cheaper than heating with oil and gas. Compared to other district heating companies in Schleswig-Holstein the heat price in *Hürup* is relatively low.[2]

Financing sources

The local heating cooperative benefits from various funding sources. The state of Schleswig-Holstein provides funding through its *Landesprogramm Wirtschaft 2021-2027 - Nachhaltige Wärmeversorgungssysteme*. This programme combines state funding and ERDF funding and provides grants for the construction and expansion of heating and cooling networks and the use

[2] Kroeske, P.-A. (2024): Hohe Preise für Fernwärme in SH noch bis Jahresende. NDR.de - Nachrichten - Schleswig-Holstein. Available from https://www.ndr.de/nachrichten/schleswig-holstein/Hohe-Preise-fuer-Fernwaerme-in-SH-noch-bis-Jahresende,fernwaerme304.html

of renewable energy in these networks. The cooperative also receives funding through the *KfW-Förderprogramm Energetische Stadtsanierung*. Moreover, the Combined Heat and Power Act offers surcharges for the electricity generated in CHP plants. The amount and duration of the surcharges depends, among other things, on the electrical output of the plant and whether the electricity generated is fed into a grid or consumed by the plant itself. There is a direct marketing obligation for systems over 100 kW. For plants over 500 KW, there is an obligation to participate in tenders. The Federal Support Programme for Efficient Buildings (German: *Bundesförderung für effiziente Gebäude, BEG*) provides incentives, primarily through investment grants, for heating grid operators to invest in the construction of new heating grids with a high proportion of renewable energies and to decarbonise existing grids. One possible grant offered is for the connection to a district heating network and a so-called building network. The program also supplies grants of up to 70% for the replacement of old, fossil-based heating systems with renewable heating systems, and for homeowners, it supplies grants for switching to climate-friendly heating technologies and energy-efficient building renovations. The cooperative works closely with banks including the *GLS Gemeinschaftsbank*.

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6. Community wind and solar energy in the municipality of *Sprakebüll*

General information

The village of *Sprakebüll* has 260 inhabitants and is located close to the Danish border. *Sprakebüll* and the surrounding villages host several community energy projects including:

- Community wind farm *Sprakebüll* (1998, 15 MW)
- Community wind farm *Stadum-Sprakebüll* (2011, 11 MW)
- Community wind turbine *Fehle* (2014, 3 MW)
- Wind farm *Iversacker* (2022, 20 MW)
- Community solar farm *Sprakebüll* (2008, 1 MW)
- Community solar farm *Achtrup* (2010, 8,4 MW)
- Community solar farm *Sprakebüll Ost* (2013, 6 MW)
- Local heating grid cooperative *EVS eG* (2013)

In 1998, a community wind farm was constructed with 6 turbines (each 1.65 MW) within a radius of 2 km. The investment cost amounted to an equivalent of 7.5 million EUR. Twenty-two local villagers and farmers jointly raised 20% of the capital to obtain bank loans, with some of their own private buildings serving as collateral. In 2004, one of the initiators of the wind farm founded the solar company *Solar Andresen GmbH* (today: *Solar-Energie Andresen GmbH*) which has its headquarters in *Sprakebüll* and has grown to 70 employees. The company oversees the planning and installation of rooftop and ground-mounted solar plants, community solar and community wind farms, solar-powered field robots, etc. It has several subsidiaries/associated enterprises including a company operating a local biogas plant and 3 heating grids. The company management is also actively engaged in national and regional renewable energy industry associations and political lobby work.
In 2009, the construction of a community solar farm began, with construction of a community wind farm following in 2011. 183 citizens participated as limited partners.
Sprakebüll also has an innovative heat supply concept. The municipality is not connected to the natural gas network and prior to 2013, heat supply was based on individual oil heating systems. However, since 2013, an agricultural biogas plant built in 2006 by the *Andresen* company has been supplying 60 houses in the village with heat. The waste heat from the biogas plant is transported to the houses. In 2013, a local heating cooperative was founded by the municipality, the Andresen company and the customers. The municipality pre-financed the facilities (heating network, peak boiler) and leases them to the energy cooperative. The cooperative refinances the municipal investments through lease payments. Today, 90 percent of the buildings are connected to the local district heating network.
In the following years, further projects were implemented including the repowering of the first wind farm, construction of a second community solar farm, the development of a e-car sharing model (the so-called *Dörpsmobil*) and local charging stations for electric cars. The company also operates an organic farm and shop, as well as solar powered e-robots.

Type/Key activities

Electricity generation from wind and solar power, biogas power and heat production, e-car sharing, local heat supply, sector coupling

Legal form/business model

The various community energy plants are managed by different operating companies. As a rule, the companies are operated as limited partnerships with a private limited company as a general partner (German: *Gesellschaft mit beschränkter Haftung und Compagnie Kommanditgesellschaft, GmbH & Co. KG*, see above).

Benefits

The municipality benefits from business tax revenues (*Gewerbesteuer*) paid by the operating companies and the company Solar-Energie Andresen GmbH. Revenues from the wind farms were partly reinvested in the construction of the local heating grid. Additionally, benefit sharing mechanisms were established through a foundation initiated by the community wind farm. The revenues from the renewable energy installations are used to fund community projects, such as the expansion of a broadband network, a new fire station, bike lanes, music education for children, village e-car/car sharing, charging stations, and private e-mobility. This example shows how the local use of renewable energy sources facilitated the creation of local added value, business and rural development, job creation, and innovation, ultimately preventing rural depopulation.

Financing sources

The various projects implemented in *Sprakebüll* benefit from multiple funding sources. However, one of the key success factors and enablers is the Renewable Energy Sources Act which has provided attractive feed-in tariffs, feed-in premiums and market premiums for electricity fed into the grid. Usually, the operating companies are eligible for a remuneration period of 20 years. The company works closely with public and private banks including the *Kreditanstalt für Wiederaufbau (KfW)*.

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7. Tenant electricity project implemented by the energy cooperative *BürgerEnergieNord eG*

General information

The energy cooperative *BürgerEnergieNord (BEN) eG* was founded in 2019 and has more than 200 members. The cooperative runs projects at different sites in Schleswig-Holstein (Kiel, Neumünster, Norderstedt etc.) and Hamburg. It supplies mainly tenants and flat owners in multi-family buildings with electricity from PV under the so-called 'tenant electricity supply model' (German: *Mieterstrommodell*). In 2017, this model was introduced by the federal government via the Tenant Electricity Act, an omnibus act which included amendments to the Renewable Energy Sources Act and other legal acts. In short, 'tenant electricity' is electricity that is generated by solar systems on the roofs of multi apartment buildings and supplied directly to final consumers (tenants, apartment owners) in the building bypassing public grid. Electricity not consumed by the final consumers is then fed into the public grid and remunerated. The German term for 'tenant electricity' (*Mieterstrom*) is misleading because the concept not only addresses tenants, but also residents of multi-apartment buildings in general, i.e. tenants and apartment owners. The legal framework for 'tenant electricity' has been continuously amended and the introduction of a special surcharge made the direct sale of solar electricity to tenants and other final consumers financially more attractive.[3] One of the numerous projects BEN is involved with is a tenant electricity supply project implemented in 2023 in cooperation with the housing cooperative *Frederik's Hof* in the municipality of Norderstedt, a town located north of Hamburg in the rural district of Segeberg. The project included the construction of a 56-kWp PV system on the roofs of the housing cooperative. Since mid-2024, 26 of the 32 flats have been supplied with solar power from their own roof, saving around 10% of their electricity costs.

Type/Key activities

The cooperative offers three models:

- Tenant electricity model: BEN installs PV plants on multi-family buildings and supplies electricity to the tenants or flat owners of the buildings (currently 15 projects including the project *Frederik's Hof*).
- Supply for municipalities (*Kommunalstrom*): BEN installs PV plants on municipal buildings and supplies electricity to the municipality/local authorities (7 projects).
- Supply for industry and others (*Gewerbestrom*): BEN installs PV plants on commercial and non-commercial buildings such as parishes, foundations, sports clubs and other institutions (3 projects).

Legal form/business model

Currently, the key business model is the concept of 'tenant electricity', which means that the energy cooperative installs PV plants on multi-family buildings and supplies electricity to the tenants or flat owners of the buildings. The operator of the PV system and the participating consumers agree on a tenant electricity contract, with the maximum initial contract term not exceeding two years. All households in the building at hand can participate in a tenant electricity supply model or to continue to be supplied entirely via the public grid. The electricity price paid

[3] More information on tenant electricity model and the related concept of shared building supply (*gemeinschaftliche Gebäudeversorgung*) has been compiled in a specific factsheet to be found on the project's website.

by the final consumers must not exceed 90% of the basic supplier tariff in the respective grid area ('supplier of the last resort'). This price cap only applies to residential buildings, not commercial. The operators of the PV systems — landlords, community of owners or service providers – are obligated to supply residual electricity in addition to the solar power. While there are numerous additional obligations the cooperative must fulfil in regard to transparency of invoicing, electricity labelling, consumer protection etc, this model is exempted from grid fees, concession fees, electricity tax, and the renewable energy surcharge. Tenant electricity covers only the supply of tenants/final consumers by the building owner or third parties and cannot be regarded as 'collective self-consumption' in the true sense of the recast Renewable Energy Directive because the PV system is not commonly owned/operated by the residents.

Motivation

Property owners are increasingly looking for renewable energy solutions to ensure affordable supply security. A PV system with a corresponding tenant electricity model means a potential increase in the value of the property. In a tenant electricity model, owners make a major contribution to the energy transition, as around 50-60% of the electricity requirement can be supplied by electricity from the roof. The main motivations among flat owners resp., tenants are the chance to use locally produced RES-based electricity and to benefit from reduced electricity prices (at least 10% under the tariff of the supplier of the last resort). However, the model is complex, and the cooperative has to fulfil numerous obligations as an electricity supplier (e.g., supply of residual electricity, documentation, labelling etc.).

Benefits

Since mid-2024, 26 of the 32 flats have been supplied with solar power from their own roof, saving around 10% of their electricity costs.

Financing sources

In addition to the revenues from the electricity sold to the final consumers, the cooperative acting as the plant operator receives a tenant electricity surcharge (German: *Mieterstromzuschlag*). This is a special remuneration for the electricity supplied to the tenants or final consumers paid by the grid operator. This payment varies between 2.64 €ct/kWh (capacity range up to 10 kW), 2.45 €ct/kWh (up to 40kW) and 1,65 €ct/kWh (up to 1,000 kW). Moreover, the cooperative may receive a statutory feed-in tariff paid by the grid operator for surplus solar power that is not used on-site, and which is fed into the public grid. Although this surcharge is not considered crucial for the economic feasibility of the project, it helps to secure debt financing. Since mid-2024, 26 of the 32 flats have been supplied with solar power saving around 10% of their electricity costs.

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8. Pool of community wind and solar farms in Northern Friesland (‘*Grenzland-Pool*’)[4]

General information

This good practice case refers to a “pool” of several community renewable energy projects, including five community wind farms and one solar farm in the rural district of Northern Friesland. The projects are in the municipalities of *Ellhöft*, *Westre* and the neighbouring villages close to the Danish border and the North Sea.

- Community wind farm *Ellhöft* (commissioned in 2000, 7.8 MW)
- Cross-border community wind farm *Grenzstrom-Vindtved* (2007/2009)
- Community wind farm *Süderlügum (*2014/2015, 36 MW*)*
- Community wind farm *Brebek* (2015 & 2017, 28 MW)
- Community wind farm *Grenzstrom Bürgerwind* (2020, 17.1 MW)
- Community solar farm *Ellhöft* (2010, 2 MW)

In most cases, the wind farms and the solar farm have the same managing directors, who are sometimes also the initiators. In other cases, the managers simply supported the development of the community wind farms and were asked by the initiators to act as managing directors.

Type/Key activities

So far, the main activity of the community wind farms has been the production of electric power and the sale of electricity based on feed in tariffs/premiums resp. market premiums. However, the community wind farm *Grenzstrom Vindtved,* the first cross-border wind farm in the country, is paving the way in Germany, setting a new standard for wind farms. The wind farm was the first in Germany to publish a Common Good Balance Sheet (German: *Gemeinwohlbilanz*), which is a form of corporate sustainability reporting. They also set up an unprecedented community foundation dispersing a set share of wind farm revenues for social purposes and energy saving measures (Foundation BENTUSS). Alongside this, the managers founded a local non-profit nature conservation association for the management of ecological compensation activities of the wind farm and other wind farms. The managers were among the initiators of a voluntary label for “fair wind farm developers” in Schleswig-Holstein and in developing a scorecard for managers/members of community wind farms in Germany to self-assess their business activities.

Due to the expiration of the legally guaranteed remuneration (feed in tariff for 20 years), the operators of the oldest wind farm of the pool in *Ellhöft* sought out new possibilities to market the electricity from 2020 onwards. In 2018, the managers concluded a Power Purchase Agreement (PPA) with the electricity supply company and energy cooperative *Green Planet Energy eG* which buys part of the electricity. Since 2021, another portion of the electricity produced has been fed via a direct connection cable to an electrolyser in *Westre*, where green hydrogen is produced, stored and supplied to cars with fuel cells. There is also a 75-kW fast charging station for electric vehicles at this location. The electrolyser has a nominal production rate of 100 kg of H2 per day, a peak electric load of 350 kW, and an overall efficiency of up to 95% using heat extraction.
One of the operating companies, *Grenzstrom Bürgerwind GmbH & Co. KG* operates a community wind farm with 5 wind turbines (17.1 MW) and is planning to install eight more turbines. The

[4] This case study is an update of an earlier version prepared under the Horizon 2020 project COME RES (Krug et al. 2022).

general partner in this company, *Grenzstrom Bürgerwind GmbH* supports and advises companies in planned hydrogen projects throughout Schleswig-Holstein.
The manager of the *Ellhöft* wind farm is also a shareholder in the company *Energie des Nordens GmbH & Co. KG* which operates a 1 MW electrolyser in *Haurup* near *Flensburg*. There, hydrogen is produced from renewable energies that would be curtailed due to grid bottlenecks and fed directly into the *Gasunie Deutschland* gas distribution grid.
Together with other partners, the community wind farm management in *Ellhöft* has developed further plans for a large-scale, integrated energy park based on renewable energy sources and hydrogen production and use. This includes hydrogen production, refinement, storage and use in larger dimensions, the centrepiece being the construction of the 'Grenzland Energy Park'. The managers recently founded the citizen co-operative *Grenzland Bürgerenergie eG* which will implement the so-called 'Grenzland Energie Kompakt' project. Every adult citizen in the state of Schleswig-Holstein can subscribe for up to 25 shares in the cooperative, with each share worth 1,000 EUR. The minimum investment is 1,000 EUR, and the maximum is 25,000 EUR. The aim is to make the project possible through a high proportion of equity. One part of the project is the construction of an open space solar farm in *Ellhöft* (30 MW) on an area of 55 hectares within the wind farm area. The new solar farm does not qualify for a market premium under the Renewable Energy Sources Act and will be financed without external capital. The state government of Schleswig-Holstein is supporting the cooperative in the construction of the new electrolyser and two fully automated filling plants for green hydrogen with 5 million EUR, which equals 43 per cent of the investment cost.

Legal form/business model

Each of the existing community wind farms and the solar farm are operated by an independent company that is 100% owned and operated by local residents. In total, 1,069 people are participating financially as limited partners in the community wind farms. These represent almost 25% of the residents in the respective villages (Leithoff 2021). The number of limited partners are as follows: *Ellhöft* (51), *Grenzstrom-Vindtved* (220), *Süderlügum* (400), *Brebek* (280), *Grenzstrom Bürgerwind* (260). Citizens had the opportunity to obtain shares and participate directly as partners with limited liability. To enable many citizens to financially participate, the starting share price was lowered to 500 EUR. In the other cases, similar amounts were required (e.g. community wind farms *Süderlügum* and *Brebek*: 1,000 EUR).
The community wind farms and the solar farm are operated by independent companies under the legal form of a limited partnership with a private limited liability company as general partner (*Gesellschaft mit beschränkter Haftung & Compagnie Kommanditgesellschaft*, *GmbH & Co. KG*). The legal form allows for broad participation. Under this model, citizens that are limited partners provide capital (German: *Kommanditisten*) without being liable with their private assets. Voting rights increase proportionally with the number of shares. The ownership models are quite similar in all five cases. No investor could purchase more than 5% of the shares to avoid that individual investors gain control or exerting influence over the company. All limited partners are participating on equal terms.

Motivation

Taking the example of the community wind farm *Grenzstrom Vindtved* the following motivations were relevant:

- Creation of a profitable, clean energy investment with every local resident or landowner having the possibility to become a member of the operating company.

- Generation of stable business tax revenues for the local municipalities.
- Bringing economic power and added value back to the region and allowing the communities a certain degree of independence and freedom of action again.
- Avoiding the involvement of and dependency on external investors for energy production.
- Diversification of income from agricultural areas.

In principle, these motivations were also guiding the development of the other projects.

Benefits

The hosting municipalities benefit from the local business taxes paid by the wind farm operators. The operating companies provide in-kind benefits to local environmental and social associations and initiatives. This can be illustrated by the example of the community wind farm *Grenzstrom Vindtved*. The company managers set up the Foundation BENTUSS (capital contribution 70,000 EUR), which is intended to support social purposes and energy saving measures including PV-based street lighting at bus stops and school routes. Charitable (non-profit) foundations provide benefit sharing opportunities to households which cannot directly participate due to financial constraints. The wind farm also invested in the development of a local broadband network. It provides regular donations to local and regional associations including *Lebenshilfe*, for children's festivals, the fire brigade etc.

In the case of the community wind farm *Ellhöft*, the managers of the plant supported the development of a new recreation area in the community, as well as a hiking, riding and bicycle path. The operating company also supported the development of a local broadband network. The wind farm operating company continues to donate to these causes, for instance in the upkeep of community paths and improvements to playgrounds for local children.

In the case of the *Brebek* community wind farm, the operators committed to dedicating a certain share of the revenues towards social projects, as not all citizens were able to benefit directly from the wind farm through their shares. This includes the purchase of a van for the local food bank, support for a volunteer organisation distributing food to people in need, and high-speed Wi-Fi for public use.

Financing sources

The projects benefit from a favourable policy and regulatory framework—feed in tariffs and feed in premiums/market premiums under the Renewable Energy Sources Act provide long-term investment security. The hydrogen projects were funded by several federal government programmes (e.g., the so-called NIP programme, funding by the Federal Ministry of Transport and Digital Infrastructure) and the state government of Schleswig-Holstein (e.g., 5 million EUR + 200,000 EUR via the Citizens' Energy Fund for the initial planning steps).

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9. Community energy initiatives in Schleswig-Holstein supported by the European LEADER programme

What is the European LEADER programme?

The LEADER programme, established over 30 years ago, represents a core pillar of the European Union's rural development policy. Its name, 'Liaison Entre Actions de Développement de l'Économie Rurale' (Links Between Actions for the Development of the Rural Economy), reflects its emphasis on fostering locally driven, innovative approaches to rural development. Embedded in the bottom-up approach, LEADER empowers local communities to identify their own development needs and craft tailored strategies to address those needs.

The European LEADER programme, a cornerstone of the EU's rural development policy, plays a crucial role in supporting sustainable rural development across Germany, including the federal state of Schleswig-Holstein. LEADER offers a bottom-up alternative to the traditional top-down approach that is commonly used by national governments and regional authorities. This decentralized structure enables local communities to take the lead in shaping their own development strategies, ensuring that regional needs are met with tailored solutions. The program, which operates in all EU Member States, encourages Local Action Groups (LAGs) to design and implement rural development projects that align with both local priorities and broader EU goals such as sustainability, climate protection, and economic resilience.

The programme brings together a diverse range of stakeholders, including farmers, local businesses, civil society organizations, public authorities, and individuals across various sectors, into so called Local Action Groups (LAGs). These groups are the heart of LEADER, entrusted with designing development strategies and managing corresponding budgets. Through public-private partnerships, decision-making powers are transferred to these communities, ensuring that strategies are reflective of regional needs and aspirations. The approach is inherently participatory, requiring inclusion at all stages - planning, implementation, evaluation, and adaptation - with transparent and fair representation of all demographics and sectors. EU regulations further stipulate that no single stakeholder group may dominate decision-making, thereby promoting equitable governance.

LEADER integrates the principles of regional focus, partnership, and strategic planning into a single cohesive framework. This territorial approach prioritizes the development goals of a region rather than focusing on isolated projects, thereby fostering stronger local partnerships and more sustainable outcomes.

The LEADER programme operates through over 2,800 LAGs across Europe, covering rural areas where more than 61% of the EU's population resides (2018, EU-28). It has supported tens of thousands of projects, delivering economic, cultural, social, and environmental benefits to rural communities. These initiatives have contributed to distinguishing economic sectors in a more sustainable and competitive manner while simultaneously advancing the energy transition at a local level. Knowledge-sharing networks at both national and EU levels further enhance the capacity of LAGs, enabling the exchange of best practices and fostering innovation.

LEADER is financed through several European funds, including the European Regional Development Fund (ERDF), the European Social Fund (ESF), and the European Maritime and Fisheries Fund (EMFF). The use of cross-fund financing enables the development of comprehensive solutions that address diverse local needs, strengthening ties between rural, urban, and fisheries-oriented areas. This multi-funding approach supports the programme's adaptability and enhances its capacity to tackle contemporary challenges such as climate change, generational transitions, and sustainable resource management.

LEADER is particularly effective in mobilizing and developing local communities by encouraging innovation across multiple sectors and supporting facilities that meet regional priorities. By focusing on the needs and plans of the local population, LEADER ensures that rural development remains grounded in local realities while also aligning with broader EU policy goals. This holistic and participatory approach makes LEADER a model for achieving sustainable and inclusive rural development across Europe.

How is LEADER organized and implemented in Germany and Schleswig-Holstein?

In Germany, the LEADER programme encompasses 372 LAGs, including 22 located in Schleswig-Holstein. In Schleswig-Holstein, the LAGs are called *AktivRegionen*. They are organized around the principles of local ownership and community involvement. Each *AktivRegion* has a population of between 50,000 and 150,000 inhabitants, and each region is allocated an average of €2.85 million per funding period. The programme operates within a series of funding periods, with the most recent being from 2023 to 2027. After projects have received the required approval from the Eurpean Commission, the funding is then provided based on partnership agreements between the EU and Germany. This ensures that the LEADER program is guided by a clear framework that supports regional autonomy while maintaining alignment with EU policies.

The implementation of LEADER in Schleswig-Holstein, as in the rest of Germany, is grounded in the development of so-called Integrated Development Strategies (IDS). These strategies, which are created through participatory processes with local stakeholders including municipalities, local businesses, and residents, help identify regional challenges, set priorities, and allocate funding to specific projects. This participatory approach is key to ensuring that projects reflect the values and needs of the community. The projects funded under LEADER can range from energy and infrastructure initiatives to tourism development and the preservation of cultural heritage. For instance, energy-related projects might include the development of renewable energy networks or energy efficiency initiatives that support the local economy while reducing environmental impact.

One of the key advantages of the LEADER programme is its emphasis on local decision-making. LAGs are responsible for managing and overseeing the distribution of funding, meaning that decision-making is placed directly in the hands of those who best understand the local context. This decentralized management model enables regions to select projects that align with their specific needs, rather than imposing a one-size-fits-all solution. The programme also fosters collaboration between different stakeholders, facilitating the formation of partnerships between local governments, businesses, and civil society organizations. Through this cooperative approach, LEADER helps to build networks that enhance knowledge exchange and the sharing of best practices across regions.

In addition to its support for agriculture, the LEADER programme in Schleswig-Holstein focuses on improving the quality of life in rural areas by enhancing infrastructure, fostering economic development, and ensuring environmental sustainability. The promotion of energy-efficient buildings, the development of renewable energy networks, and the improvement of broadband connectivity are some of the key areas where LEADER funding is directed. Furthermore, LEADER projects aim to increase the resilience of rural areas by improving public services, such as healthcare and transportation, and by supporting small-scale tourism and local cultural initiatives. These investments not only improve local living conditions but also contribute to the long-term economic sustainability of rural communities.

The three key topics for the current funding period in Schleswig-Holstein are: services of general interest and quality of life, climate protection and adaptation, and regional value creation. These priorities were developed in consultation with the Federal State of Schleswig-Holstein to guide the creation of region-specific Integrated Development Strategies (IES). Alongside this, the LEADER programme supports infrastructure improvement, economic development, and sustainability in rural areas. Investments include energy-efficient buildings, renewable energy networks, and enhanced broadband connectivity, contributing to the long-term resilience of these communities.

The LEADER programme also plays an important role in environmental sustainability and climate protection. In alignment with EU objectives, the programme supports projects that go beyond mandatory environmental regulations, such as initiatives to reduce carbon emissions, enhance biodiversity, and promote sustainable agricultural practices. The funding encourages the transition to greener energy systems, including the use of renewable resources such as solar, wind, and biomass, as well as the development of energy-efficient infrastructure. By promoting sustainable practices and supporting green innovation, LEADER helps rural communities reduce their ecological footprint while fostering economic growth.

Additionally, the LEADER programme contributes to the EU's broader rural development goals, which aim to ensure social cohesion, economic diversity, and environmental sustainability in rural areas. The European Network for Rural Development (ENRD) and National Rural Networks (NRNs) facilitate cooperation and exchange of experiences between rural areas across the EU. These networks help to enhance the effectiveness of rural development policies, ensuring that rural communities can learn from each other and share successful strategies.

In conclusion, the LEADER programme provides a critical mechanism for the sustainable development of rural areas in Germany, including Schleswig-Holstein. By empowering local communities to develop and implement their own strategies, the programme ensures that rural areas can tackle their unique challenges with tailor-made solutions. The integration of sustainability, economic development, and community participation within the LEADER framework makes it an invaluable tool for fostering long-term resilience and prosperity in rural regions.

Why can LEADER be a useful approach to support/facilitate energy community initiatives?

LEADER provides a valuable framework to support and facilitate energy community activities, particularly in rural areas. These areas play a critical role in the renewable energy transition, as 96% of wind turbines and 98% of photovoltaic systems in Germany are installed in rural regions, often categorized as less favourable in terms of socio-economic conditions. The participatory, bottom-up approach of LEADER offers a multi-faceted mechanism to address the unique challenges of these regions while fostering innovation and collaboration. By leveraging its networks, funding mechanisms, and community-driven strategies, LEADER creates an ecosystem that empowers local stakeholders to initiate and manage energy projects effectively.

One of LEADER's key strengths is its emphasis on multi-actor participation and networking. Local Action Groups, which form the backbone of the programme, serve as a network of local partners that connect stakeholders—such as municipalities, businesses, and residents—with regional, national, and international actors. This networking goes beyond the local horizon, enabling regions to access innovative solutions, share best practices, and benefit from knowledge transfer. Cooperation with other regions has proven to be a rich source of ideas and expertise, offering local actors the opportunity to adopt tailored solutions that fit their specific needs. For instance, the exchange of experiences through LEADER networks can help identify synergies, partners, and

strategies for community energy projects such as heating networks or renewable energy installations.

LEADER's focus on integrated development strategies and long-term vision is another key strength. These strategies align with EU priorities such as climate change mitigation and adaptation, making the programme particularly well-suited to supporting citizen-led energy transitions. Through its agenda-setting capabilities, LEADER helps communities develop and implement strategies for renewable energy initiatives, conduct feasibility studies, and build permanent support structures. Local Action Groups are instrumental in identifying and mobilizing relevant stakeholders, creating a supportive ecosystem for energy projects. This collaborative process not only spreads good practices but also builds the capacity of local actors through training and knowledge exchange.

The programme's financial resources are another significant asset. LEADER is multi-funded, meaning it can provide financial assistance for energy community activities alongside its networking and strategic support. Although funding is limited and must address a broad range of regional needs rather than individual, it comes with dedicated budget and management structures to support local activities. Communities can apply to LAGs with written concepts for their projects, initiating a process to identify potential funding sources, partners, and synergies. This structured approach ensures that even complex energy projects can move from ideas to implementation with expert guidance and resources.

Despite its strengths, LEADER faces several challenges in the energy sector. The lack of local support and acceptance of renewable energy projects remains a critical barrier. Furthermore, the programme's broad focus means that energy transition is just one of many topics covered, diluting resources and attention. However, LEADER's emphasis on participatory approaches, regional adaptation, and integrated strategies makes it uniquely positioned to overcome these challenges. By fostering regional economic value creation and promoting cross-actor networks, LEADER ensures that the energy transition is not only technically and feasible but also socially accepted and economically beneficial.

In conclusion, the LEADER programme provides a comprehensive, bottom-up framework to support energy community activities, particularly in rural areas. By combining financial resources, extensive networking opportunities, and integrated development strategies, LEADER helps rural regions unlock their potential as drivers of the renewable energy transition. Its participatory approach empowers local actors, spreads innovative practices, and builds lasting structures for sustainable development, making it a critical tool for achieving both regional and EU-wide climate goals.

How does LEADER support/facilitate energy community initiatives in Schleswig-Holstein?

Energy cooperatives are a prime example of bottom-up initiatives implementing climate protection projects. Beyond achieving independence from fossil fuels and volatile energy prices—often leading to cost savings—climate protection and environmentally friendly heating are among the primary motivations for cooperatives or citizen associations. The projects implemented by these cooperatives embody the goals for which the LEADER programme was designed.

Given that climate protection and the energy transition at the local level are core themes of the *AktivRegionen* in Schleswig-Holstein, as well as the LEADER programme more broadly, initiatives can receive funding and benefit from networking opportunities. Many of the Integrated Development Strategies of individual Local Action Groups (LAGs) prioritize cooperative-based electricity and heating projects or similar initiatives for funding and support. Several regions have

already successfully facilitated cooperative-led renewable energy and heating projects. Examples of such initiatives will be presented in detail in the following section.
Citizen solar farms and citizen wind farms, often partially or fully managed through cooperative ownership, are also in the planning and implementation stages in several *AktivRegionen*. These projects receive support from LEADER resources and expertise. In general, LEADER programmes function as hubs for raising awareness and providing guidance on climate protection and renewable energy topics, helping to foster understanding and acceptance among local residents. Additionally, LEADER regions assist in the creation of cadastral maps for solar or geothermal energy, which can be used by citizen initiatives to develop projects in these areas. They also provide support for feasibility studies and assessments, enabling communities to evaluate the efficiency and viability of projects, such as the installation of district heating systems in municipalities.
It is important to note that *AktivRegionen* always provide project-specific support, focusing on the cooperative as an entity when it implements multiple projects. For LAGs, it is crucial that projects offer tangible benefits to the wider community and region, rather than disproportionately benefiting individual stakeholders. This focus on collective impact has made cooperative models in Schleswig-Holstein particularly successful in leveraging the resources and networks provided by LEADER programmes.
In general, there are extensive funding programmes available at EU, federal, state and district level for the areas relating to the topic of the future, which often offer more attractive framework conditions, especially for investment measures.
In the next section we will provide several exemplary measures enhancing community energy projects in a broader sense funded by Local Action Groups in Schleswig-Holstein which have been identified in the respective Integrated Development Strategies. This overview does not claim to be exhaustive.

Exemplary promotional measures identified in the Integrated Development Strategies of selected Local Action Groups in Schleswig-Holstein (funding period 2023-2027/2029)

LEADER region (Local Action Group) with weblink to the Integrated Development Strategy	**References in the Integrated Development Strategies to community energy projects**
Aktivregion **Dithmarschen** https://www.aktivregion-dithmarschen.de/fileadmin/download/ies/2023-05-04_ies_aktivregion_dithmarschen_2023-2027_reinfassung_mitanhang.pdf	The LAG is co-operating in the state-wide network of *AktivRegionen* in Schleswig-Holstein and the West Coast Network (six *Aktivregionen* along the west coast of Schleswig-Holstein). A core topic of this network is the **'co-operative promotion of solar energy.'** The *AktivRegion* generally supports collaborative approaches such as the 'Energy Coast' together with other LAGs. The strategy supports the **establishment of heating networks based on renewable energy involving citizens**, promoting conceptual foundations and exploratory work.
Aktivregion **Eider-Treene-Sorge** https://www.aktivregion-ets.de/fileadmin/download_ets/IES-Erstellung/2023_02_23_IES_AktivRegion_Eider-Treene-Sorge_2023-2027.pdf	The strategy aims to strengthen the self-sufficiency of municipal properties by generating renewable energies for (primarily) own use. It also supports measures for the development and expansion of heating networks. Further funding priorities include demand-oriented development of alternative and cooperative mobility concepts as well as raising awareness and developing the skills of stakeholders and supporting networks and cooperation to develop,

	transfer and scale up ideas. The strategy does not explicitly mention community and citizen initiatives and projects.
Aktivregion **Eider- und Kanalregion Rendsburg** https://www.eider-und-kanalregion-rendsburg.de/fileadmin/download/Strategie_IES/2023-07-06_IES_EKR_Text_Final.pdf	The strategy does not explicitly address community/citizen energy. However, under the climate related core topics, the strategy mentions several exemplary measures which are eligible for funding: innovative energy conversion projects, solar systems on special buildings (municipalities, churches, associations), conversion or replacement of systems to innovative carbon-neutral processes (e.g. heating systems), investment in sustainable mobility transition including the **e-car sharing project *Dörpsmobil SH***. The LAG also supports (feasibility) studies and concepts, project management, consultants, campaigns, events, networks/collaborations, publications (print, videos, etc.) and training measures. In the previous funding period, the LAG primarily supported the establishment of a district-wide climate protection agency in cooperation with other LAGs. These LAGs also supported the development of a solar cadastre/registry informing about the suitability of roof surfaces for solar energy utilization, the provision of solar advice for homeowners, and a solar communication campaign.
Aktivregion **Herzogtum Lauenburg Nord** https://www.aktivregion-hln.de/foerderungstrategie/strategie-2023-2027.html	Regarding the core topic 'Climate Protection/Climate Change Adaptation' the strategy acknowledges the important opportunities offered by **community/cooperative actions** (e.g., awareness raising/change). The LAG aims to promote, inter alia, measures for the production, storage and use of renewable energies, e.g. photovoltaic systems on public buildings, the development of concepts and feasibility studies, e.g. for regional energy supply, public relations and awareness-raising measures as well as the creation of added value and **strengthening of local identity through citizen participation**.
Aktivregion **Holsteiner Auenland** https://www.aktivregion-holsteinerauenland.de/aktivregion-1/satzung-and-strategie/	The strategy aims, inter alia, to promote the establishment of regional networks disseminating information and sensitising stakeholders and residents to opportunities of the energy transition. Moreover, it seeks to examine the use of renewable energy sources (e.g. **in the frame of community energy projects and community heating networks**). The *AktivRegion* also intends to **support the roll-out and further development of the *Dörpsmobil SH*** project in the 2023-2027 funding period (see below for more details). It also helps to establish regional networks serving as platforms to inform and engage stakeholders and residents, raising awareness about the opportunities and benefits of adopting sustainable practices. These initiatives should not only promote cleaner energy solutions but also **empower communities to actively participate in shaping a more sustainable future**.
Aktivregion **Holsteins Herz** https://www.holsteinsherz.de/verein/integrierte-entwicklungsstrategie	The strategy aims to promote the expansion and use of renewable energies and to continue sharing skills and knowledge in relation to energy use and climate change. It encompasses a list of possible projects and measures including the **construction of a community energy plant**. Further measures include a 1000 solar roofs initiative, the creation of open-space solar thermal systems with seasonal large-scale heat storage for the decarbonisation of district heating, the installation of a pilot grid for electricity and heat generation, solar systems for own electricity use, and the creation of a website on the topic of energy, climate and the environment.
Aktivregion **Innere Lübecker Bucht**	The *AktivRegion* supports the 'cooperative use of renewable energy sources', e.g. for heat supply), but it only mentions municipalities and energy supply companies among the 'suitable actors'. Energy communities or energy cooperatives are not mentioned explicitly.

https://www.aktivregion-ilb.de/fileadmin/user_upload/dokumente/2023/IES_Innere_Luebecker_Bucht_ueberarbeitete_Fassung_2023_01_23.pdf	
Aktivregion **Mitte des Nordens** https://mittedesnordens.de/wp-content/uploads/2024/10/20230324_IES_LAG_MittedesNordens.pdf	One of the core topics relates to 'Driving Forward CO_2 Savings, Resource Conservation and Climate Change Adaptation.' The *AktivRegion* is supporting innovative solutions for energy savings and tapping efficiency potentials, including through investments. This includes the energy modernisation of existing infrastructures. Communities and inner-city areas are to be upgraded in terms of ecology, energy and the Common Good. Under the core topic 'Designing Information, Concepts and Pilot Projects', the following measures are supported: creation of cross-municipal plans for the use of renewable energies, utilization of electricity that is no longer subsidized ('post-EEG electricity'), target group-specific education and advisory services, knowledge transfer and exchange between full-time and voluntary structures, and promotion of pilot and model projects. One of the starter projects is to draw up a **neighbourhood concept for the municipality of *Sörup*** with the aim of identifying ways in which the existing oil and natural gas-based heat supply can be avoided and gradually replaced by energy-efficient renovations and renewable energies. In addition to pure planning, the first step is to consult with the building owners to find out about the advantages and disadvantages of a **community-based heat supply.** The findings should result in a concept that summarises the local potential (energy quantities, energy origin and possible heat sources, etc.). Communication with the heat consumers is a key element, as they play a decisive role as future stakeholders in a community project. Possible obstacles should also be outlined.
Aktivregion **Nordfriesland Nord** https://aktivregion-nf-nord.de/integrierte-entwicklungsstrategie-2023-2027-2029/	In the area of the corresponding core topic, the strategy pursues the following key objectives: energy optimisation of public buildings, expansion of PV and solar thermal energy, utilization of renewable energy sources or use of new processes and concepts for heat supply, qualification and sensitisation of the population for efficient energy and heat generation and use. Due to the increasing demand from rural communities and regions to set up **e-car sharing models**, *the AktivRegion* intends **to support the roll-out and further development of the '*Dörpsmobil Schleswig-Holstein*' project**.
Aktivregion **Ostseeküste** https://aktivregion-ostseekueste.de/wp-content/uploads/2023/01/Integrierte-Entwicklungsstrategie-Foerderperiode-2023-2027_Stand_19.01.2023_low.pdf	Under the core topic Climate Protection/Climate Change Adaptation, the strategy formulates the following key objectives: engage in public relations work and foster citizens participation, create educational and advisory projects and projects to raise awareness, increase in added value through **citizen participation**, raise awareness of technologies for saving electricity and heat as well as energy modernization and storage of renewable energies. The strategy also includes a comprehensive list of project ideas including a **concept for sector coupling and citizen energy communities for the generation and use of renewable energies**, a concept and IT implementation for sector coupling and heat supply in the municipality of *Mucheln* and the construction of local heating networks in the region. It also mentions launching of e-car sharing concepts following the model project *Dörpsmobil SH*.
Aktivregion **Pinneberger Marsch & Geest**	The LAG is co-operating in the state-wide network of *AktivRegionen* in Schleswig-Holstein and the West Coast Network (incorporating six *AktivRegionen* along the North Sea coast of Schleswig-Holstein). A core topic of this network is the 'co-operative promotion of solar

https://www.aktivregion-pinneberg.de/newpagea15448d7	energy.' **Moreover, the LAG is part of the state-wide *Dörpsmobil* e-car sharing project (see below).** With regards to renewable energy, the *AktivRegion* is focussing on the use of solar energy on public-use buildings. It also seeks to use and strengthen the commitment of residents (including the **development of community heating networks**). It promotes the expansion and strengthening of sustainable mobility with a focus on **joint use** (e.g. **sharing models**, **village mobiles**, expansion of public transport, expansion of charging station infrastructure, bicycle infrastructure). However, funding for electric vehicles without joint use is not envisaged. The *AktivRegion* is advancing the energy transition through initiatives like the '**Solar Community**' which focuses on utilizing solar energy on buildings with public functions, supported by **self-consumption infrastructure** (e.g., village community centres, church buildings, club facilities, fire stations). The LAG also provides funding for concepts and model projects to expand climate protection or climate change adaptation (e.g. concepts, feasibility studies, solar roof cadastres/registries, project management, energy management, exploratory studies, projects to save resources or avoid waste, networking centres, training courses on climate protection and climate impacts, awareness-raising). Additionally, energy and climate management staff have been hired to foster networking and cooperation among stakeholders, with a particular focus on exploring district heating and cooling solutions to enhance regional sustainability.
Aktivregion **Sachsenwald-Elbe** https://aktivregion-sachsenwald-elbe.eu/download-main/integrierte-entwicklungsstrategie	The strategic approach in the field of Climate Protection/Climate Change Adaptation includes, inter alia, the expansion of solar, wind and geothermal energy utilization (PV systems; PV on roof surfaces) while strengthening participation and acceptance. The strategy also envisages the establishment of heating networks based on renewable energy involving citizens, promoting conceptual foundations and exploratory work. The strategy lists a list of possible project approaches including the expansion of **sharing offers** (e.g., bike/car sharing), use of renewable energies and **collective operation of renewable energy installations**.
Aktivregion **Schlei-Ostsee** https://www.lag-schlei-ostsee.de/foerderung/integrierte_entwicklungsstrategie/	Among the measures supported under the topic 'Climate Protection/Climate Change Adaptation' are the following: increasing renewable energies and storage technologies, providing information, advice and participation around climate protection, energy efficiency and energy saving measures in the context of neighbourhood supply and energy management, creating climate education and skills development offers, networking in the area of sustainability and climate protection. The strategy explicitly mentions **'Long-term support for community energy projects, 'Citizens' Energy Fund' (information and advice)** among the project ideas. The *AktivRegion* also established a contact point for all questions related to climate change and the energy transition. In cooperation with three other LAGs, the *AktivRegion* currently supports the establishment of a regional energy portal in two stages through the development of a solar and green roof register at district level and a heat guide/navigator for private households accompanied by a broad publicity and information campaign.
Aktivregion **Schwentine - Holsteinische Schweiz** https://www.aktivregion-shs.de/fileadmin/Download/Ent	The strategy aims to provide impetus for climate protection and achieve CO_2 reduction effects in villages, districts, neighbourhoods and facilities through small efficiency, heating and solar projects. It seeks to expand the existing expertise and experience in the field of heating in the region and the municipalities and make it widely

wicklungsstrategie/AktivRegion-SHS_IES-2022_30042022_Bestaetigungsfassung_Maerz-2023_Gesamtfassung-inhaltlich-relevante-Anlagen.pdf	available. It explicitly promotes integrated economic solutions for small networks, cooperatives and other approaches. Among the starter projects is an initiative brought forward by the **Citizens' initiative *Zukunft.Leben.Sagau*** which plans to develop a **local heating network operated by a citizens' cooperative.** It is planned to support a feasibility study and the preliminary planning for the establishment of a **citizens' cooperative** to set up a heating network.
Aktivregion **Sieker Land Sachsenwald** https://sieker-land-sachsenwald.de/download-main/ies-2023-2027-2	The A*ktivRegion* is committed to support (decentralised) systems or innovations/solutions for the generation, storage and use of electricity and heat based on renewable energies. It also promotes measures for the efficient use of energy and the reduction or avoidance of GHG emissions as well as more generally supporting measures to adapt to climate change. Moreover, it supports projects strengthening competences, inter-municipal knowledge exchange and sensitisation of stakeholders and the population regarding energy use and climate change. Finally, it supports **sustainable neighbourhood energy supply** (existing and new grids) through conceptual preparatory work and investments, particularly in the efficiency of heating, cooling, electricity and wastewater systems. Neighbourhoods are understood to be settlements, parts of settlements or an association of several public facilities or a combination of public facilities and companies. Potential projects eligible for funding include the **advice on and support for sustainable or energy self-sufficient settlements or neighbourhoods**.
Aktivregion **Steinburg** https://www.leader-steinburg.de/wp-content/uploads/2024/03/2023-04-03IES-AktivRegion-Steinburg-2023-2027-ReinschriftohneAnlagenOhneKommentare.pdf	The LAG is co-operating in the state-wide network of *AktivRegionen* in Schleswig-Holstein and the West Coast Network (six *Aktivregionen* along the North Sea coast of Schleswig-Holstein). A core topic of this network is the **'co-operative promotion of solar energy.'** The *AktivRegion* has a focus on solar energy projects implemented by municipal and non-profit organizations. It also supports the 'Steinburg Climate Protection Network' which brings together stakeholders, model and investment preparation projects and the use of renewable energy, particularly the use of solar energy **(solar community)**. Moreover, the LAG supports **citizens' heating networks**, particularly heat networks based on wood chip systems or biogas plants implemented by **neighbourhood cooperatives** (like e.g., in the village of *Tetenhusen*). Among the criteria for funding eligibility, the Integrated Development Strategy explicitly mentions projects for the use of renewable energies in public, **community or citizen ownership**, especially in urban areas. Its aim is to reach a broad spectrum of the population through municipalities and community organisations (joint impact effect, acceptance building, knowledge building, numerous users). Under the 'Steinburg Solar Community', PV and solar thermal systems on buildings with a public function or community services of general interest are funded, including **self-consumption infrastructure**, e.g. through storage.

Aktivregion **Südliches Nordfriesland** https://www.aktivregion-snf.de/startseite	The *AktivRegion* is pursuing the goal of putting southern North Friesland on a climate-friendly path based on its endogenous potentials. To this end, funds are being made available for projects to reduce GHG emissions in the areas of heat, energy and mobility transition. By utilizing regionally and locally generated renewable energy, the corresponding measures contribute to strengthening the region's energy self-sufficiency in addition to their GHG reduction effect. Investments in the construction and operation of heating networks are excluded from funding. The strategy stipulates that network structures related to the core topic Climate Protection/Climate Change Adaptation should continue to be expanded upon. They enable an exchange across stakeholder groups from the local to the regional level and promote the development of ideas and approaches to jointly meet the challenges in relation to climate, environment and nature conservation. They also offer the opportunity for supra-regional exchange and thus the import of suitable measures into the *AktivRegion Südliches Nordfriesland*. The strategy does not explicitly mention community and citizen initiatives and projects.
Aktivregion **Uthlande** https://www.aktivregion-uthlande.de/verein/strategie-1	During the previous funding period, the Uthlande Energy and Heat Alliance (*Energie- und Wärmebündnis Uthla*nde) was set up to promote projects and initiatives to implement efficient energy and heat generation and utilisation). This is continued under the current funding period. The following measures shall be supported: Energy optimisation and heat optimisation of public buildings, expansion of solar energy (photovoltaics, solar thermal energy) and use of renewable energy sources or use of new processes and concepts for heat supply. The strategy does not explicitly mention community and citizen initiatives and projects.
Aktivregion **Wagrien-Fehmarn** https://www.ar-wf.de/index.php/foerderung/eler.html	One of the key objectives of the strategy is **to develop local (co-operative) solutions for sustainable energy** and resource utilization including energy savings (e.g. energy, material and resource cycles). It promotes **innovative and socially beneficial expansion** of the generation and storage of renewable energies.

Exemplary LEADER projects in Schleswig-Holstein (implemented or under development)

The LEADER programme of the European Union has supported energy community projects in Schleswig-Holstein, fostering sustainable and collaborative solutions for regional energy needs. Below we provide a brief overview of citizen/community energy projects funded by LEADER in the previous funding period (2014-2020 + 2-year transition phase). This overview, however, does not claim to be exhaustive.

E-car sharing project Dörpsmobil Schleswig-Holstein

The municipality of *Klixbüll* developed an e-car sharing system (*Dörpsmobil Klixbüll)* for all local residents charged with electricity from wind farms. This project served as a lighthouse for the state of Schleswig-Holstein and was rolled out as a project covering all 22 LAGs in Schleswig-Holstein (www.doerpsmobil-sh.de). This project allowed numerous municipalities to follow the example of *Klixbüll*.

Energy cooperative in Preetz (Preetzer Bürger Energiegenossenschaft eG)

In 2016, the LAG *AktivRegion Schwentine/Holsteinische Schweiz* supported the development of a feasibility study for a 100% renewable heat supply for the *Glindskoppel/Wunder'sche Koppel* neighbourhood in the town of *Preetz*. This study was carried out in November 2016. It concluded that, among other things, implementation of the project through an energy cooperative consisting of the residents in the residential area might be economically feasible. As a follow up activity, the LAG supported the provision of **advice on setting up the cooperative** and **drawing up a business plan (investment plan, liquidity plan, etc.)**. In 2017, the energy cooperative was successfully founded. Currently the cooperative has 373 members.[5] The minimum share capital amounts to 1,200 EUR (12 shares á 100 EUR).[6] In addition, a one-off entry fee of 250 EUR must be paid. The energy cooperative is planning to construct and operate a district heating network. It is planned that the **community heating network** will first supply the northern neighbourhoods (*Glindskoppel* and *Wundersche Koppel*) and would later be extended to other parts of the city. In addition to utilising solar energy, the cooperative is planning to combust wood chips in wood chip boilers to supply heat during the cold season. In addition to traditional combustion, the cooperative has plans to install two pyrolysis plants with a heat output of 450 kW each. The start up financing for a citizen energy cooperative provided by the *AktivRegion* triggered major investment funding from the federal and state governments.[7] Moreover, in the current funding period, the energy cooperative has successfully applied for funding from the LAG to build an empty pipe / protective pipe with drainage to be laid under the track of the Kiel /Lübeck railway line to further expand the planned heating network and to supply the *Klosterquartier* neighbourhood with renewable heat.

Educational, networking and project initiative 'Energy Citizens' (Energiebürger SH)

Between 2015 and 2017 the Heinrich Böll Foundation Schleswig-Holstein successfully applied for LEADER funding from several *AktivRegionen* (Alsterland, Dithmarschen, Sachsenwald-Elbe, Südliches, Nordfriesland) to implement the educational, networking and project initiative 'Energy Citizens' (*Energiebürger SH*) in the respective regions. This initiative was launched by the foundation in 2013 and aimed to ensure that citizens in the regions learn more about climate protection and the energy transition and take greater action through their social commitment. To this end, cooperations with regional stakeholders like adult education centers (*Volkshochschulen)*, regional and local associations, initiatives and church communities were established. The project comprised of **four-months courses** in cooperation with the local adult education centers for around 15 citizens from each region. The aim of those courses was to expand knowledge on the topics of climate change, climate protection and the energy transition, while at the same time familiarizing the citizens with the opportunities for civic action at regional and local level. The courses were based on an **e-learning tool**, coupled with **face-to-face meetings** for mutual exchange and the involvement of regional '**energy caretakers**' as a source of inspiration. The project included **project development workshops** in the different regions which were open to the public. Their purpose was to develop concrete citizen/community energy projects. The citizen/community projects were continuously and actively supported and professionally supervised as part of a dedicated **coaching programme**. This programme also covered **project meetings**, **on-site visits**, **expert advice**, etc. A special **project and networking platform** was made available as a communication medium for the citizen projects. In addition,

[5] As of 12 September 2024 (see https://www.prebeg.info/Aktuelles/)
[6] See https://www.prebeg.info/Genossenschaft/Satzung-etc/
[7] Aktivregion Netzwerk (2023)

the project covered regular, **state-wide network meetings** of all ‘energy citizens’ to exchange experiences, knowledge, ideas and mutual advice between active citizens from all over Schleswig-Holstein. The project was funded by the Aktivregion Husum 7.538,08 € Henstedt 15.540,00 €, Sachsenwald-Elbe 8.166,26 EUR

Public heating network for supplying municipal properties in the municipality of Heist

The *Neuhofer Biogas Waste Heat Project* in the village of Heist *(*part of the *Aktivregion Pinneberger Marsch & Geest)* illustrates how the European LEADER programme supports innovative energy solutions by creating an energetic district concept that integrates residential, public, and commercial properties in the village centre. Owned and operated by the company *Neuenhofer Biogas GmbH & Co. KG*, the initiative utilizes waste heat from a biogas plant, complemented by the construction of a wood chip heating system to establish a public heating network. This network includes the development of heat pipes and heat exchangers. With a total project cost of 686,570 EUR, of which 94,545 EUR was funded by the LEADER programme, the initiative aimed to enhance energy efficiency, significantly reduce GHG emissions, and expand the heating network to connect additional users. As a contribution to Schleswig-Holstein's energy transition in the heating sector, the project demonstrates the potential for leveraging renewable resources and federal and EU funding to create sustainable, community-focused energy systems under private ownership.

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