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"Energy WITH Spirit" Facing Nowadays Challenges by Generating Sustainbale Energy in Solidary Energy Communities: First Project Insights

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1 ABSTRACT

Our world faces multiple challenges: The energy crisis is one of them and must be addressed at a local and regional as well as national and global level. In this transformation process of phasing out fossil energy sources, technical and social innovation must work closely together to foster long-term and sustainable changes. Generating energy from solar sources is one of the key sustainable and resource-efficient options we presently have . As stipulated in the European Green Deal, the goal is to phase out fossil fuels by 2050 with no net greenhouse gas emissions (European Commission, 2019). Sun and renewable energy sources are therefore key drivers for resilient and livable cities, societies, and economies. Just as the challenges of global change processes are unevenly distributed across the world, so are financial resources. People who are threatened or affected by poverty are more likely to be affected by energy poverty. According to a study from 2021, low-income households are significantly more affected by the rising energy prices (Maier-Kubala, 2021). Measures for energy transition and climate change adaptation are often associated with high costs and are therefore more likely to be implemented by people with higher incomes.

To include vulnerable groups in the process of energy transition, the project "Energy WITH Spirit," solidarity-social energy communities, was established. The main aim of the project is for socially disadvantaged and poverty-affected households, as well as people in basic services and low-income earners , to benefit from the sustainable and solidary produced energy. 10 % of the energy produced in kWh or 10% of the profit generated in Euro will be donated to vulnerable groups. How this goal is implemented technically (e.g., smart metre rollout; photovoltaic systems and storage, optimal consumer mix), economically (e.g., billing modalities, digital billing), and organisationally (e.g., proof of household income and expenditure; selection of recipients of energy quotas) will be explored within the project.

- The following target groups are involved in the solidarity-social energy communities: producers invest in sustainable energy generation through photovoltaic systems and set them up on their own properties, prosumers produce and consume part of their produced energy themselves (production and use under one roof) and consumers receive part of the energy produced by photovoltaic systems in the form of electricity. As consumers only, the project addresses the following groups: Socially disadvantaged and/or low-income households, people in basic services and the in-work impoverished who do not receive any government grants.
- To better involve the target groups, knowledge-transfer and awareness-raising workshops are held to address and sensitise them to urban energy, environmental, and climate issues. According to the solidary approach, "Energy WITH Spirit" aims to overcome the challenges of the energy crisis by generating sustainable energy in a solidarity energy community by actively involving vulnerable groups in the energy transition process. The next steps of the project are the technical construction of the photovoltaic plants as well as the economic preparation of the solidary energy community. This process is accompanied by target group orientated and simple energy education workshops for the vulnerable groups.

Keywords: sustainability, transition, cooperation, energy communities, vulnerabilities

2 BASELINE

2.1 European Context

- The climate crisis highlights numerous challenges at the global, national, and local level. In response to this, the European Green Deal was formulated in 2019 by the European Commission (European Commission, 2019a). As a new growth strategy and transformative process, the Green Deal aims to facilitate the European Union and its member states' transition towards a fair society with a resource-efficient and competitive economy (European Parliament; European Council, 2018/2001). The European Green Deal, introduced by the European Commission in December 2019, is a comprehensive policy framework aimed at making Europe climate-neutral by 2050. It encompasses various initiatives to accelerate the transition to a sustainable and low-carbon economy. Energy communities align closely with the objectives of the European Green Deal by fostering renewable energy deployment, energy efficiency, and citizen engagement. The European Green Deal acknowledges the importance of energy communities as a key pillar in the transition to cleaner energy systems. It aims to facilitate the establishment and operation of energy communities across Europe through supportive policy measures, regulatory frameworks, and financial instruments. The overarching goal is to democratise the energy sector, empower local communities, and ensure a fair and inclusive energy transition.
- The ongoing energy crisis, particularly triggered by Russia's attack on Ukraine, has resulted in a rapid escalation of energy prices, impacting not only the economy and administration but also individuals and their daily lives. A study conducted in 2021 indicates that s low-income households are significantly more affected by the rising energy prices (Maier-Kubala, 2017).
- The Clean Energy for all Europeans Package (CEP) has incorporated energy communities into the European Union's legislation (European Commission, 2019b). The directive includes common provisions for the internal electricity market, enabling active participation of end-users in all markets by generating, consuming, sharing, or selling electricity (EU 2019/944).
- Alongside technological and digital advancements, social energy communities adopt a strong social approach. They encourage end-users to become part of the solution and foster an understanding for sustainable energy usage and behaviour.

2.2 Renewable Expansion Act (EAG Package) in Austria

- The Renewable Expansion Act (EAG Package) represents the implementation and execution of the European Green Deal and was passed by the Austrian National Council in 2021 (Republik Österreich, 2022). One of its goals is to transition Austria's electricity supply to 100% renewable energy sources by 2030. This law amendment allows individuals to collaborate across property boundaries to collectively produce, store, consume, and sell energy. The Renewable Expansion Act serves as the legal framework for energy communities in Austria.

2.3 And the social dimension

In the energy transition, a collaboration between technical and social innovations is necessary to bring about long-term and sustainable changes (Knoll, 2016). Measures for energy transition and climate change adaptation are often associated with high costs and are therefore implemented primarily by individuals who have sufficient income. It is known that a portion of the population (especially the elderly, migrants, students, job seekers/unemployed individuals, and low-income earners) or vulnerable groups (socially disadvantaged households, people living in poverty) are not fully involved in the energy transition due to a lack of resources (financial, spatial, knowledge-related) (Maier-Kubala, 2017; Räty, 2010). The experiences of existing energy communities demonstrate that standard communication and dissemination measures are important but insufficient. Technical terms need to be translated into understandable language for all population groups to effectively convey the benefits, meet expectations, and actively involve all demographic groups in the energy transition.

3 HOW ENERGY COMMUNITIES EMPOWER SUSTAINABLE CHANGE

3.1 Roles within Energy Communities

In an energy community, at least two participants come together to achieve a collective production and utilisation of energy (Erneuerbaren-Ausbau-Gesetz, 2021). This is now possible beyond property boundaries. The electricity supply is provided by renewable energy sources, mostly photovoltaic systems. This is because the Renewable Expansion Act Package (EAG) aims to have Austria's electricity supply come 100% from renewable energy sources by 2030. Energy communities play an important role in this transition. By utilising renewable energy sources such as solar power, energy communities can help reduce our dependency on fossil fuels while ensuring a sustainable and clean energy supply. They promote a decentralised approach, where citizens actively participate in energy production and can collectively generate and utilise their energy. The concept of an energy community goes beyond mere electricity supply. It creates a closer community and promotes the exchange of know-how and resources. By pooling their efforts, people can collaboratively shape a sustainable future and make a positive contribution to climate protection.

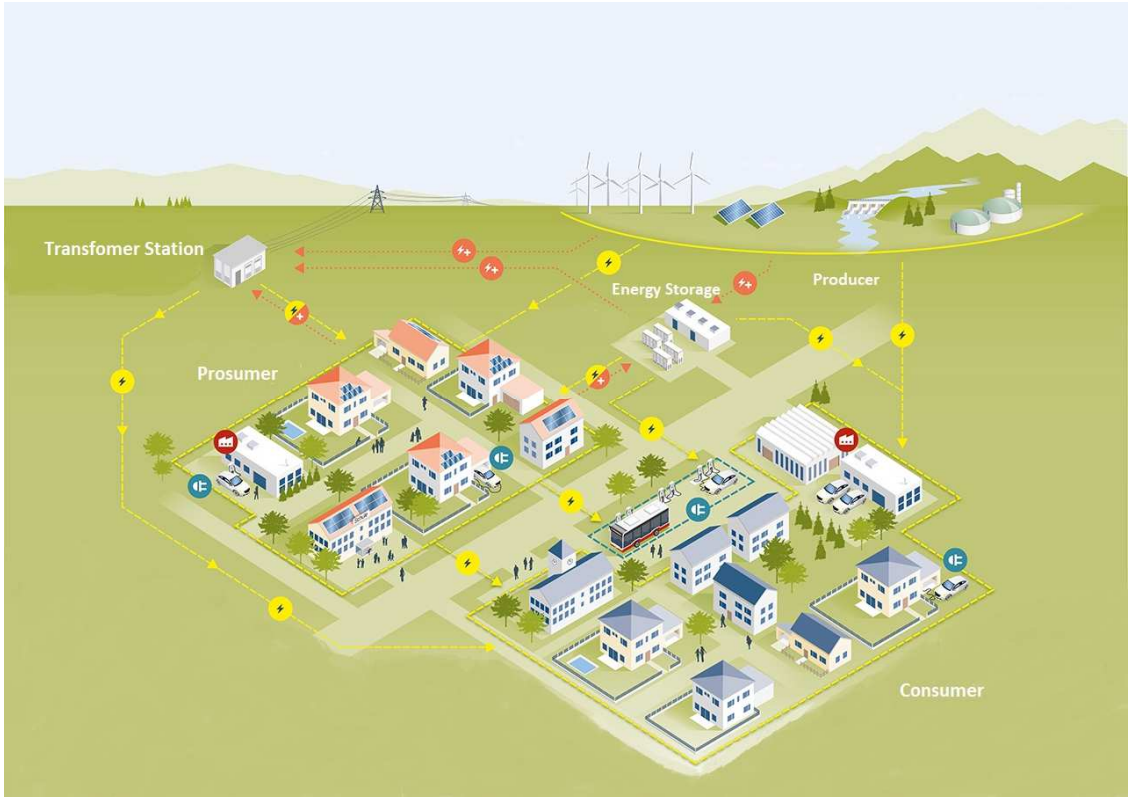

Fig. 1: Illustration of an Energy Community (https://energiegemeinschaften.gv.at/downloads/energiezukunft-gestalten/) (used with permission)

- Producers: Investing in sustainable energy generation, producers install photovoltaic systems on their own properties, contributing to the production of clean and renewable energy.
- Prosumers: Institutions acting as prosumers not only utilise the properties where photovoltaic systems are installed but also consume a portion of the energy produced on-site. This concept of production and consumption under one roof applies to various entities, including our two frontrunners the Protestant Boarding School Bad Goisern, catering to children with socio-pedagogical support needs and their caregivers, as well as the community of students, teachers, and non-teaching staff at the Protestant Secondary School Donaustadt.
- Consumers: Benefitting from sustainable energy practices, consumers receive a share of the electricity generated by photovoltaic systems, ensuring a cleaner and more sustainable energy supply.

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3.2 Benefits of Energy Communities

The benefits of energy communities are numerous. According to legislation, the primary contribution of energy communities is the benefit they bring to the community (Erneuerbaren-Ausbau-Gesetz, 2021).

- Ecologically, energy communities provide advantages through localised energy generation. This eliminates the need for long-distance transmission, as energy is consumed in close proximity. Consequently, it reduces the carbon footprint not only for individuals but also for the region and the entire country. The proximity of energy generation also fosters a greater understanding and connection to the topic of electricity production.
- From an economic standpoint, energy communities offer several advantages. When the generated energy is sold or purchased, the energy community itself determines the price. Supporting local value creation helps minimise reliance on large imports of fossil fuels and leads to increased financial benefits for the region.
- Socially, energy communities contribute to increased awareness of climate and energy-related issues, by promoting renewable and sustainable energy sources. They enhance interaction and communication among community members and foster therefore a sense of social cohesion.
- Furthermore, sector coupling, achieved through the integration of electricity, heat, and mobility sectors, can elevate self-sufficiency levels. For instance, the utilization of a neighborhood storage system enables the use of self-generated electricity for charging electric vehicles at a later time.

4 THE LIGHTHOUSE PROJECT "ENERGY WITH SPIRIT"

To involve and actively engage vulnerable population groups in the energy transition, a consortium of 11 project partners from the business, scientific, research, and Protestant Church and its social welfare organisations came together for the project "Energy WITH Spirit. Pioneering implementation of a solidarity energy community in the Protestant Church Community Action sector in Austria." The project is led by B-NK GmbH Office for Sustainable Competence and involves the following organizations: AEE INTEC, akaryon GmbH, Diakonie Bildung gem. GmbH, Diakonie Eine Welt gem. GmbH, Diakonie Flüchtlingsdienst gem. GmbH, Dipl.-Ing. Ralf Dopheide e.U., Evangelische Superintendentur A.B. Wien, Evangelisches Haus Hadersdorf Wobes, Schülerheim Bad Goisern GmbH, and TRIGONplan Planning and Consulting Company for Landscape Ecology and Technical Environmental Protection. The three-year project started on March 1, 2023, and is funded by the Austrian Climate and Energy Fund under the "Lighthouses for Resilient Cities 2040" programme.

The project aims to ensure that the energy generated by the photovoltaic system not only meets the needs of the on-site facilities but also contributes to the well-being of socially disadvantaged and impoverished households, as well as individuals who rely on basic supplies and those who fall into the category of in-work poverty. This will be achieved through a solidarity-based approach, where approximately 10% of the energy produced in kilowatt-hours or 10% of the generated profit in euros will be allocated to these vulnerable groups. To address these objectives, first of all technical aspects, such as the implementation of smart metres, photovoltaic systems, and storage solutions, as well as different models for an optimised mix of different members and load profiles have to be examinated. In addition, economic considerations will be considered, including billing methods and the implementation of digital invoicing systems. Organisational aspects, such as verifying the income and expenditure of households and selecting recipients for energy quotas, will also be carefully managed. By tackling these technical, economic, and organisational challenges, the project seeks to ensure that the benefits of the photovoltaic system extend beyond the immediate facilities and positively impact the lives of those in need, fostering a sense of solidarity within the community.

4.1 The Frontrunners

The project involves a pioneering implementation of a solidarity-based social energy community with two "fixed-starter buildings" (= "frontrunners") as prosumers, as well as the preparation for a nationwide roll-out.

As stated before, there are two frontrunners, one is the Protestant Boarding School in Bad Goisern.

The Protestant Boarding School Bad Goisern provides accommodation for 45 children (both girls and boys) aged 6 to 16, with a socio-pedagogical focus. The institution collaborates with child and youth services from

the provinces of Upper Austria, Salzburg, and Styria. Recently renovated in 2022, it is one of the most modern boarding schools in Austria. With the aim of embracing sustainability, the Protestant Boarding School Bad Goisern is in the process of installing a large-scale photovoltaic system. By holding both the "producer" and "prosumer" roles in the energy community, the boarding school seeks to meet its own energy demands while also demonstrating solidarity by allocating 10 % of its energy generation to support others in need. This endeavour not only enables the facility to become self-sufficient but also empowers it to contribute to the well-being of the wider community.

Fig. 2: Technical and Economic Pre-Dimensioning of the Photovoltaic System, Bad Goisern.

The second frontrunner is the Protestant Secondary School in Vienna Donaustadt.

The Protestant Secondary School Donaustadt is run by Diakonie Bildung gem. GmbH and is part of the Diakonie Eine Welt Group. The facilities of Diakonie Bildung are open to people of all denominations. In the Protestant educational institutions in Vienna and the surrounding area, Diakonie Bildung cares for around 3,800 children and young people in kindergartens, schools and after-school care centres.

The Protestant Secondary School Donaustadt already has an educational focus on "Ecology and Environment" and is certified with the eco-label "Österreischische Umweltzeichen Schule". The planning and installation of a photovoltaics system at the school is also an excellent opportunity for the students to learn in a practical on-site manner about renewable and sustainable energy production.

Fig. 3: Technical and Economic Pre-Dimensioning of the Photovoltaic System, Vienna Donaustadt.

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4.2 The "Energy WITH Spirit" Real-Estate Database

To assess the potential for a rollout within the Protestant community, beyond the two frontrunners in the Energy WITH Spirit project, namely the Protestant Boarding School Bad Goisern and the Protestant Secondary School Donaustadt, Vienna, a survey will be conducted among Protestant institutions, congregations, organisations, and associations. The survey will address the following questions:

- What is the real estate inventory in Protestant institutions, and what are the potential factors related to photovoltaic installations (locations, climate factors, etc.) (= potential prosumers)?
- Where, and in what form, could solidarity energy communities be best established?
- Who could be additional prosumers of the energy community? Who could be additional consumers?

However, for the successful dissemination of the project, a detailed recording of relevant currentstate parameters of the potentially suitable properties in the Protestant church community is essential. This includes a database of its technical characteristics, equipment, and energy needs, as well as socio-structural input parameters within the framework of church and political communities. Methodologically, these surveys are based on both the traditional survey instrument and data from original sources regarding legal status, technical building documentation, and natural planning parameters, selected and based on the respective expertise of the project partners. The storage of the building and environmental data is managed through a database management system, for which the data model has already been developed in a draft version. The goal is to establish a web-based information system that supports project partners not only in the establishment of energy communities in the project, which is the main project objective but also in their ongoing operation by providing fundamental data.

4.3 The Context: Protestant Church in Austria

The Protestant Church A.B. in Austria has a three-tiered structure. The first level consists of 191 parish communities, which act autonomously in many matters towards the regional church through their representative bodies: the Community Council and the Presbytery. The parish community is led by a pastor and a curator who jointly fulfill their spiritual and secular leadership roles within the Presbytery of the parish community. The Community Council, from which the Presbytery is elected, serves as a supervisory body over this governing body.

The parish communities are grouped into seven dioceses, known as superintendencies, which generally correspond to the boundaries of the federalprovinces. The representative bodies of the superintendencies are the Superintendential Assembly and the Superintendential Committee. The superintendency is led by a superintendent and a superintendent's curator.

According to their own count in 2022, this church structure represents 252.233 individuals in Austria who are registered as active members of the Protestant Church A.B. (Evangelische Kirche in Österreich, 2022).

5 THE SOLIDARITY APPROACH: 10 % FOR THOSE WHO NEED IT

Diakonie is the social welfare organisation of Austria's Protestant churches. In its basic statement it is stated: "Church community action begins with the perception of need: Just as the first community in Jerusalem recognized the plight of Greek widows, Martin Luther addressed the impoverishment caused by currency devaluation, Johannes Calvin addressed the plight of refugees in Geneva, Countess de La Tour addressed the misery of illegitimate children, and the brothers Ernst and Ludwig Schwarz addressed social impoverishment, we too must concretely identify and name the general social situation and specific needs of certain groups and individuals. Church community action is directed to the poor and needy in our world. Poverty and social exclusion are often kept silent and ignored by society. In Christian communities, however, these specific problems are recognised, andlead to actions. These communities are places for all people, regardless of their origin and social situation, or their faith." (Diakonie, 2013).

Building upon this foundational statement and supported by a theological concept developed by the Faculty of Protestant Theology at the University of Vienna, the "Energy WITH Spirit" project aims to realise its fundamental objective: to share the energy produced in a spirit of solidarity. This entails allocating either 10% of the generated energy in kilowatt-hours or 10 % of the generated profits in euros to support socially disadvantaged households and individuals affected by poverty.

5.1 How to gain access to vulnerable groups

There are two primary approaches to accessing vulnerable groups: through the project consortium itself and through collaborations with charitable and social welfare institutions. For example, the Evangelischer Waisenversorgungsverein (Protestant Orphan Care Association) has implemented a scholarship model that considers not only financial income but also expenses and social circumstances.

In accordance with their charitable orientation, the Evangelischer Waisenversorgungsverein and Diakonie Bildung gem. GmbH provide financial resources for school fees to socially disadvantaged and/or impoverished families. As the oldest charitable association in Austria, founded in 1861, the Evangelischer Waisenversorgungsverein has supported approximately 900 children over a span of more than twenty years, often throughout their entire schooling period (Evangelischer Waisenversorungsverein, 2023). The Evangelischer Waisenversorgungsverein, along with the institutions of Diakonie, as the social welfare organisation of Austria's Protestant churches, as part of the energy community, plays a key role in reaching out to socially disadvantaged households.

The solidary approach of the "Energy WITH Spirit" community is designed to benefit the following vulnerable groups:

- Socially disadvantaged and economically impoverished households. The Evangelischer Waisenversorgungsverein and Diakonie Bildung gem. GmbH specifically target these groups.
- Individuals in basic care or with subsidiary protection status, who have experienced displacement, are directly supported, and addressed by the Wohnberatung (Housing Counseling Service provided) by Diakonie Flüchtlingsdienst gem. GmbH.
- The in-work impoverished who do not receive state subsidies. It is the core competency of Diakonie to accompany such precarious living situations and mitigate their impact, particularly for children.

5.2 How to allocate the 10 %

The Faculty of Protestant Theology at the University of Vienna is currently working on the development of a theological concept, which is grounded in fundamental theological principles. By the end of 2023, this concept aims to establish a framework for sharing energy in a spirit of solidarity, specifically by allocating 10 % of the generated energy in kilowatt-hours or 10% of the generated profits in euros to support socially disadvantaged households and individuals affected by poverty.

The administrative procedures for implementing this allocation system will be devised and tested as part of the project. As a starting point, we will focus on two frontrunner buildings and energy communities in Bad Goisern and Vienna. These pilot projects will allow us to refine and validate the concept.

Once the concept has been thoroughly evaluated and proven effective, we plan to implement it on a larger scale across Austria by 2025. This nationwide rollout will enable us to extend the benefits of the solidarity-based energy sharing approach to a broader range of communities and individuals in need.

6 ENERGY EDUCATION WITH THE MOTTO “LEAVE NO ONE BEHIND”

The successful implementation of the two frontrunner energy communities relies heavily on the active engagement of staff members and users, including socially disadvantaged children and young people, students, and individuals in basic care. To enable these target groups to become fully integrated members of the energy community, communication and knowledge transfer processes are essential. Therefore, an integrated objective of the energy community is to provide accompanying "energy education" in the form of knowledge dissemination and awareness-building workshops. This is done to engage the target groups, raise awareness and sensitivity towards energy, environmental, and climate-related topics, and create awareness for the goals and measures surrounding "Energy WITH Spirit." In this regard, employees (social educators, therapists, counsellors, psychologists, teachers, facility technicians, administration) in the energy-producing facilities play an important role as multipliers. The project focuses on the inclusion of vulnerable individuals and equal opportunities.

Their participation is essential in the prosumer facilities, such as the Protestant Boarding School Bad Goisern and in the Protestant Secondary School Donaustadt, as well as in the Wohnberatung (Housing Advice) provided by the Diakonie Flüchtlingsdienst gem. GmbH. To achieve this engagement, the project will

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develop and implement targeted knowledge transfer and "energy education" initiatives that are easily comprehensible for the respective target groups.

These initiatives will address various energy-related questions, covering topics such as

- the fundamental understanding of energy,
- the significance of sustainable and renewable energy production,
- the workings of photovoltaic systems,
- the implications of energy crises and rising prices,
- the importance of energy conservation,
- the concept of solidarity and energy communities,
- and the specific rationale behind installing photovoltaic systems.

The primary objective is to emphasise the value of energy as a precious resource and establish a clear connection between everyday life and energy-saving practices.

Through these educational activities, the "Energy WITH Spirit" project strives to raise awareness among staff members of the institutions and socially disadvantaged groups regarding the critical interplay between energy production and consumption. By fostering a deeper understanding of these dynamics, the project aims to empower individuals to make informed decisions and actively contribute to a more sustainable energy future.

7 CHALLENGES ENCOUNTERED THUS FAR

7.1 Equipping Buildings with Photovoltaic Systems: A Challenging Task

As "Energy WITH Spirit" is a research project focusing on energy communities in the Protestant-Community Action sector, church buildings and their annexed buildings are a significant portion of the Producers and Prosumers buildings. Religious communities often own rooftop spaces in urban areas where complex ownership structures of apartment buildings can make the installation of photovoltaic systems very difficult.

In Austria, churches and their roofs are subject to heritage protection regulations. The legal framework for heritage protection is established in the Denkmalschutzgesetz (= Heritage Protection Act) which serves as the basis for safeguarding cultural monuments and historic buildings throughout the country. Consequently, specific legal provisions and approval procedures must be followed when making alterations to these buildings. Currently, there is no unified statutory regulation specifically addressing the installation of photovoltaic systems on church roofs within the context of heritage protection. The legal situation can vary depending on the federal state, as heritage protection laws in Austria are governed at the regional level (Denkmalschutzgesetz, 2013).

While churches and their roofs are subject to heritage protection in Austria, the same does not apply to their annexes. We have already conducted initial exploratory discussions with representatives from the Federal Monuments Office regarding selecting "friendly customer" churches and Protestant religious communities aiming to install photovoltaic systems on their churches and establish a solidarity energy community involving their members, neighbours, municipalities, and other charitable institutions (Bundesdenkmalamt, 2022).

Currently, numerous factors are at play in the dynamic tension between climate protection and heritage preservation, necessitating the consideration of new parameters. As of now, there is no definitive decision from the Bundesdenkmalamt (Austrian Federal Monuments Office) that comprehensively addresses this issue. However, it is noteworthy that the year 2022 has been explicitly designated by the Federal Monuments Office as a focal year for the theme "Heritage Preservation = Climate Protection." This declaration underscores the growing awareness of the mutual significance and inseparable connection between these two spheres.

7.2 Legal Framework

According to the Erneuerbaren-Ausbau-Gesetz (EAG) (= Renewable Expansion Act) in Austria, large companies are not permitted to be members of energy communities (Erneuerbaren-Ausbau-Gesetz, 2021)

The EAG defines large companies as companies that meet the criteria of a large enterprise according to European law. The law stipulates that energy communities can only be formed by households, small businesses, small and medium-sized enterprises, and certain non-profit organisations. Large companies are excluded from participating in such communities. This regulation aims to ensure that energy communities align with the goals of decentralisation, democratisation, and participation of local communities. They are intended to enable citizens and smaller actors to actively participate in the generation and use of renewable energy and benefit from the associated advantages.

However, it should be noted that certain non-profit organisations, although primarily pursuing development and humanitarian objectives, may be classified as large companies according to European law based on criteria such as the number of employees and other factors. It is important to note that this specifically applies to the Austrian EAG. In other European countries, the regulations regarding the participation of large companies in energy communities may vary.

7.3 Dimensioning and Supply Chain Optimization for Photovoltaic Systems

Supply bottlenecks and extended delivery times have become a familiar topic of discussion. The demand for photovoltaic systems has significantly increased in the past year, driven by high energy prices and an unsettling sense of insecurity in the energy sector. Adding to the complexity is the vast array of photovoltaic modules, mounting systems, and storage solutions available. As a result, accurately estimating the kilowatt peak power to be achieved depends not only on the roof's surface area but also on the specific photovoltaic panel and mounting system employed. Proper sizing of photovoltaic systems and efficient management of the supply chain are crucial in the current market situation. Careful planning and coordination are necessary

7.4 Grid Membership

According to the Renewable Expansion Act, as of June 2023, two models for energy communities have been established. On one hand, there is the "renewable energy community" (EEG), which operates within local limitations, and on the other hand, the "citizen energy community" (BEG), which can operate without geographical restrictions. EEGs are limited to the "local area," requiring participants and their facilities to be located within the franchise area of a grid operator. A local EEG can be established when grid levels 6 and 7 (low-voltage grid) are interconnected, while a regional EEG encompasses grid levels 4 and 5. BEGs can operate across Austria, extending beyond the concession area of grid operators. Unlike EEGs, they are not restricted to renewable energy sources but are solely permitted to generate, store, consume, and sell electrical energy. However, economic benefits such as the elimination or substantial reduction of grid usage fees do not apply to BEGs. In rural areas, determining which neighborhoods belong to the same grid usage tier is often straightforward. However, in urban areas, this can be challenging. For instance, in Vienna, the closest transformer station (the boundary for local BEGs) is frequently located at the next street or apartment block boundary. As a result, the exchange of energy contingents within the EEGs can be severely limited in terms of space.

8 OUTLOOK

Based on the principles of solidarity, the "Energy WITH Spirit" research team is driven to address the challenges of the energy crisis. By establishing a solidarity energy community that generates sustainable energy, the project aims to actively involve vulnerable groups in the ongoing energy transition process. The next crucial steps of the project involve the technical implementation and construction of the photovoltaic plants. Simultaneously, the project team is undertaking economic and regulative preparations to ensure the smooth functioning of the solidarity energy community. This entails devising suitable billing and allocation systems, as well as developing strategies to encourage active participation and engagement from all members. In parallel with these technical and economic endeavours, the project recognizes the importance of energy education to empower and equip vulnerable groups with knowledge about sustainable energy practices. To achieve this, the initiative conducts targeted and easily understandable energy education workshops tailored to the specific needs and circumstances of the target groups. These workshops provide valuable insights into the benefits of renewable energy, energy-saving measures, and the overall importance of environmental sustainability. By fostering a deeper understanding of energy-related concepts, the project endeavors to empower vulnerable groups to make informed decisions, actively contribute to the energy transition, and contribute to climate protection.

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