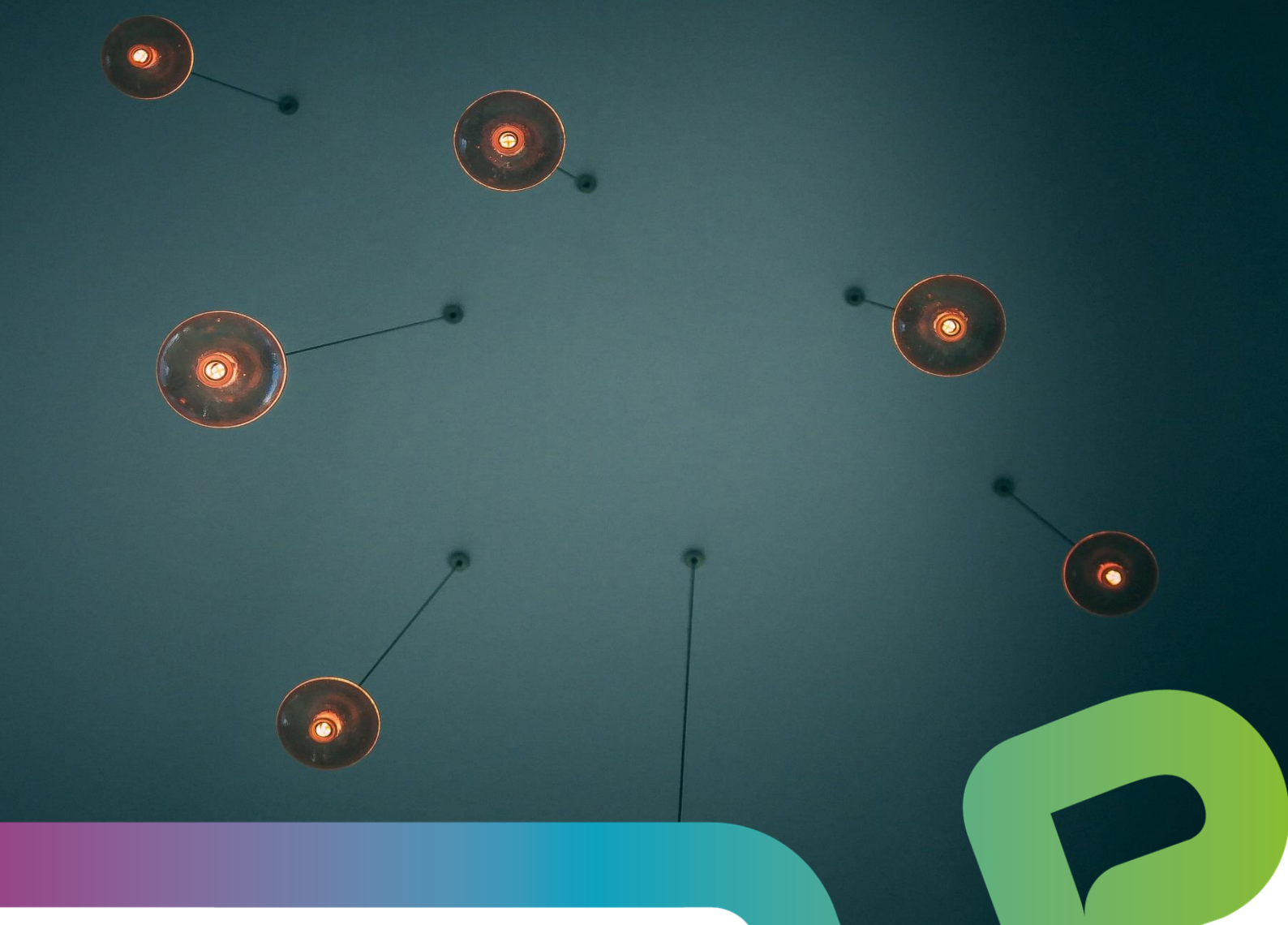

POWERUP

The catalyst for social innovation in the energy market

A European Analysis of different Social Energy Market Players

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Executive Summary

Recent years have seen reinvigorated interest in 'Social Energy Market Players', i.e. energy market players with a social agenda. Various technical, economic, social, and ecological dimensions have sparked this renewed interest. Amongst others, these include concerns about inefficiencies in market energy structures, such as opaque and high energy tariffs, growing awareness of the extent and impact of energy poverty, and the desire to incentivise investment in renewable energy generation and a transition away from reliance on fossil fuels. On a European level, these concerns are reflected in recently adopted policy measures, such as the Clean Energy Package (CEP) or the European Green Deal. At the same time, the type of Social Energy Market Players that can emerge and sustainably operate in a local or regional area are defined by their national and regional institutional, regulatory, and societal contexts. While there are several successful and innovative Social Energy Market Players models, they are very much the products of particular countries and circumstances. Some cities, particularly in Northern and Western Europe, have been fortunate to inherit well-established local energy providers, sufficient regulatory powers, or a culture of strong civic engagement. In contrast, other cities, typically in more centralised states, have to re-establish and develop capacities and campaign for sufficient regulatory powers.

This report analyses Social Energy Market Players in Europe through the creation of a typology. Social Energy Market Players are evaluated by the institutional contexts in which they developed, including fully or partially owned municipal energy providers, citizen-led energy cooperatives, and targeted mitigation mechanisms. This report puts particular emphasis on examining relationships between Social Energy Market Players and regional and local public authorities. Indeed, cooperation between regional and local public authorities and civil and private organisations such as cooperatives is key for an effective strategy to combat energy poverty and can play a pivotal role in local social and climate transition agendas.

01

Introduction

Recent years have seen reinvigorated interest in 'Social Energy Market Players'. Energy cooperatives are being set up across several EU Member States, including in Member States where cooperatives do not have a strong social or institutional tradition [1–4]. Re-municipalisation has gained support across the continent, as municipal utility providers are being expanded or re-established across cities in different EU Member States [5–7]. The reasons behind this newfound interest are complex and numerous, involving a mix of technical, economic, social, and ecological factors. However, two processes stand out: 1) the increasing public and political awareness of the urgency of climate action and the consequent augmentation of the EU's climate commitments, and 2) increasing awareness of Energy Poverty and its social, economic, and ecological impacts.

The European Union's expanded climate policy ambitions are illustrated by the adoption of the Clean Energy Package and the European Green Deal. Together, these have committed the bloc to a 55% reduction of Greenhouse Gas (GHG) emissions and reaching 'climate neutrality' by 2050. Reaching these requires a rapid transition away from fossil fuels and the creation of a European energy system based on non-emitting energy sources and a much greater use of Renewables (RE). This, and the growing support fora degree of decentralisation of the European energy system has led to a newfound appreciation of the role local and regional actors can play – an appreciation which is reflected in recent policy measures, such as attempts to define and support Energy Communities (ECs).

Energy Poverty is the 'inability to secure a level and quality of domestic energy services, including space heating and cooling, cooking, appliances and information technology that is sufficient for members of a household'

Energy Poverty (EPOV) can be defined as the 'inability to secure a level and quality of domestic energy services, including space heating and cooling, cooking, appliances and information technology that is sufficient for members of a household' [8, 9]. It is an issue that is present both in developed and developing countries, and is strongly linked to low incomes, energy-inefficient homes, and high energy prices [8–10]. Recent studies estimate that Energy Poverty affects up to 50 million Europeans (34 million in the EU) – and as a result of the COVID-19 pandemic and the rapid rise of energy prices in 2021, it is widely assumed that the numbers are increasing [11–13]. For a long time, public recognition of Energy Poverty was limited to Northern and Western European states, particularly the UK and the Republic of Ireland.

However, the last decade has seen a rapid expansion in scientific and policy recognition [14]. This was the result of years of campaigning by anti-poverty and environmental NGOs, who highlighted the detrimental effects Energy Poverty can have on the EU's environmental policy objectives. As a consequence of two economic crises and growing inequalities, addressing Energy Poverty as a social issue has risen on the agenda, closely connected to growing calls for a more social Europe. Even more importantly, however, Energy Poverty impedes participation in the energy transition– raising questions about the social inclusivity of the transition and its socio-economic feasibility'.

Energy Poverty affects up to 50 million Europeans

What are Social Energy Market Players?

Social Energy Market Players (SEMPs) are a greatly heterogeneous group that include a wide variety of entities that differ in scale, services, governance, and legal form. They are closely related to but must not be confused with Energy Poverty Mitigation Measures, which refer to all forms of support mechanisms that provide one-off or temporary support to energy-poor households without increasing systemic resilience to energy poverty. In essence, a SEMP must be at once a Market Player and a Market Player with a social agenda. To be classified as a Market Player, organisations must be active on the energy market (selling, producing or buying energy…). To be classified as a Market Player with a social agenda, organisations must primarily operate on a not-for-profit motive, such as service provision at low-cost or the alleviation of Energy Poverty. They can have a wide variety of organisational structures, ranging from Public Utility Companies to co-operatives and charitable enterprises. They aim to provide long-term, permanent, and lasting solutions to energy market failures, such as energy poverty or low investments in Renewable Energy (RE).

The Objective of this Report

This report explores different models of Social Energy Market Players in Europe. It was written as part of the H2020-funded POWER UP project, which participates in the H2020 framework programme for open science and innovation in the topic "LC-SC3-EC-2-2018-2019-2020 –

Mitigating household energy poverty"[15]. The core objective of the POWER UP project is to work together with local authorities to support the creation of local energy market players with a social agenda, and it is a joint project between a multidisciplinary consortium of 12 partners from 9 countries.

The main objective of this report is to explore different models of Social Energy Market Players in Europe, and identify reasons for their successes and failures. Through this, the report can act as inspiration and provide information for the Pilot projects and other policymakers.

The European Policy Context

Owing to their presence in the Energy Market, SEMPs are primarily subject to Energy Policy developments. While highly strategic, this policy area is a relatively new addition to the EU's competencies. As such, while EU-level legislative changes are, of course, applicable to the entire Internal Market, Member State governments retain a strong interest and control. The resulting policy context remains somewhat fragmented between different governance levels (sometimes cities and provinces, regions and Member States) [16].

The EU's Energy Policy has evolved rapidly in the last five years. The reasons behind this are numerous and complex, but two somewhat interconnected developments stand out. Firstly, the centrality of climate and energy policies moved up considerably in the EU's policy agenda. Secondly, the growing recognition of Energy Poverty and increasing levels of socio-economic inequality has led to demands for a 'more Social' Europe in general and more direct mitigation measures for escalating material deprivation and precarity, such as Energy Poverty in particular.

Half of all European Union citizens could be producing their own electricity by 2050, meeting 45% of the EU's energy demand

In order to meet its commitments under the Paris Agreement, the EU needs to drastically reform its energy and electricity system. This involves reducing its reliance on fossil fuels, increasing the use of electricity, and reducing its overall consumption. Central to these efforts

is the decentralisation of the electricity system and the shift from fully passive consumers to active prosumers. Some studies estimate that half of all European Union citizens could be producing their own electricity by 2050, meeting 45% of the EU's energy demand [26].

From a legal point of view on a European level, the two significant developments are the recast of the Renewable Energy Directive (RED II) [17] and Internal Electricity Market Directive (IEMD2019) [18]. These were part of the European Commission's "Clean Energy for all Europeans" package and are currently in different stages of transposition across Member States. These directives aim to introduce greater clarity and harmonisation of legal definitions, promote the use of decentralised and renewable energy production, encourage investment into energy efficiency, and expressly recognise the role of individuals and energy communities in the European energy market [19, 20]. For example, the IEMD2019 provides a definition for Citizen Energy Communities (CECs) and formally recognises them as market actors. Similarly, the REDII provides legal definitions for Renewable Energy Communities (RECs) and introduces a binding requirement for Member States to establish simplified and less burdensome authorisation procedures. These represent a considerable shift in policy and recognition for Community Energy. However, the framework retains some weaknesses. For instance, it has been noted that the definitions outlined in the RED II and the IEMD2019 could be more coherent with one another [19–21]. Furthermore, the IEMD2019, in particular, has been criticised for focussing on the provision of fair and equal competition without recognising the specific material and financial disadvantages local and social Energy Market Players face when competing with large, established, commercially motivated Energy Companies, especially in highly concentrated markets.

Local realities, institutional patterns

Although REDII and IEMD2019 represent considerable steps towards a clearer and more harmonised European policy framework, the issue of heterogeneous national and local contexts persists. Given that SEMPs are typically local or regional market actors, their feasibility, viability, and reach are at the mercy of national, regional, and local factors. Notably, these factors include 1) the legal and administrative infrastructure, including challenges with bureaucratic processes of different administrative levels, 2) the financial, technical, and human resources of local authorities, and 3) the market structure, particularly the concentration of local, regional and national electricity markets [20]. For example, local authorities in federal or

otherwise administratively less centralised Member States have an easier time operating or effectively supporting local SEMPs as they are more likely to have the necessary legislative, administrative and financial means [19, 22–24]. Greater devolution or tradition of strong municipal self-governance is also linked to better and more reliable funding sources, potentially allowing for greater consistency in local policies over the medium and long-term [2, 20, 24–26].

The City as a Connecting Tissue

Municipal governments can play a key role in supporting SEMPs. Indeed, local governments are arguably the most significant partners for SEMPs, their engagement is crucial for meaningful market impact. The reasons for this are twofold. Municipal governments are by function interested in SEMPs because they are tasked with addressing issues on a territorial rather than thematic level, which allows them to bring a more holistic viewpoint to Energy market design and addressing Energy Poverty. Notably, energy provision has been performed primarily on a municipal level via Public Utility Companies in many Member States until EU legislation initiated a wave of market liberalisation in the 1990s. The rise of this previous arrangement in the early 20th century was based on the idea that reliable and if necessary subsidised access to energy was a social and economic necessity and could not be left to the private market [27–29]. Public Utility companies have declined since the 1990s, as market liberalisation, greater competition, privatisation, and increased market concentration made many of them financially unsupportable for municipal governments. However, their historical presence indicates that municipal governments have a traditional incentive to engage in the local energy market giving them the opportunity to address multiple policy objectives. Indeed, energy poverty mitigation and encouraging renewable energy installations are often not adequately linked to national or regional policy agendas. However, municipal governments with a strong (or re-established) presence in the local energy market are well-positioned to develop interconnected strategies, thereby increasing synergies between separate policy instruments (see case study Barcelona Energia and Wien Energie below).

In the following parts of this document, the separate cases of municipal companies and energy cooperatives and communities are investigated, then different mitigation measures of energy poverty, often implemented by social energy market players, are described.

01

Municipal companies

Municipal or local public energy companies represent the most interventionist end of the spectrum of SEMPs. For much of the 20th century, municipal companies have been the main model of urban energy provision in most European countries. The role of Municipal Energy Companies in Europe declined drastically between 1990 and 2010. The reasons for this were myriad and complex but two merit particular mention. Firstly, the liberalisation of energy markets ended the traditional monopoly of public providers and subjected municipal companies to fierce competition from the often better-resourced private sector [5, 30]. Secondly, many local authorities were impacted by a decline in spending limits and public expenditure, making the continued operation of public service providers financially onerous for local authorities across several EU Member States. Municipal Companies became the subject of renewed policy interest in the last decade. This renewed interest has been closely linked to rising concerns about private providers' poor service quality, working conditions, highly concentrated markets, and high and obscure pricing. Although on the Member State and European policy level, re-municipalisation is still constrained by, for example, the current interpretation of EU State Aid rules, there has been a noticeable tendency towards re-establishing or re-vitalising Municipal Companies, particularly in Germany and Spain [5, 6, 31, 32].

Municipal Companies are a greatly heterogeneous group, showing considerable variation in form, organisation, service provision and reach. They can be wholly or partially publicly owned, directly managed, or just overseen by elected Local Administrators. Some are mere retailers, while others generate some or all of the energy they produce. These differences are primarily defined by the local market and political-administrative context. For example, several cities and towns in the DACH (Germany, Austria, Switzerland) region have successfully maintained their Municipal Energy Company. These companies continue to enjoy, if not a monopoly, then at least a firm and established market position vis-à-vis commercial competitors. In contrast, cities which have lost (or never had) their Municipal Energy providers have been experimenting with (re-)establishing one. However, this remains a very resource-intensive process (and risky in particular hostile national policy and market environments), as the travails of the UK cities' Municipal Energy retailers illustrate.

The Stadtwerke Model

One of the most successful and well-established models of Municipal Energy Companies is the Stadtwerke. These are typically wholly publicly owned Municipal Energy companies that offer energy generation, grid operation, and energy retail. They are still relatively common in the DACH region, where they enjoy a long history, having been established in the early 20th century. Until the market liberalisation of the 1990s, Stadtwerke typically enjoyed monopoly positions in their local areas. This positioning ended in most cities in the early 2000s. Around the same time, many cities had become increasingly impacted by dwindling public spending, putting local Stadtwerke under significant financial and competitive strain and leading to a wave of privatisations, particularly in Germany. This dynamic was not as widespread as the privatisations seen in other European states. Indeed, several larger cities in the DACH region, notably Vienna, Munich, and Geneva have successfully maintained their Stadtwerke [33, 34]. This success was often related to the inherited quasi-dominant market position of the Stadtwerke. This market position is illustrated particularly well in the case of Vienna. Although residents are now free to switch to alternative providers, Wien Energie remains the default and by far largest provider, servicing nearly 2/3 of the market, even after 18 years of market competition [35].

The Stadtwerke had also received renewed policy interest in recent years. Re-municipalisation movements are by far the most numerous in Germany, with several high-profile examples such as those in Hamburg and Berlin [5, 6, 36, 37]. Although the reasons for this are multiple, the most often cited ones are: 1) growing dissatisfaction with private, often large commercial providers, chiefly the Big 4 (RWE, E.ON, Vattenfall and EnBW), 2) a desire to re-assert control and re-establish local generation over urban energy supplies and 3) the desire to incentivise investment into RE production [36, 38].

Indeed, while not all Stadtwerke are champions of RE, an increasing number have been investing significantly in RE installations. Even more importantly, given their close links to Municipal and Regional governments, they can play a significant role in implementing local social and climate transition policies, by providing commercialised but accessible services to help citizens establish prosumer energy communities.

Case Study: Wien Energie (AT)

Description

Wien Energie (WE) is the Austrian capital's traditional regional public energy provider. By legal form, it is a Publicly Owned Limited Company (GmbH). With its current structure, it has been operating since 2001. However, its parent organisation, Vienna's overall Wiener Stadtwerke GmbH has been operating in one form or another since 1899 and has been one of the earliest municipal utility companies in Europe.

Reach

Wien Energie serves the greater Vienna metropolitan region. It supplies approximately 2 million residents and 230,000 businesses and industrial facilities, and 4,500 farms in and around Vienna, making it one of the largest energy suppliers in Austria [39].

Services

Wien Energie is a full-service energy generator and retailer that owns a wide range of generation facilities in and outside of Vienna, generating electricity and heat from RE sources such as solar, wind and hydropower, biomass, as well as cogeneration power (CHP) plants. Wien Energie provides electricity, natural gas, heat, and district cooling. More recently, it also offers electromobility services and a one-stop-shop counselling and support service for small-scale citizen solar energy communities [39].

Market Position

Historically a monopoly provider, the Viennese market has been open to competitors since the early 2000s, and Viennese residents are free to switch providers. Moreover, as Wien Energie offers a wide range of services, some of its markets, such as electromobility, are much more competitive than others. That being said, Wien Energie remains the default and largest provider in the Austrian capital, with an estimated market share of around 66% [35].

Efforts to support the RE transition

In recent years, there have been significant efforts to increase the share of RE in their generation mix, with a particular focus on solar installations. Indeed, in 2020, Wien Energie constructed one new solar power plant every week, despite the COVID-19 restrictions, and has now successfully piloted its first small-scale citizen energy community in a social housing building (Gemeindebau) in Ottakring. Based on this successful pilot and to support the emergence of small-scale, citizen energy prosumer communities, WE set up a one-stop-shop, free counselling service. This service offers residents continued administrative and organisational support in setting up and running small citizen' PV-panel-based self-consuming energy communities.

Role in addressing Energy Poverty

The establishment of the Wiener Stadtwerke has been strongly motivated by social causes from the very start, such as the provision of reliable and accessible energy for all Viennese residents. Although Wien Energie does not provide a social tariff, it has a well-established Ombudsman Service for 'Social Hardship' cases (see the Mitigation Measures part of the document). This offers free counselling and mediation services for households who are having trouble paying their bills. The Ombudsman's Team works closely with the municipal department MA40, which operates an Energy Assistance programme.

The Spanish municipal company model

After Germany, the second most active and arguably even more successful re-municipalisation movement is found in Spain. Social inequalities, precarity, and consequently energy poverty increased rapidly across Spain after the 2008 economic crisis. This resulted in widespread criticism of market liberalisation policies and the emergence of what is sometimes referred to as a 'new municipal politics'. This approach regards many local services, including energy provision as the core social and political right, and has led to an expansion of municipalisation and re-municipalisation across several services. For example, Valencia's administration has adopted an 'Energy as a Right' policy. At the same time, Barcelona's administration has established a local energy retailer and is also working on re-municipalising water management and expanding its nursery care services. This approach has a strong social as well as ecological agenda. Indeed, building on many Spanish cities' investments into solar energy, newly established SEMPs, be they Municipal Companies or Citizen Energy Projects, typically aim to offer primarily or even exclusively renewable energy.

The emergence of these municipal and citizen-led initiatives in Spain is all the more remarkable because, for years, these initiatives confronted an unsupportive and, at times, downright hostile central governmental policy. Notably, for years private self-consumers were discouraged from selling into the grid by the so-called 'Sunshine tax' (Royal Decree 900/2015, of 9th of October) [40–42]. This has now been repealed, and Spain is moving to establish a more supportive framework for Citizen Energy Communities in line with REDII. However, these changes are taking time, and State Aid and competition policy still place a considerable burden on SEMPs. For example, public energy companies, such as Barcelona Energía, are still limited to a maximum of 20% private consumers before subjecting them to direct commercial competition

for public tenders and limiting the application of social tariff credits to designated providers. Lastly, both municipal and citizen-led SEMPs are impacted by the limited availability of public funding, often relying on comparatively limited means of local revenues and European funds [43].

Case Study: Barcelona Energía (ES)

Description

Barcelona Energía (BE) is the Catalan metropolis' recently established not-for-profit public power generator and electricity provider. The company's mission is to promote self-consumption and, through that, support the city's energy transition while also addressing energy precarity. It is one of Spain's largest recently established public energy companies and forms part of a broader re-municipalisation trend. It is owned by the City Council and regional governing body Área Metropolitana de Barcelona (AMB).

Reach

BE operates in and around the Barcelona Metropolitan Region. Upon its establishment in 2018, it was projected to cover over 70% of public buildings' energy needs. While initially only supplying public buildings and the MUSH market, since 2019, it has also been offering services to a small number of residential consumers. As of May 2021, BE operates in 36 municipalities in the greater Barcelona Metropolitan Area, managing over 8,500 power sources and supplying 4,680 public buildings and 3,651 consumers.

Services

BE is an energy retailer for public institutions and a limited number of residential consumers. It is operated by TERSA, the city's public waste management and environmental services company. At its core, it purchases renewable energy from local and regional producers, including local PV panel installations, which they then retail to public institutions and residential consumers.

BE also offers personalised advice service through its system of 'Energy Service Points' (ESPs). During these consultations, consumers receive help with various energy-related issues, such as how to improve their consumption habits or access certain forms of social assistance. These consultations and the personalised counselling service offered by ESPs have received over 23,000 people just in their first year of operation and have helped over 5,000 households from service cuts.

Lastly, although BE cannot offer social discounts, as a not-for-profit company committed to direct citizen participation and radical transparency, it has adopted a

proactive and consultative approach to tariff-setting. Through this approach, they offer customised tariffs adapted to the needs of different consumers such as families, local businesses or the self-employed, including allowing large numbers of consumers to defer payments.

Market Position

BE was explicitly established to challenge the high concentration of commercial energy providers in the Barcelona Metropolitan Area, to become the main energy supplier for public buildings and facilities. This change was made possible because the City Hall was not legally obligated to tender its internal energy supply contract. Although BE is now also servicing residential and small, local business clients, the company's public status can only be retained if the rate of private clients does not exceed 20%. This rate and the much more competitive energy market in Barcelona means that the number of private clients the company can take on is somewhat limited.

Efforts to support the RE transition

Supporting Barcelona's energy transition is at the heart of BE's mission. For one, the company is committed to supplying 100% renewable energy. The city council also sees BE's role as a means to support residents to self-consume and thereby reduce their costs and overall consumption levels.

Role in addressing Energy Poverty

BE was established as part of an overall political will to re-municipalising basic economic and social services, such as energy but also water supply and nursery care. This programme responded to the very high levels of energy poverty and overall precarity in the city, which has grown rapidly in the aftermath of the 2008 economic crisis.

Championing the 'right to energy' approach, Barcelona has adopted an overall social strategy of which BE is a significant component. BE's role is to act as a fair retailer and encourage self-consumption. This role is complemented by a range of legal tools and other municipal bodies. This includes Law 24/2015, which bans companies from cutting off supplies to vulnerable households and obliges them to maintain their services for as long as financial difficulties last. There is also the Barcelona Energy Agency's Energy Observatory, which is tasked with planning and continuously monitoring the city's energy situation.

The (failed) British Municipal ESCO model

Between the early and mid-2010s, the UK has seen a wave of Local Authorities re-establishing Municipal Energy Companies. These were Energy Retailers with the primary aim of offering a more social alternative to the "Big 6" corporate energy providers in the UK market (British Gas, EDF, E.ON, NPower, Scottish Power, and SSE). Although primarily established to tackle energy poverty and what was considered high and obscure energy tariffs of the Big 6, there were clear ambitions to favour RE in their energy mix.

At the time, this wave of establishing Municipal Energy Retailers developed in a favourable context. From a social policy perspective, energy poverty gained increasing recognition in British political discourse. There was also widespread dissatisfaction with what was considered a highly concentrated, quasi-oligopolistic market structure, allowing the Big 6 to charge high energy tariffs. In addition, municipalities, facing heavy funding cuts after 2010, were keen to become 'more entrepreneurial'. Regulatory policies were also shifting to favour greater flexibility and encourage UK consumers to 'shop around' and switch energy providers to lower their energy costs. In this context, several UK Local Authorities saw an opportunity to establish competitors to the Big 6.

The first local authority to establish an Energy Company was Nottingham, which already had some experience in running commercial companies. Robin Hood Energy (RHE) received extensive media attention which led to establishing several local energy retailers in other cities, including Leeds, Bristol, and the London Borough of Islington [30, 44–46].

However, as of 2021, nearly all of these Municipal Companies were sold off and/or liquidated. RHE underwent a series of cash flow and governance crises from 2019 onwards, finally being sold off by Nottingham Council with a £38.1 million loss of public investment and the transfer of its customer accounts to corporate giant British Gas [46, 47]. Most of the Municipal Companies followed the same path, with the last ones falling into bankruptcy due to the spike in energy prices in the second half of 2021 [48–50].

The reason for the failures of these Municipal Companies is still widely debated. Although for several years hailed as a model example for cities in other European countries, these companies

were handicapped by a mix of poor management, insufficient resources, and hostile regulatory policy and market conditions. In particular, the external audit into RHE's failures heavily criticised the Council for not having sufficient in-house energy market expertise [51, 52]. This lack of expertise was especially problematic as the UK energy market is a highly regulated industry with high barriers to entry, further exacerbating RHE's relative financial disadvantage vis-à-vis commercial players [46, 51]. Furthermore, the competitiveness of the UK energy retail market has increased drastically, with several smaller, private companies, such as OVO energy, entering the market. All the above led to a crowded and highly competitive energy market, with over 50 Energy Retail Companies and a customer churn rate of over 20% [53]. Finally, the significant increase in wholesale energy prices has further increased financial pressures on municipal as well as commercial energy retailers, leading to a wave of bankruptcies in the last two years [49, 54–58].

Case Study: Robin Hood Energy (UK)

Description

Robin Hood Energy (RHE) was a high profile but ultimately unsuccessful attempt by Nottingham's city council to establish a socially-minded, municipal energy company. RHE was initially set up in 2015 as a wholly owned but only partially council-run energy retailer. It was conceived as a response to the then dominant political discourse of 'too high and obscure energy prices by the quasi-oligopolistic Big 6'; it had a clear social agenda from the very start, operating on a strictly not-for-profit basis and not paying salaries or bonuses to directors.

Although it achieved great media attention and rapid growth, it ultimately failed to turn a profit. After trust between RHE's management and Nottingham City council had deteriorated rapidly, the company was hit by multiple cash flow crises, eventually being sold off in 2020, resulting in an overall £38.1 million loss of public investment and the selling of customer contracts, including 120,000 with precarious and energy poor households to corporate giant British Gas.

Reach

RHE was the first and largest of the (by now mostly defunct) re-established municipal energy companies in the UK. At its peak, it supplied energy to 125,000 consumers across the UK, many of these via 'white-label' supplier partnerships or purchases with local energy retail brands such as Islington's Angelic Energy, Leeds' Leccy and Leeds' White Rose Energy [46, 51, 59].

Services

At its core, RHE offered cheaper tariffs, which could be up to £200 cheaper than the tariffs charged by the Big 6 at its debut. RHE also offered a particularly low tariff to Nottingham residents. In addition, RHE also offered counselling for households on energy efficiency and reducing energy usage.

Role in addressing Energy Poverty

RHE was set up specifically to address precarity and Energy Poverty, or 'fuel poverty' as it is often referred to in the UK – an issue that was gaining increasing public recognition in the UK. RHE hoped to offer substantially lower energy prices to their customers by providing better terms to users of pre-payment meters, who were more likely to be below the poverty line and could not access the variety of discount arrangements offered to other customers of the big six suppliers.

Market Position and causes for its failure

The reasons for the failure of RHE have been widely debated in the UK. On the one hand RHE was clearly mismanaged, as the board lacked sufficient expertise regarding the energy sector. At the same time, macro factors like a hostile policy environment and rapidly changing and ultimately unfortunate market circumstances, were crucial. Indeed, while RHE was established at a time of relatively highly concentrated and uncompetitive markets with low energy prices, by its liquidation, the number of energy companies had increased drastically, while geopolitical and economic shifts led to an escalation of energy prices.

02

Cooperatives and Energy Communities

Cooperatives are 'autonomous associations of persons united voluntarily to meet their common economic, social and cultural needs and aspirations through a jointly-owned and democratically controlled enterprise' [60]. They have well-defined characteristics and a strong tradition in several Northern and Central European countries. Crucially, cooperatives are a tried and tested organisational model for citizen communities to engage with markets at local and sometimes eventually national level by becoming market actors themselves. Cooperatives have been greatly successful in becoming major market players in multiple European markets. To give a sense of the numbers: the EU has over 250,000 registered cooperatives, with 136 million EU citizens involved (or about 1/3 of the EU's total population) and 5.4 million full-time employees [1]. Cooperatives have achieved considerable success in a variety of markets. In agriculture, they are estimated to account for 83% of the Dutch, 70% of the Finnish, 55% of the Italian and roughly half of the French market [61]. Some of the largest and best-known household names, In banking and food retail, such as Crédit Agricole, Raiffeisen, Edeka, Rewe, Friesland Campania or E.Leclerc are cooperatives [62].

In the context of the Energy Market, cooperatives started to emerge in the late 1990s. Some of the most common sources of motivation cited by cooperatives are their desire to decrease reliance on nuclear or fossil fuels. Another recurring reason is the desire to achieve greater energy sovereignty; by reducing their reliance on large, centralised and often commercial providers. Yet another motivation is to address socio-economical underinvestment and precarity within the local community. This can be done through self-consumption on a household and community level while creating jobs and various social and economic benefits that stay in the local area.

Case Study: Ecopower (BE)

Description and Services

Ecopower is one of the largest, most developed, and successful RE cooperatives in Europe. Founded to provide a more democratic, decentralized, and sustainable alternative to nuclear and fossil fuels, it was one of the first citizen cooperatives to effectively engage in financing RE installations during the late 1990s. Since then, Ecopower has become a major co-financer of RE installations in Flanders and beyond. Upon the liberalisation of the Belgian energy market in 2003, it successfully established itself as an energy supplier. Ecopower is a cooperative governed in accordance with the international principles of cooperatives. All cooperative

members jointly own all Ecopower installations, and shares are limited to 20 per person. Being a non-profit social enterprise, all cooperative members receive dividends when profits allow; however, this is limited to 6% of profits. The rest is compulsorily re-invested into further RE installation projects.

Most notably, Ecopower is a recognised leader in facilitating local, regional, and European collaboration to advance the adoption of RE. In the last 20 years, they have established strong partnerships with several Flemish towns, such as Eeklo and, more recently, Leuven. They are also co-founders of multiple networks of cooperatives, such as the knowledge sharing initiative Coopkracht and the EU advocacy organisation REScoop.EU.

Reach and Market Position

As of late 2021, Ecopower has 64,114 cooperative members, 50,056 clients, and around 40 full-time employees and has paid out over €16 million in dividends since its creation. The cooperative raised and invested over €100 million, constructing 70 large and 270 small solar installations, around 20 wind farms, 3 hydropower plants, 2 heat grids, and most recently a biomass plant in Ham.

As of 2020, Ecopower has accounted for about 1.4% of the Flemish electricity market. In fact, as of January 2022, the cooperative had to temporarily suspend the acceptance of new members as the failure of rival energy suppliers has led to drastically increased interest. The creation of additional production capacity could not keep pace due to slow licensing procedures for new installations, such as wind farms.

Role in addressing Energy Poverty

Although Ecopower membership can significantly reduce energy expenditure as energy is supplied at cost prices (thus lower than market price), membership costs at least €250. While this is not a particularly high sum, it can still be very challenging for low-income households, especially all to pay at once, and in advance. In addition, much like with other energy cooperatives, low-income households are underrepresented because they simply lack the time to research and pursue the administrative aspects of joining. Recognising this, Ecopower is now actively cooperating with different institutional and civil society actors to develop a mechanism to reach and support low-income and energy poor households.

Overcoming citizen mistrust

The prevalence of Energy cooperatives varies greatly between the different EU Member States. As mentioned above, Western and Northern European states tend to have longer and more established traditions of cooperatives than Southern, and especially Eastern European countries. The reasons for this are numerous and still debated, but institutional and cultural community capacities are key. Cultural community capacity is best understood as "the accumulated knowledge, experience and dispositions to sustainability in the community" and the "collective action capacities of community members" [24, 63, 64]. This encompasses the financial, organisational, and cultural abilities and willingness of local community members to successfully engage in community projects, and has been observed to be generally weaker in states with histories of centralised and autocratic governments. For example, cooperatives suffer from a poor reputation in Portugal and many Eastern European states, because of their historic association with Communist parties [65, 66].

Overcoming citizen inertia and (re)-establishing a culture of civic involvement is a slow and resource-intensive process. It requires several years, positive examples and sufficient socio-economic incentives. For instance, recent years have seen the emergence of successful community engagement in citizens' energy projects and cooperatives in several countries where this was not particularly common, such as Ireland, Spain, and Portugal. In these situations, community engagement emerged as a response to socio-economic hardship, such as structural unemployment, declining population, or increased precarity following the 2010 economic crisis. For example, the Templederry Community Wind Farm emerged as a means of creating jobs and a new industry in Nenagh. New cooperatives that emerged in the Iberian Peninsula, such as GoiEner or Coopérnico are closely linked with the decline of living standards and rising energy poverty that followed the 2010 economic crisis, creating a strong incentive for a large number of local residents in smaller, more heavily impacted towns, to engage in community action [24, 65, 67, 68].

Case Study: Torreblanca illumina (ES)

Description

Within the framework of the Interreg Europe programme POWERTY, the Andalusian Energy Agency (AEA), alongside the Torreblanca Illumina association, developed and launched a pilot project to implement an energy and education community initiative in Torrelance (Seville), Spain [81]. With the clear objective of increasing access to renewable energy while directly addressing energy poverty, this initiative took a two-pronged approach; supporting community access to renewable energy by installing PV panels; and establishing educational and learning programming within the neighbourhood to facilitate knowledge development in energy matters [82].

Envisioned as a starting point for this initiative, the plan seeks to supply free renewable electricity to 11 families experiencing energy poverty in the Torreblanca neighbourhood through photovoltaic solar installation on the roofs of two schools [83, 84]. The initiative hopes to grow in scope and reach to allow more residents and small businesses to benefit from the energy resources. Furthermore, as a pilot project for the POWERTY program, this initiative will guide, inform and make recommendations for similar structured initiatives.

Development

The development of this project began in 2019, with Som Energia launching an initiative to promote the development of an energy and educational community in Torreblanca [81]. From this initial launch, Som Energia partnered with more local social agents including; educational communities of local schools, civic and social centres, the ADICI research group of the University of Seville and the Ecosocial Workshop [85]. Together, this local network formed the Torreblanca Illumina association.

In 2020, the project received a donation of 422 PV panels from the Filosolar Association and won a prize of 3,000 euros from the Germinator Social contest, which was used to transport the panels to the community [83]. While these investments helped to push the project forward, the initiative ran into social, technical, and legal challenges due to the novelty of the specific regulation surrounding the design of the project. As such, the Torreblanca Illumina requested support from the Andalusian Energy Agency (AEA) within the framework of the POWERTY project [82].

Now operating under the POWERTY project aimed at "testing the creation and development of a small energy and educational community (EEC) in a vulnerable area in Andalusia (Spain)", the project has taken on three phases to create and develop the EEC and alleviate the barriers expressed

by the community [86]. Through legal, social, and technical action phases, POWERTY has attempted to overcome the obstacles described by Torreblanca and ensure that the project can facilitate the creation of the community energy design it desires.

In phase one, legal research, advice, and testing focused on understanding the advantages and disadvantages of the plan and emerging legal barriers regarding the characteristics and function of the EEC. Phase two establishes the social processes that will accompany the above testing to ensure social dynamization and community integration within the plan. The third and final stage will provide technical testing of the project. Carried out in collaboration with the Torreblanca Ilumina Association, this phase will ensure the technical capacities of the planned instalment.

Reach and Services

With a strong focus on alleviating energy poverty, the project is set to provide access to renewable energy while facilitating citizens to be more active in energy matters through integrating an educational and learning community. As such, the programs' reach extends past direct energy services to include supporting knowledge around a broader energy culture. Throughout eight community workshops, Andalusian Energy Agency and the Torreblanca Ilumina Association engaged the community on electricity, the energy market, energy efficiency, and dimensions of self-consumption/renewables. To further this objective, a temporary "energy office" has been established to provide more personalized advice to families and small businesses around the topic of community energy. These services are supplemented by funding from POWERTY.

While the energy produced by the solar installations is only set to supply energy for 11 families, the project is set up to expand in reach to include more of the community. Furthermore, as part of the legal research process, steps are being taken to seek mechanisms to further government budgeting to support the creation of more EECs [86]. As such, while the current educational services are not fully financed by the energy provided by the solar panels, mechanisms are being pushed to further the development and services provided by the initiative. Beyond the services offered to communities, this project will result in the publication of best practices and a guide to inform on best practices for implementing similar projects.

Role in addressing Energy Poverty

While this project is ongoing, its efforts to address energy poverty have been central throughout its design. While aiming to enable vulnerable groups to access renewable energy and save on their energy bill, the project aims to further contribute to the participation of the community in broader

energy matters through establishing educational and learning programs.

Through this approach, the Torreblanca energy and educational community (EEC) creates direct benefits for the community through creating access to renewable power; it will also enable the community to be more pragmatic in its energy choices [84].

Case Study: Actur Barrio Solar (ES)

Description

Actur Barrio Solar is an initiative promoted by ECODES (Ecology and Development Foundation), EDP (Energias de Portugal), and Zaragoza City Council to create access to self-consumption of energy for businesses and homes located in the northern area of the Actur - Rey Fernando neighbourhood of Zaragoza [87]. With two 50 kWp photovoltaic installations on the roofs of two Municipal Sports Pavilions, businesses and neighbours can participate in self-consumption without needing to install panels on their own homes or needing to change their electricity company [87]. Aiming to reach everyone in the neighbourhood, the initiative uses 10% of the energy generated to support 20 venerable families free of charge.

Reach and Services

By installing the two solar plants on the municipal buildings, businesses and community members less than 500 meters from the facilities can register to participate in the program and receive energy. Participants pay a monthly fee of €6.9, giving them the right to the solar power generated by 0.5kWp of the installation. The energy generated will then be deducted from the participant's energy bill. Businesses that participate also receive a 'badge' to display at their business to single their commitment to the climate [87]. The 200 homes and companies participating in Barrio Solar benefit from an average savings of 30% on their electricity bill [88]. The program provides 10% of the energy generated to allow 20 vulnerable families to access solar energy free of charge.

Beyond energy production, the initiative includes measures to create a community around energy culture and sustainability. The initiative works in parallel with education and learning activities such as workshops, energy advice, and participatory processes. These programs are meant to empower community members to be educated about energy matters to facilitate greater participation in the management of their energy. Furthermore, energy audits and energy

efficiency measures will be available to disadvantaged community members free of charge.

Development

In June of 2020, Zaragoza City Council, EDP, and ECODES signed an agreement to develop this initiative [89]. The first solar energy facility in Spain structured to facilitate collective self-consumption, the project involved an initial investment of 200.000 Euros donated by the Zaragoza City Council [89]. Promoted by ECODES and the Zaragoza City Council, EDP, and in collaboration with the Schneider Electric Foundation and the EDP Foundation, the Barrios Solar was formed by combining technical and social dimensions. The development of this initiative worked to transform the energy model within the neighbourhood.

Beyond simply reducing CO_2, the program's scope seeks to create more pragmatism for the community, and support them economically and socially. EDP, ECODES, the EDP Foundation and Schneider Electric Foundation will finance and develop this pilot project in collaboration with the cities Departments of the Environment, Urban Planning and Social Action of the Zaragoza City Council [88].

Role in addressing Energy Poverty

Several elements of this initiative create opportunities to fight energy poverty. First and foremost, the implementation of panels on municipal buildings allows the community to participate in the self-consumption of solar energy without the upfront installation costs. This can be particularly beneficial for vulnerable households.

Beyond this, to support the participation of vulnerable families, 10% of the energy generated will be used to support 20 vulnerable families free of charge. These vulnerable homes can also take advantage of free energy audits and energy efficiency measures. Effective in decreasing household energy consumption, these measures also help reduce energy bills for these homes. The initiative's structure may provide further advantages for creating more equity in participation. Technically, not needing to switch energy companies to participate may alleviate procedural difficulties or charges from needing to change electricity companies. Furthermore, the initiative's education programs further alleviate barriers to full participation in energy matters that may directly affect communities experiencing energy poverty.

Case Study: Thessaloniki (EL)

Description

In 2017, in collaboration with Greenpeace Greece, the municipality of Thessaloniki installed a 10 kW PV system on the 18th Thessaloniki high school 'Emmanuel Kirara', with the energy produced providing electricity to the Hostel Hospitality for Women Victims of Violence located close by. Established under an ever-evolving Greek renewable energy legal landscape, the project represents the country's first photovoltaic system with virtual-self generation. Funded by Greenpeace Greece, the project is structured around a virtual net-metering framework and the utilisation of public space (i.e. municipal buildings or schools) to generate renewable energy to be consumed by vulnerable community members. This scheme highlights the participation of the municipality and public energy suppliers in the implementation of renewable energy and community self-consumption.

Development

Pushed for by Greece's PV lobby back in 2014, a virtual net-metering scheme was introduced in 2016, initially established to encourage public interest organisations to utilise their buildings for PV self-consumption. Under this framework, legislation was set to allow the electricity generated by behind-the-meter PV installation to be consumed by another user [90]. At the time, participation was limited to municipalities, schools, universities, farmers, and farming associations [91]. However, in 2018, a law on community energy (L.4513/2018) expanded the scope of net metering to include 'energy communities' [92].

Under the 2016 legislative framework, the municipality of Thessaloniki and Greenpeace Greece worked to launch this pilot project. Central to the project's structure is the attempt to alleviate energy costs through self-consumption mechanisms. The concept, described by Greenpeace Greece as social solar policy, focuses on investment by public institutions in solar energy to lower the economic burden of energy use for vulnerable households [93]. Because (virtual) self-consumption contributes to lower energy costs, this concept highlights how state and municipal investment in renewables will not only benefit the community through lowering energy costs but will reduce dependence on other social welfare programs while helping the country reach its renewable energy targets [94].

Reach and Services

Under Greek law, the energy produced from PV installations is stored in the grid and credited to the consumer's energy bill [93]. For this project, the energy produced by the school will then be credited to the hostel for women and children, covering all of its energy

needs. While grid charges may still apply, all energy needs will be covered by the PV system, drastically reducing costs for the facility. Since the installation of this first project, the municipality in Larissa has completed a similar pilot project. With funding from Greenpeace, Greece Larissa placed a 15 kW PV system on the chamber roof of the 4th Larissa Middle School. The energy produced from this system will be credited to the nearby 16th Municipal Kindergarten [93].

Barriers

While this framework has laid the necessary groundwork for reaching renewable goals and expanded to provide more opportunities for energy communities, actualising the deployment of projects has been criticised. Slow-moving government approval has made the actualisation of projects difficult, creating a bottleneck in the projects submitted vs. ones that have been approved and developed [95].

Role in addressing Energy Poverty

Through the structure of this program, the municipality utilises public buildings to install PV panels and then offset the costs from low-income users. The design of the initial legislative framework and its expanding reach provides community members who lack the technical or economic ability for self-consumption to participate and benefit from renewable energy. With Greece's recognition of the need to address energy poverty, the focus of these programs has been directed toward supplying power to vulnerable community members. While the goals of this program are clear, barriers continue to slow implementations due to the issue of scalability and capacity to implement this type of structure on a larger scale.

03

Mitigation Measures

Counselling

Counselling is one of the most widespread forms of mitigation measures across Europe. It is provided by public, charitable, and even private actors. The focus and range of service vary greatly, depending on available tools, above all funding and connections to government and energy suppliers. At their most basic level, Energy Counselling refers to one-off or periodic consultations during which counsellors try to help households experiencing energy poverty to identify the factors contributing to their energy consumption patterns and costs. Another, slightly more substantial form of counselling is the performance of Energy Audits, during which households can have their homes examined, and receive more personalised advice on reducing their consumption and costs. This exists as a municipal service in several cities, such as Barcelona and multiple Flemish towns. At its most advanced forms, counselling acts as an effective connector between energy poor households and different support mechanisms. Many affected households often have poor or no knowledge of many of the social and financial support they qualify for. This is also often further exacerbated by not having a good understanding of their rights and opportunities vis-à-vis energy providers, making it difficult to demand the assistance they are entitled to. Recognising this, Home Energy Scotland, and Wien Energie's Ombudsman Service for Social Hardship Cases both offer holistic and personalised advice. Specifically, they help energy poor households identify all the support schemes they might qualify for, directly refer, or otherwise connect them with the managing authorities of such schemes, and in some cases act as mediators with energy providers to negotiate better payment options.

Case Study: Wien Energie Ombudsman Service for Social Hardship Cases (AT)

Description

The Wien Energie Ombudsman Service for Social Hardship Cases is part of the Wiener Stadtwerke group's sustainability programme and emerged in 2011 as an extension of Wien Energie's Customer Support Service with the aim of providing specific assistance to households in 'social hardship situations'. Recognising that energy poverty as a complex phenomenon that generally goes hand-in-hand with other forms of poverty and social problems, and that many impacted households are "not in a position to approach the right agencies or submit official applications", Wien Energie and the Vienna Administration developed a cooperative multi-departmental and multi-stakeholder approach. As such they coordinate between Wien Energie (WE), the Municipal Department MA40 (social welfare office), the *Fonds Soziales Wien*, *Suchthilfe Wien*, the Neustart association, the eviction prevention services and civic initiatives such as the Caritas social counselling service.

Services

The Wien Energie Ombudsman Service for Social Hardship Cases works under the lead of a certified social worker and 4 employees. They work closely with social services and other public and civic organisations to provide long-term, practical, and personalised support to households fitting a certain social criterion. Beneficiaries can opt to receive a multi-month, often multi-year solution proposal and support to negotiate with other agencies. Examples of solutions developed with the households routinely include payment deferrals, agreements to pay debts in instalments and the suspension of certain daunting proceedings to clarify claims. In addition, the Ombudsman Service Team aims to support beneficiaries by advising on the forms of social assistance they can request and routinely cross-refer cases to other municipal departments or agencies.

Reach

Since its establishment in 2011, the Wien Energie Ombudsman Service for Social Hardship Cases has supported over 17,500 households. Interest in its services grew particularly rapidly since March 2020, as the COVID-19 pandemic has led to severe income reductions for many Viennese households, including households who previously had not experienced energy precarity. This has significantly raised the profile of the Service.

Loans and Grants

Grants and Loans are another very widely used means of mitigating energy poverty. They are usually provided by national, regional, and municipal governments, private-civic schemes, and on occasion by non-governmental actors such as charities.

Grants can be differentiated into two sub-categories. The first involves giving grants or funds to low-income or energy poor households to contribute toward their energy costs. This type of grant provides short-term but tangible support, making it a common policy instrument, especially during periods when energy poverty becomes highly visible such as in the autumn of 2021 / winter of 2022. At the same time, because they only contribute to expenses, these types of grants cannot usually provide systemic and ultimately effective support to reduce energy poverty. Typical examples of this are the UK's Winter Fuel Allowance and Cold Weather Payment, which are social benefits. While they prove to welcome support for energy poor households, they are highly unlikely to address the structural causes of their energy poverty – such as energy inefficient homes and low-incomes [72, 73].

Grants and Loans that aim to facilitate home improvements and reduce energy inefficiency are more systemic in their focus. By trying to address a contributing factor to energy poverty, they have a considerably higher chance of making a meaningful difference to energy poor households. For example, better insulation and more energy efficient household appliances can mean the difference between certain or only potential energy precarity.

Case Study: Warmer Homes Scotland (UK)

Description

Warmer Homes Scotland (WHS) is the devolved Scottish Government's energy poverty scheme. It aims to address energy poverty by supporting the installation of energy efficiency measures. Launched in 2015, the scheme is managed by Warmworks Scotland, a private sector-social enterprise joint venture partnership between the Energy Saving Trust, Changeworks and Everwarm. These include a national government-sponsored social enterprise, a leading Scottish sustainability charity and a private provider of energy efficiency solutions.

Warmer Homes Scotland assists homeowners and private sector tenants who have lived in their homes for over a year and meet a certain social criterion. The scheme focuses on heating and insulation measures to improve the energy efficiency of properties. However, it has recently been extended to cover a wider range of heating options to help households in remote areas to reduce their reliance on gas. In addition, WHS has now been extended to cover some small-scale renewable energy (RE) generation systems, such as heat pumps and small-scale wind, hydro, and CHP systems.

Services

Citizens can access the scheme by contacting their local branch of Home Energy Scotland, a network of government-funded, advice centres that cover all of Scotland. Through them, a consultation can be arranged during which citizens can hear about all the relevant funding schemes they may qualify for, and are referred to the programme managing agency, Warmworks.

Citizens cannot freely choose the types of improvements they want. Rather, the improvements offered will be made based on Warmworks' assessment of the property, after which they decide on the kind of improvements they consider to be suitable. In a similar manner, all home improvements funded by WHS must be compulsorily managed by a designated approved installer.

The main form of home improvements covered by the scheme is wall and loft insulation, draught-proofing, and the installations of small-scale RE systems and central heating improvements, such as new gas boilers.

In many cases, costs will be either fully or mostly met by the Scottish government, but in some cases where more expensive improvements, such as solid wall insulation is needed, citizens might need to make a customer contribution. These customer contributions are eligible for an interest-free loan which is administered through the Energy Saving Trust, but they are subject to a credit check and an administration fee.

Reach

Since its launch in 2015, WHS has invested at least £16 million (€ 19.2 million) and was accessed by more than 20,000 households. It is estimated that it was primarily used by owner-occupiers, especially as only homeowners were made aware of the improvements that can be funded under the scheme. In addition, private sector tenants would need their landlord's permission and active support to install any improvements.

Case Study: The Papillon Project

Description

The Papillon project is a partnership between the Flemish social enterprise *Samenlevingsopbouw West-Vlaanderen (which recently changed its name to SAAMO*) and the white-goods manufacturer Bosch. Low-income households can't afford to upgrade old, energy-inefficient household appliances, which are major contributors to energy poverty. Recognising this, the Papillon project proposes low-income households a rental service of new, energy-efficient household appliances.

This model is convenient for energy-poor and low-income households in multiple ways. Firstly, by leasing instead of buying new appliances, low-income households can avoid paying the high initial costs of new, more energy-efficient machines. Secondly, since repair and maintenance services are included in the contract, households can avoid paying often costly repairs or insurance. Lastly, because they officially do not own these appliances, low-income households cannot lose them even if they are subjected to debt-collection proceedings.

In addition to addressing Energy Poverty, the project also functions as a pilot for Bosch to develop an 'appliance-as-service' business model. The idea is that Bosch would offer the same to non-vulnerable households at a slightly higher price – a model that they are already commercialising in the Netherlands [74].

Bosch leases their appliances for up to 10 years. At the end of this period, they either refurbish and re-lease their appliances or re-cycle the components within the company's production process. This has the advantage of significantly extending the life cycle of their appliances while also allowing them to increase the amount of re-cycled materials in their production process.

Services

The Papillon Project functions by developing contracts between *SAAMO*, Bosch and local and municipal authorities, and sometimes social organisations.
SAAMO prepares a 'framework contract' but the final agreement and terms are negotiated between Bosch and the relevant authority or social organisation.

As part of the programme, selected low-income households can lease a range of different, new, energy-efficient Bosch household appliances at a monthly cost of €9 for a 10-year period. This €9 fee includes repair and maintenance services [75]. This €9 monthly cost is supported by a subsidy of the Flemish government, which contributes €1.25 per appliance per month.

Reach

The Papillon Project started in September 2018 by leasing 130 appliances to 63 homes in the 'Westhoek' region and the town of Beerse [76]. Since then, the project upscaled rapidly, with several Municipal Authorities, most notably Antwerp signing up. The current target is to distribute 3,300 appliances by the end of 2023.

04

To dig deeper in the subject

This section aims at providing further references for people willing to explore other initiatives, which are not presented in-depth in the case studies above.

Readings on tackling energy poverty

Energy Poverty Advisory Hub Report: Tackling energy poverty through local actions – Inspiring cases from across Europe - Link

This report, available in 24 languages, displays a series of 24 inspirational cases of how energy poverty can be alleviated at the local level. The cases are the result of extensive research on energy poverty by the Energy Poverty Advisory Hub (EPAH) with support from its national partners and other experts in the field.

JUST TRANSITION WORKING GROUP FINAL REPORT - Link

How to engage energy poor and vulnerable consumers in the energy transition?

The European Commission has asked Energy Cities to lead a working group on the "just transition" in the frame of the Citizens' Energy Forum, established in 2008. This Forum meets annually to explore consumers' perspective and role in the EU energy market towards achieving the clean energy transition. It directly feeds into the work of the European Commission in the energy and consumer policy areas.

The working group believes that the energy transition is, above all, a collective project and not only an individual responsibility of reviewing lifestyles and personal energy consumption. Empowering all actors to understand, decide and participate actively in the energy system will allow to have a real debate and enable on the best pathways towards a just and clean energy transition. As such, this Working Group chooses to focus on distributional impacts (i.e. allocation of cost and benefits) of the energy transition and how to ensure that they are fair. It aims at exploring concrete challenges and opportunities that the energy transition offers to low-income and middle-income households.

Good practices in Europe

Some remarkable energy cooperative projects in EU

Belgium
Cociter, Wallonia (BE) - Link
ZuidtrAnt, Antwerp (BE) – Link
Coopstroom, Flanders (BE) - Link
Het pandschap, Flanders (BE) – Link

France
Hands for Homes (les 7 Vents), Bretagne/Brittany (FR) - Link
Energie Solidaire/Enercoop, nationwide/Paris (FR) - Link

Germany
Sparkebüll Energy Community, Sparkebüll and neighbouring municipalities (DE)- Link
EWS Schoenau, Schoenau (DE) – Link

Italy
WeForGreen Sharing, Salento (Puglia) (IT) - Link
EnergyLand Cooperative, Verona area (IT) - Link
Società Elettrica di Santa Maddalena, Funes (Bolzano) (IT) - Link
E-Werk Prad, Prato allo Stelvio (Bolzano) (IT) - Link
E' Nostra, Milano (IT) - Link

Poland
Spółdzielnia Nasza Energia (PL) - Link

Spain
Som Energia, Spain (ES) - Link
Goiener, Baskland/Navarre (ES) - Link
GoiEner, Euskadi/Navarre (ES) - Link

Switzerland
ADEV multiple cities in German-speaking Switzerland (CH)- Link

United-Kingdom

Edinburgh Community Solar Cooperative Limited, Edinburgh (UK) - Link
Repowering London - Link

Some remarkable Municipal Utility Companies in EU

Germany

Stadtwerke Ettlingen GmbH (SWE), Ettlingen (DE) - Link
Enercity, Hanover (DE) - Link

Switzerland

Services Industriels de Genève (SIG), Geneva (CH) - Link

EU funded projects dealing with social energy market players

ComAct - Link

Community tailored actions for energy poverty mitigation in the CEE and CIS region

Sun4All - Link

The program offers consumers in precarious energy situations the opportunity to empower themselves by subscribing to community solar energy. In order to ensure a fair energy transition, the general scheme is based on the existing New York initiative called "Solar for All" and will be adapted and implemented in 4 European cities and regions. The beneficiaries of the program will be co-owners of a local photovoltaic plant and the revenues generated by the production and sale of energy will be used to facilitate reinvestment in low-cost energy efficiency measures and attitudes, improving their living conditions.

CEES – Community Energy for Energy Solidarity - Link

Adequate warmth, cooling, lighting and the energy to power appliances are essential services needed to guarantee a decent standard of living and citizens' health. Energy poverty occurs when a household lacks adequate energy services. The EU-funded CEES project will analyse the most successful cases of community energy initiatives to tackle energy poverty in Europe. It will also validate them academically and empirically and create a toolkit for EU replication through the European federation of citizen energy cooperatives (REScoop). The overall objective is to facilitate the adoption of behavioural and energy efficiency measures in households.

POWERty - Link

The main objective of this project, approved in August 2019 by the European Commission in the framework of the Interreg Europe Programme 2014-2020, is to reduce the number of persons affected by energy poverty and that, through the use of renewable energies, can heat and cool their homes, have hot water or light their homes, thus improving their quality of life and health.

POWERPOOR - Link

This project develops programmes for energy-poor citizens (e.g. behaviour change, adoption of RES, uptake of energy efficiency measures) and encourages the use of alternative financing schemes (e.g. establishing energy communities/cooperatives, crowdfunding) to fight energy poverty.

Concluding notes

Energy suppliers are in an area of tension between social perception, business management, policy framework, and the free market. This report shows that initiatives exist that can balance these different aspects and participate in tackling energy poverty. Social energy market players, like municipal energy companies, cooperatives and energy communities, demonstrate that they can propose collective answers to vulnerable households, as well as give them a proactive role in energy consumption and production.

Forms, measures and activities performed by social energy market players greatly depend on their national and regional institutional, regulatory, and societal contexts. Although there is a renewed interest in relocating energy production and consumption, and in greater ownership from local authorities and citizens, energy markets are not adapted for social and smaller market actors, such as the example of Robin Hood Energy shows. Thus, their development at a scale that could drive the market to a more socially-oriented activity is still a challenge.

The different case studies presented in this document emphasises key success factors, especially for new social energy market players willing to be established:

- Strong links with the local communities
- Strong will, perseverance, and often support from local and regional political authorities
- Good knowledge of the energy sector and its (often-changing) regulations
- Cooperation with different actors, including social NGOs, utilities, and service providers.

The POWER UP project thrives to enlarge the number of socially-oriented energy players, through the implementation of six pilots and ultimately their replication at a larger scale.

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