

Energy cooperatives and local ownership in the field of renewable energy technologies as social innovation processes in the energy system

WP 3 Report:

Collective citizen ownership of green electricity plants

Country case studies Austria and Germany

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1 Introduction

With rising concerns over ecological sustainability as well as security of supply, the energy system has come under increasing pressure over the last years and various efforts have been made aiming at a transformation towards more sustainable systems of energy provision. At the grassroots level this has included the establishment of energy cooperatives and other forms of collective citizen ownership of renewable energy technologies. This report focuses on collective citizen ownership of renewable energy technologies in Austria and Germany and presents the findings from qualitative expert interviews within the project 'Energy cooperatives and local ownership in the field of renewable energy technologies as social innovation processes in the energy system'. Furthermore the report also includes a literature based comparison to developments in Denmark and UK.

For various reasons a decision was made to focus on renewable energy plants in the area of green electricity (mainly wind power and photovoltaics). First of all, relevant actors and framework conditions differ considerably between renewable energy in the area of electricity and in the area of renewable heat (e.g. biomass district heating networks). Seeing previous research has already documented the development of energy cooperatives in the area of biomass district heating networks in Austria (Rakos 2001; Weiss 2004; Madlener 2007), a focus on green electricity appears to be more reasonable. Furthermore in Germany citizen ownership of renewable energy is particularly widespread in the area of wind power and photovoltaics.

Seeing the project looks at various forms of collective citizen ownership, not only those organised as cooperatives, the term *collective citizen ownership* of green electricity plants / of renewable energy technologies will be used (sometimes also abbreviated as 'citizen ownership', *collective* ownership of a group of people always being implied). As some models in fact do not involve citizen ownership in the strict sense but are rather based on a loan system (see section 3.1.1), the term *citizen participation* will sometimes also be used. These models have not been excluded from the analysis as they are generally understood to be closely related to citizen ownership models. In fact in the Austrian case interviewees often use the term 'citizen participation' (Bürgerbeteiligung) both for actual citizen *ownership* and for weaker forms of participation, e.g. via loans. The term *local ownership*, as it is used in the project title, has been found to be rather impractical, as some companies based on citizen ownership have undergone a development from being based on local ownership to a more geographically dispersed participation structure. Nevertheless the involvement of local citizens has remained an important aspect for all of the organizations considered here. The term *independent power producers* is used as an umbrella term for companies based on collective citizen ownership and other privately owned companies acting as power producers (i.e. power producers that are not part of a public utility).

The next section after this introduction gives a brief overview of the material and the methods this report is based on. The following two sections (sections 3 and 4) present the Austrian and the German case studies respectively, based on the interviews conducted within the project. Each of these sections discusses ownership and participation models, actor roles, institutional framework conditions and the interests and rationales attached to collective citizen ownership of green electricity plants. The Austrian

case study furthermore contains a brief comparison between different federal states. Section 5 then attends to the similarities and differences between the two country case studies.

2 Material and methods

The report is based on 21 semi-structured interviews (12 interviews for the Austrian case, 9 interviews for the German case) and a literature review. Out of the twelve interviews for the Austrian case, nine interviews were conducted specifically for this project from November 2010 to March 2011. In addition to that, material from three more interviews conducted in another project in July 2010, also partly pertaining to citizen ownership of renewable energy technologies, has been included in the analysis (Project BENE – Bürgerengagement für Erneuerbare Energie, funded by the Austrian Climate and Energy Fund in the program Neue Energien 2020). These additional interviews concern jointly owned photovoltaics (PV) plants in the federal state of Vorarlberg. Austrian interviewees were mainly representatives of companies in Austria that set up renewable energy plants based on citizen ownership or are in the process of realizing such plants. An additional interview was conducted with representatives of the Austrian wind power interest group IG Windkraft.

The nine interviews for the German case were conducted from May 2011 to March 2012. Due to the large number of citizen power plants in Germany and the difficulty of selecting a ‘representative sample’, it was decided to focus mainly on people from support and intermediary organization, assuming that these individuals have a good overview of the field as a whole. However, some interviews were also conducted with representatives of companies operating power plants on the basis of collective citizen ownership who have been active in this field for many years. In some cases people are active both in support organizations and as initiators / managers of individual companies setting up citizen power plants.

Interviewees were selected on the basis of an internet search and on the basis of further recommendations by the initial interviewees. In one case two interviewees took part in the interview, in all other cases a single person was interviewed. Interviews typically took about 45 minutes to one hour. The interviews for the Austrian case were all conducted face to face. For the German case three interviews could be conducted face to face, the remaining six were conducted as telephone interviews.

All interviews were recorded, transcribed and evaluated with qualitative content analysis using ATLAS.ti. Some additional factual information was gathered from homepages, brochures and further information material provided by the organizations. Furthermore, where needed, information from interviews was backed up or complemented by factual information from an internet and literature research.

In the coding procedure individual passages from interviews have been assigned labels taking the form [n:k], where n denotes the number of an interview and k denotes the number of the quote from that interview. A small number of quotes have not been anonymised, as the context provides clear indications as to the speaker’s identity. These quotes were authorised by the interviewees.

3 Country Case Austria

3.1 Ownership and Participation Models

3.1.1 Legal forms

A variety of different models of collective citizen ownership of green electricity plants can be found in Austria. In this section an overview of different models will be provided. In particular this covers the models of the organizations that were represented in the interviews. As far as can be judged from background research this should cover all types of collective citizen ownership models that are available in the area of wind power in Austria and a large proportion of models in the area of photovoltaics. In the area of photovoltaics, however, collective citizen ownership models have only developed recently and several projects are still in the development phase. Thus the situation is still more fluid and a number of additional ownership and participation models may still emerge.

Limited Partnership (GmbH & Co KG)

The model of a limited partnership (GmbH & Co KG) has been used quite widely in the area of wind power (Ökoenergie Wolkersdorf, Windkraft Innviertel, formerly also Windkraft Simonsfeld and WEB Windenergie) and has more recently also been used for a large PV plant (SEBA Mureck). A GmbH & Co KG is a limited partnership (KG) in which a limited liability company (GmbH) acts as the general partner. Typically individuals can become involved as limited partners (Kommanditisten) within this partnership. In some cases (Ökoenergie Wolkersdorf, Windkraft Innviertel) companies also offer additional forms of participation. This includes taking part as a dormant partner (stiller atypische Gesellschafter) or by providing loans to the company.

Limited liability company (GmbH)

In one case (Zukunfts-Energie GmbH) a citizen ownership model for a small local wind farm was set up via a limited liability company (GmbH). Citizens are involved as associates (Gesellschafter) or as dormant partners (stille atypische Gesellschafter). Furthermore several people provided loans to the company.

Corporation (Aktiengesellschaft, AG)

Two companies in the area of wind power that started in the form of a GmbH & Co KG (or as a group of such companies) eventually transformed to corporations (WEB AG, Windkraft Simonsfeld AG). However they are not listed at the stock exchange. In order to avoid takeover by large investors both have introduced limits to the voting power of any individual shareholder (e.g. maximum 5 % voting power) and in at least one company the issuing of shares to new shareholders can be vetoed by the board of directors.

In addition to these two companies in the area of wind power a company in the area of biogas (BEB AG) was also set up as a corporation that is not listed at the stock exchange.

Private partnership (Gesellschaft bürgerlichen Rechts, GbR)

Private partnerships (GbR) are a very widespread model for collective citizen ownership of PV plants in Germany. In the municipality of Dünserberg in Vorarlberg three very small jointly owned PV plants were set up in this way (5 KWp, 2 – 4 partners per plant).

Loans repaid via company vouchers

In one case a trader of PV panels (Solarzelle Waldviertel) developed a participation model in which existing businesses (in one case a shoe manufacturer in the other case an organic farm) set up PV plants on their roofs. Citizens can participate by providing small loans (200 €) that are repaid through company vouchers over several years.

In general a variety of pragmatic reasons influence the choice of the legal structure of the ownership or participation model. This includes tax issues, liability issues, the administrative burden and the issue of risk distribution (e.g. lower risk for individuals if they are co-owners of several wind farms rather than a single one). In some cases the legal structure was also copied from other already existing models of collective citizen ownership of renewable energy technologies in Austria. [11:15, 13:8, 14:29, 14:49, 16:14, 19:8, 20:6]

Some project developers also strive to offer different participation models for people with different levels of willingness to take risks. Furthermore in many cases a goal is to set up a model that allows for broad citizen involvement and pre-empts dominance by few large investors. Thus, several models include either a limit to the shares that can be held by individuals or to the voting power that can be exercised (in the case of corporations). Furthermore some initiatives or companies make a deliberate effort to keep the minimum contribution of capital low in order to be able to attract people without large financial resources. [11:14, 10:48, 14:18, 14:19, 16:21, 15:3, 16:22, 17:23].

Interestingly, the legal form of a cooperative is hardly used for collective citizen ownership in the area of green electricity plants in Austria. Some interviewees pointed out that cooperatives typically provide their members with benefits in kind rather than with financial revenues. Producing green electricity, however, can usually only be realized via feed-in to the grid, so co-owners typically cannot directly draw 'their' electricity from the plant. [11:15, 16:27]

“In a cooperative (...), one can clearly define that there is a raw material and the products are made from this material. And (...) if we could define that this sun ray turns into exactly this [electricity] we could make a cooperative, but that doesn't work, we can't define it that way.” [11:15]

Nevertheless two initiatives deliberately set up their model in a way such that individuals finance the production of an amount electricity that corresponds to the amount an average household consumes. [11:14, 15:3]

3.1.2 Participation structures

Interviewees were asked whether particular groups of people are over- or underrepresented in their company or initiative (age, gender, professions, etc.). Hardly any of the interviewees had ever evaluated such issues in a systematic way, but a number of them reported that in their experience people between 40 and 50 or between 35 and 55 form the largest group. They attribute this to the fact that this age group tends to have more free capital available. One interviewee also notes that more men participate than women. [10:51, 14:28, 16:21, 19:5, 20:19]

Almost all interviewees report that the involvement of the local and regional population is of particular importance to them. In small companies that have only set up one or two plants in their immediate

surroundings the proportion of local and regional participants usually is very high (often around 90%). Out of three companies in the area of wind power that have turned into medium sized companies (or company groups) realising wind farms in different locales, one has decided to stick to a local participation structure, founding a separate company for every wind farm so that local people can become direct co-owners of the wind farm in their town. The other two have transformed into corporations and their participation structure gradually shifted from being largely local to being spread out across the entire country. [11:6, 10:24, 10:57, 12:9, 13:20, 15:10, 16:18]

3.2 Actor roles

3.2.1 Actor roles project developers see for themselves

During the interviews, interviewees referred to a number of different roles they see for themselves in the field of renewable energy technologies.

Pioneer Actors

First of all, in wind power, companies based on citizen ownership can be seen as important pioneer actors, gathering and exchanging information, conducting wind measurements, lobbying for support and raising capital in times when utilities still ignored or worked against wind power development. As such they see themselves as enabling actors getting wind power off the ground in Austria. [10:6, 10:61, 21:11]

„Well, we are quite convinced that wind power development in Austria would at least have occurred with a substantial delay without the pioneer idealists. (...) We certainly dynamized the market and certainly played a groundbreaking role, because the utilities really waited for a relative long time (...).“ [10:61]

In other technology areas such as PV and biogas, initiators of citizen ownership projects also tend to see themselves as enablers, trying to move things forwards in the technology area they are active in. [12:48, 18:2, 18:7]

Professional business actors

In the area of wind power, some of the larger companies based on citizen ownership (companies in Lower Austria – see section 3.1.1) have meanwhile undergone a process of growth and professionalization, developing from groups of engaged citizens trying to set up wind turbines in their free time under highly uncertain conditions to professional business actors in a growing business sector. Apart from their core business of setting up and operating wind power plants, two of these companies have also developed specialised services such as technical plant management for other parties or acting as a utility company selling electricity to end users. Furthermore two of these companies also have also started to develop wind power plants abroad (Romania, Bulgaria, Germany, France, Czech Republic). One interviewee noted that in the context of these international activities their actor role has shifted as they are no longer perceived as a company based on (local) citizen ownership but rather as “an (international) investor like any other” [10:37].¹ Other wind power pioneers that succeeded in setting up wind power

¹ It was not considered feasible to offer ownership shares to citizens of foreign countries (higher complexity due to different legal regulations in the area of prospectus requirements and language barriers, scepticism as to whether a sufficiently large share of the population in countries such as Romania and Bulgaria have sufficient financial resources for involvement).

plants have decided not to pursue an expansionist strategy and simply continue to operate a small number of local wind turbines, without turning this into their main occupation. [10:37, 10:43, 14:37, 14:50, 15:23, 15:24, 15:55, 17:38]

Lobbyists

One continuous role these wind power actors have seen for themselves from the pioneering day up till today is acting as lobbyists for this technology. Due to their structure and culture companies based on citizen ownership models can also make use of particular repertoires of action more closely related to NGOs or social movements that are not available to utilities or other energy system incumbents (e.g. street protests, protest letter to member of federal state government, see also section 3.3.4). However, interviewees also assume that their political influence has been limited, especially when compared to the lobbying power of utilities. [12:37, 21:13]

3.2.2 Support actors

When asked for relevant support actors, interviewees refer mainly to associations that act as interest groups for a particular technology field such as the wind power interest group IG Windkraft. In one case an interviewee also referred to Eurosolar, an interest group for renewable energy at the European level, that supported the initiative by providing model contracts for the participation structure. Furthermore regional energy agencies (Energiesparverband Oberösterreich, Verein Energiewerkstatt, Energieagentur Waidhofen/Thaya) also provided support for some citizen ownership projects, e.g. by providing relevant information, organising excursions or conducting wind measurements). Finally, some project developers could draw on personal contacts with specialised expertise, in particular legal advice (e.g. university professor writing expert opinion that prospectus requirement does not apply, notary setting up contracts, tax advisor confirming economic viability required for approval by authorities). [13:26, 13:27, 14:1, 14:9, 14:16, 14:30, 17:3, 17:6, 17:14, 17:31].

Among the interest groups for different renewable energy technologies the Austrian Wind Power Association (IG Windkraft) deserves special attention, as it was set up and is still is strongly sustained by people that set up wind farms in the form of citizen ownership models. Therefore the IG Windkraft explicitly supports of the idea of citizen ownership. Nevertheless utilities and further actors in the field of wind power (component supply industry, planning agencies, etc.) have meanwhile also become members of the association and the organisation strives to represent all actors in the wind power business [10:77, 14:30, 15:42, 15:44, 16:38, 17:31, 21:31].

“A very positive thing is that the [wind power] interest group IG Windkraft always, even though they wouldn’t have to do that (...), highlighted the idea of citizen participation as something positive. (...) That also has to do a little with the fact that IG Windkraft was founded by people that also pushed citizen participation companies.” [16:38]

3.2.3 Role of utilities

Interviewees referred to a number of different actor roles taken on by utilities in the context of collective citizen ownership of renewable energy technologies.

Business partners as grid operators

Before binding feed-in tariffs were introduced electricity generated in citizen-owned power plants typically was sold directly to regional utilities. Special feed-in contracts had to be arranged for every case. Furthermore, utilities are still relevant as buyers of electricity after the period of feed-in tariffs ends for a particular plant. [11:4, 14:3, 14:40] As owners of the power grid utilities also charge independent power producers fees for grid connection and maintenance [12:20].

From renewable-energy-obstructors to market competitors

Representatives of citizen-owned plants in the area of wind power report that utilities in Austria (especially EVN, BEWAG and Verbund) have undergone a development from being indifferent or even obstructive towards the implementation of wind power towards being seriously engaged in wind power themselves. Thus, some utilities have now become market competitors and at the same time also allies in lobbying for good framework conditions for wind power. [10:17, 10:36, 10:61, 12:20, 12:37, 15:18, 17:32, 21:4, 21:8]

„At that time [a regional utility company] still was different, so they acted strongly against wind power, actually retarded things wherever possible (...). But then, after they looked into the issue of wind power themselves, they performed a U-turn and actually they [have become] active in this area themselves.“ [15:18]

For obvious reasons, utilities particularly resisted the emergence of independent power producers. In at least one case a regional utility went as far as offering to buy-out a citizen owned wind farm initiative in order to avert its realization. [10:61, 17:32]

Some interviewees note that utilities waited with their entry into the field of wind power until viability had been proven by pioneer actors and profitable framework conditions had been achieved. Also it was pointed out that the small scale wind farms that were the norm in the early days of wind power development were not well adjusted to the structure and profitability expectations of utilities that are used to handle large-scale power plants. [10:61, 17:42, 21:13]

Interviewees appear to be somewhat ambivalent towards the entry of utilities. On the one hand representatives of companies based on citizen ownership mainly want to contribute to the further diffusion of renewable energy technologies (see section 3.4.1) and used to criticize utilities for not engaging in that area. Therefore they all welcome the fact that utilities have now also become active in wind power. On the other hand some interviewees also lament the diminishing market share of companies based on citizen ownership. [15:45, 16:32]

„[Ten years ago] I think 70, 80 % of installed capacity was organized via citizen participation companies of different kinds. (...) Then the utilities came, then the usual players came and in that respect the up side is that wind power in Austria is continuing to turn over dynamic market shares, that's good. The down side certainly is that we couldn't proceed with the idea from the initial phase [citizen participation] to the same extent.“ [16:32]

Utilities as financially and politically powerful actors

Several interviewees also point to the high lobbying power of utilities due to their strong connections to regional government (federal states holding majority ownership of regional utilities). Furthermore interviewees also note that utilities can rely on a stronger financial backing than citizen-owned companies. Thus, for utilities it is easier to implement wind power at large scales (at the international

level this also includes offshore wind power). In fact market shares are already shifting in favour of utilities. [11:23, 10:61, 12:37, 16:32, 21:8]

Utilities as indirect form of citizen ownership

Finally, as has already been noted in section **Fehler! Verweisquelle konnte nicht gefunden werden.**, it was suggested that people in Burgenland see utility ownership of wind power as an indirect form of citizen ownership [21:7].

3.2.4 Role of municipalities

Municipalities also often are important actors for the establishment of collectively owned green electricity plants. As was the case with utilities, interviewees also referred to a number of different roles taken on by municipalities.

Municipalities as decisive actors in spatial planning

First and foremost municipalities are of central importance for renewable energy plants (collective-citizen-owned or not) due to their decisive role in spatial planning (see also section 3.3.2). In particular, spatial planning rules apply to wind farms and large scale PV plants in the open space. In Austria local councils are responsible for zoning decisions (designation of land for a particular purpose). [11:18, 10:44, 15:27, 16:28, 17:27, 21:42, 21:43]

„We need the municipalities, above all for the designation of areas [for wind power], so in effect the municipality has vetoing power. No wind farm can be implemented against the will of the local council, you cannot push through a wind farm in Austria like that. In this respect the mayor is a key actor.“ [10:44]

As can be seen from this quote, the mayor is seen to play a key role but another interviewee also points out that other committed individuals (local council members, deputy-mayor). Projects based on collective citizen-ownership can potentially benefit from stronger local support. In one case a mayor that initially opposed a citizen-owned wind farm swayed in favour of the project due to the high numbers of supporters in the village [15:27, 17:27].

Municipalities as initiators or promoters of a project

In some cases municipalities may also act as initiators or promoters of a citizen owned renewable energy installation. This may take the form of a municipality inviting a company based on collective citizen ownership to develop a wind farm project in their town, representatives of the municipality marshalling their persuasive power to support (or also oppose) the development of a biogas plant or simply the municipality itself being active in energy issues, thereby acting as a role model and sensitizing citizens towards energy issues. [12:12, 14:1, 16:9, 16:28, 18:5]

In some cases the municipality may benefit from the development of a (citizen-owned) renewable energy plant because this may enable membership in or further promotion within programmes honouring the contribution of municipalities to climate protection (Klimabündnisgemeinden, e5 Programm für energieeffiziente Gemeinden). [17:27,18:7]

Municipalities as shareholders

Interviewees also referred to some cases where municipalities became directly involved as shareholders in a renewable energy plant (wind farm / PV plant) which is mainly based on citizen ownership. Such cases, however, appear to be exceptions rather than the norm. [15:21, 18:4]

3.3 Institutional framework conditions

3.3.1 Feed in regulation and other subsidies

In general, the Austrian feed-in law for green electricity ('Ökostromgesetz') is considered to be *the* central policy framework by interviewees. Though not targeted specifically at citizen ownership models, this law, introduced in Austria at the national level in 2002, guarantees access to the grid and feed-in prices above market level for producers of green electricity. Nevertheless the regulation is heavily criticized by interviewees for involving a cap on the total funding volume, for providing too low feed-in tariffs for some renewable energy technologies (e.g. biogas) and for too short periods of support. The strongest criticism, however, concerns high uncertainties with respect to the conditions of support, due to frequent amendments of the law or due to suggestions for amendments that were circulated but never realised. [12:10, 12:42, 17:54, 21:54]

"These economic framework conditions also are important for small operators and for citizen participation models because then it is easier for people to join together and to say, ok, now we have this feed-in-tariff, that is adjusted from year to year and it's not that it is available and then it is exhausted and then everything stands still again. I think, in general renewable energy needs a predictable prospect." [17:54]

Germany's Renewable Energy Act (Erneuerbare Energien Gesetz, EEG) is frequently referred to as a good practice model that should be copied in Austria (see also section 5) [13:30, 17:47, 21:54].

In the area of photovoltaics, investment subsidies still play a role today, as PV plants below 5 KWp are not supported via the feed-in law. These small-scale installations are eligible for an investment subsidy (lump-sum payment) instead. Some Austrian federal states have also set up their own investment subsidy programs for photovoltaics. In 2008-2010 a particularly attractive subsidy for photovoltaics was available in Lower Austria, covering 50 % of investment costs. Nevertheless these subsidy programmes are also criticized for not providing security of investment, as they often change dramatically from one year to the other [13:30, 19:28.]

3.3.2 Further framework conditions pertaining to green electricity in general

Apart from various technical standards and regulations (brief treatment in section 3.3.4), further framework conditions pertaining to green electricity in general that were referred to by interviewees include spatial planning issues and political commitment and lobbying.

Spatial planning

Apart from feed-in regulation and other subsidies for renewable energy technologies, spatial planning is an important issue, especially in the area of wind power. As spatial planning is an issue that is regulated at the regional level, details vary between different federal states. In general, both the federal state government and the municipality need to agree to the designation of a particular area for the erection of

a wind farm. Typically the designation of areas for particular uses (Flächenwidmung) occurs at the local level but needs to be confirmed at the federal state level.

Some general regulations at the level of federal states need to be taken into account in this process, including minimum distances between wind turbines and residential buildings and issues of landscape protection and nature conservation. The latter issue leaves some room for subjective appraisals. For example, in Upper Austria a staffing change in the federal state government had the effect that local-level designations of wind power areas started to be overturned by the federal state government on the basis of arguments concerning negative impacts on landscape protection and nature conservation. [21:56, 14:2, 10:45, 10:67]

Furthermore approaches in different federal states vary in the extent to which spatial planning for wind power is actively coordinated. One interviewee points out that such an active coordination is desirable to avoid uncontrolled developments and thus a backlash in public opinion:

“Currently there is a boom, a run for the remaining attractive sites for wind power, and in Burgenland this has been very strongly accompanied by political actors, it has positively been accompanied and coordinated. And in Lower Austria some wish for a clearer role of politics, otherwise an enormous amount of wind farms are planned all over the place and in the end that leads to something in the population that nobody wants. But apparently in Lower Austria politics are not prepared to designate priority areas.” [10:54]

In the area of photovoltaics spatial planning only becomes an issue in the case of large-scale free-standing plants (i.e. not mounted on a building). However, few such plants exist in Austria to this date and the issue has therefore attracted little attention so far.²

Political commitment and Lobbying

Another issue frequently addressed by interviewees is political commitment and the influence of incumbent actors. Several interviewees note a discrepancy between pronounced political goals assuring support for renewables and measures effectively taken. A lack of political commitment to the expansion of renewable energies is criticised which is sometimes attributed to the influence of actors with opposing interests. This may include market actors (energy system incumbents) as well as state actors such as the regulatory authority ‘E-Control’ which is characterised by one actor as aiming exclusively at low energy prices and neglecting environmental concerns. [11:23, 12:41, 15:48, 15:49, 15:50, 21:53]

At the local level renewable energy projects, especially in the area of wind power, run the risk of producing polarised commitments from political parties. Thus a project embraced by one political party may be rejected by their political adversaries as part of local political skirmishes. [15:29]

Further framework conditions pertaining to green electricity technologies in general include the electricity industry law (Elektrizitätswirtschafts- und Organisationsgesetz, ElWOG), regulating, among other things, the fees for grid use to be paid by all market actors feeding into the grid. However, this regulation was contested by wind power operators and a law suit concerning these tariffs in November

² See ÖROK 2009 *Energie und Raumentwicklung*, Schriftenreihe der Österreichischen Raumordnungskonferenz (ÖROK) Nr. 178, Vienna, p. 80

2011 eventually overturned the regulations that were in force until recently.³ In addition to that, the official energy strategy developed by the Austrian government in 2009/2010, the national action plan for renewable energy following the EU Renewables directive (2009/28/EC) which sets targets for the share of energy from renewable sources for individual member countries to be reached by 2020, as well as various authorisation procedures such as environmental impact assessments have a role to play. [21:55]⁴

3.3.3 Framework conditions specific to collective citizen ownership models

This section deals with framework conditions specific to collective citizen ownership models (as opposed to framework conditions pertaining to green electricity in general). One issue that was referred to by several interviewees concerns prospectus requirements that affect any publicly advertised form of investment. This also applies to many forms of citizen ownership of green electricity plants in Austria (e.g. purchase of shares in a corporation, becoming a limited partner in a limited partnership, etc.). Capital market regulation requires companies to produce a prospectus that needs to conform to specific information requirements (investment risks, etc.) and needs to be approved by the Financial Market Authority (Finanzmarktaufsicht). This can be costly for companies based on citizen-ownership in the area of green electricity, due to the high costs for legal advice, especially since the handling of regulation in this area was tightened in 2007/2008 in the wake of a case of defraud of investors in a different business area. [10:86, 10:p, 16:43, 21:44].

“Then very soon the issue of the financial market authority came up, prospectus control, financial market control issues. Such a participation ultimately also had to be inspected in a professional manner. That was a bit of a shock, because after all the volume was not that large and the prospectus control swallowed up a certain share of capital, 3, 4, 5 percent right away. But you had to pass through that.” [16:43]

Some initiatives have managed to avoid this obligation by refraining from public advertising of participation options and relying on personal contacts and word of mouth for recruiting associates. [14:16, 15:54]

With respect to cultural issues some interviewees point out that Austrians generally are risk-averse in financial matters and holding company shares is not widespread practice. This reluctance to invest is judged to be particularly high towards corporations that are not listed at the stock exchange, as is the case for a number of citizen ownership models in green electricity in Austria (see section 3.1.1). [10:39, 10:55, 12:35]

“In Austria it is not very common to directly hold shares of a company, and if one holds shares then one rather buys shares from a company listed at the stock exchange. For us it is a bit more difficult with us not being listed at the stock exchange. As far as I know there are about half a dozen

³ See <http://www.windkraft-journal.de/2011/11/23/osterreich-verfassungsgerichtshof-kippt-netzgebuhren-fur-stromerzeuger/>, accessed 20 December 2011

⁴ Further sources: <http://www.energiestrategie.at/> and http://en.wikipedia.org/wiki/Renewables_Directive (both accessed 20 December 2011) as well as BMWFJ 2010 *Nationaler Aktionsplan 2010 für erneuerbare Energie für Österreich (NREAP-AT)* available at http://www.ebb-eu.org/legis/ActionPlanDirective2009_28/national_renewable_energy_action_plan_austria_de.pdf (as of 20 December 2011)

corporations in Austria not listed at the stock exchange that are in widely held stock, that are open corporations. That is something that is uncommon and that also brings along a higher requirement for explaining things.” [10:55]

The environmental movement in the 1980s and early 1990s is referred to as a positive cultural factor enabling the installation of the first wind farms in Austria via citizen ownership models. Especially discussions around nuclear power, fuelled by the Austrian referendum on nuclear power in 1978 (tied up with the construction of a nuclear power plant in Zwentendorf) and the Tschernobyl catastrophe in 1986, served as a catalyst for citizen action in the area of renewable energy. [16:6, 13:33, 21:9, 21:53]

“In the early 90s, what was happening? At that time the Chernobyl catastrophe was not so many years past and still very dominant and the nuclear power discussion around Zwentendorf together with the Chernobyl accident. At that time all these debates around energy politics were much closer than they are today. The people simply were in this energy, and there were many that said, well, in a way only talking also isn’t good, let’s do something together.” [21:53]

It was, however, also noted that discussions on nuclear power in Austria nowadays are not as polarized as in Germany, since the consensus against nuclear power in Austria is quite strong. Therefore the impetus for renewable energy as the ‘antithesis’ to nuclear power also is somewhat weaker than in Germany. [21:53]

3.3.4 Dynamics of institutional framework conditions

This section deals with changes in institutional framework conditions over time and points to reason for these changes as well as to ways in which companies based on citizen ownership adapted to these changes.

Seeing that feed-in regulation is of central importance to citizen-owned green electricity plants, the introduction of the federal feed-in law in 2002 can be seen as an important turning point. Up to that point feed-in of electricity from independent power producers was either regulated at the federal state level or had to be negotiated on a case-by-case basis. For example, in Upper Austria citizen-owned wind farms with some political support managed to arrange deals with regional utilities in the 1990s. In Lower Austria capital grants and (comparatively low) feed-in tariffs were available in the late 1990s [14:3, 17:33, 10:49, 15:17, 21:12].

In general, the Austrian feed-in law introduced in 2002 is not seen as a direct reaction to the needs of independent power producers such as citizen owned power plants. [10:58, 21:12] Nevertheless they see themselves as having played a certain catalyzing role in creating political momentum leading towards the introduction or improvement of feed-in regulation:

“I don’t think that one mainly reacted to citizen participation models with the feed-in law. But I think companies based on citizen participation were particularly active (...). Also when it was about organizing forms of social interaction, like (...) a demonstration, well that is us. So in the time before the feed-in law was passed there were some small rallies on the Ballhausplatz [square in front of the Federal Chancellery] and who travelled there, who called shareholders, who was disproportionately present there? That was citizen participation companies like us.” [10:58]

Interviewees report that especially at the local and regional level some political support can be traced back to their activities [16:25, 17:28]. Nevertheless utilities are considered much more powerful

lobbyists that, after overcoming their reluctance towards engaging with renewable energy technologies beyond hydropower, can act as key actors in lobbying for favourable conditions.

Another change that has occurred in the regulative framework for wind power and biogas plants concerns the increase in technical requirements and safety regulations. Furthermore and partly related, early stage investment costs have risen significantly in the area of wind power. This is due to the need for expert reports establishing compliance with various requirements and due to earlier payment dates for securing grid-access. [10:49, 10:67, 12:5, 12:32, 10:11, 16:33]

„When we started we set up a company with 50. – 100.000 [Austrian] Schillings [approx. 3.633 – 7.267 €] of risk capital for planning a wind farm. Today you almost need twice the sum in Euros for a wind farm to invest as risk capital in order to get expert reports and permits. That is a bit of the difficulty, probably also for regional companies, that are set up specifically for that purpose [i.e. setting up a wind farm].“ [16:33]

Furthermore, as was mentioned in section 3.3.3, prospectus requirements, affecting various forms of publicly advertised financial participation in renewable energy installations, have also become tighter and require comprehensive expert advice.

Interviewees also provided some hints at the varying influence of public discourse. As already noted in section 3.3.3, discussions around nuclear power in the 1980s and early 1990s served as a catalyst for citizen action in the area of renewable energy. Furthermore the financial crisis of 2008 and the following years is seen as potentially beneficial to citizen ownership models in renewable energy, as people may become more sensitive towards the economic and ecological values of investments taken [21:29]

These changes in framework conditions triggered various responses and adaptation strategies on the side of the affected companies.

The increase in technical requirements and safety regulations as well as the rise in early stage investment costs certainly contributed to a process of professionalization, turning citizen-led initiatives (in the area of wind power) based on volunteer work into professional companies with specialized staff:

“[In the beginning] we all had our job and we did this stuff without payment in the evening. (...) But that already changed when the projects grew larger, that happened around 2000. (...) Then we had our first staff members that were employed part-time, because the projects themselves were much more extensive and time consuming. (...) And now that is even worse (...). That is much more difficult and it now no longer works with volunteers as a side-job.“ [15:24]

This certainly also has heightened the entry barrier for (potential) new initiatives that want to set up citizen-owned projects in the area of wind power. Furthermore the rise in investment costs required in the early stage of the development of a wind farm has in some cases also affected recruitment strategies. During this early project stage, when plans for the next wind farm are still quite vague, it proves much harder to recruit new associates. This is seen as a factor making previous reliance on word-of-mouth recruitment insufficient and necessitating professional marketing campaigns (direct mailing etc.) [10:10, 10:59, 16:33].

The stop-and go policy in the area of feed-in regulation and other support mechanisms has proved difficult to handle for the companies. While some of the larger companies based on citizen ownership have been able to balance higher and lower revenues from projects realized during different policy periods, some smaller initiatives have had trouble getting off the ground or expanding their activities.

Some of the larger companies also decided to start setting up projects abroad (e.g. Germany, Czech Republic) rather than in Austria, due to better framework conditions in those countries. Also it was noted that a further worsening of support mechanisms for green electricity could lead to an eradication of companies based on citizen ownership. A market concentration on the side of utilities could occur, as the latter are financially better prepared for surviving financially difficult times [12:10, 14:33, 21:17, 21:22, 21:37].

Interestingly, some interviewees viewed citizen ownership and citizen participation models in the area of photovoltaics as a way of setting up PV plants *in spite of* difficult framework conditions. In this view such models are seen as a means of mobilising sufficient capital and achieving a justifiable level of risk distribution for setting up PV plants (see also section 3.4.1, subsection ‘capital mobilisation’). [13:1, 13:32, 18:1, 18:20]

3.4 Interests and rationales attached to collective citizen ownership models

3.4.1 Interests and rationales of project developers (interviewees)

Diffusion of renewable energy in general vs. special value of collective citizen ownership

In general it can be said that people developing green electricity projects in the form of collective citizen ownership models are first and foremost interested in the further diffusion of renewable energy technologies. While a few interviewees see citizen ownership exclusively as a means to an ends, most of them do emphasize particular merits of citizen ownership models (regional value creation, identification, acceptance, etc. - see further below). Nevertheless they see themselves as sharing a joint mission with other developers of renewable energy projects. [13:14, 13:32, 14:36, 15:46, 16:32, 17:51, 21:23]

“Every wind turbine or every alternative energy [installation] that is set up is a personal gain for me, regardless whether our company does that or another.” [14:36]

“Our main concern is that we implement as much renewable energy as possible, and [large] private investors usually are quicker in this area. Of course it would be nice if many participation models would exist, because that is much better secured and because value is created locally. But I think we don’t have the time. We always used to demand that the utilities should do something [in the area of renewables] and now that they are at finally pulling themselves together, I don’t think one should oppose that.” [17:51]

Only in one case was the citizen ownership model in itself described as the main rationale of the project.

“The priority issue is that the citizen himself (herself) also is a power producer. That is a daily need of life, that doesn’t only encompass food, drink and shelter, but above all also energy. [We want that] the citizen actively picks up on this and says: I take responsibility for this and I want to join in here.” [11:10]

Capital mobilisation:

During the ‘pioneer phase’ of wind power in the 1990s, when wind power was still new to Austria, its economic viability was uncertain and partly contested. Thus conventional forms of capital acquisition for the required investment, such as bank loans, were not available to people interested in developing wind farms. A citizen ownership or citizen participation model thus provided a way for mobilising a sufficient amount of capital for installing the first wind turbines in Austria. These models, copied from other countries such as Germany or Sweden, attracted people who were interested in supporting the diffusion

of renewable energy technologies and were thus prepared to invest some money in wind turbines, at a time when returns on such an investment were still somewhat uncertain. [10:7, 10:50, 14:42, 16:2, 16:23, 17:9, 21:9]

“In the early 90ies in Austria it wasn’t possible from our point of view to finance the totally new wind power [technology] via bank credits. Either you had the equity capital, which we (...) didn’t have, and therefore it was generally fascinating to try that with people that wanted to invest in this technology.” [16:2]

Meanwhile wind power is reasonably well established, so that other modes of financing are available. Nevertheless various models of citizen ownership have persisted, albeit some of them have undergone modifications (e.g. transformation into a corporation, see section 3.1.1).

The situation is somewhat different in the area of photovoltaics. On the one hand PV plants are quite variable in scale, so small to medium sized installations can be set up at much lower start-up costs than wind turbines. On the other hand, the costs for PV plants relative to the amount of power produced are still much higher than those for wind turbines and also to this day feed-in tariffs and other subsidies hardly provide sufficient support to make them profitable (see section 3.3.1). Therefore various models of citizen ownership or citizen participation are still seen as a way of capital mobilisation and risk distribution for implementing PV plants. [13:1, 13:32, 18:1, 18:20]

Participation, decentralisation and regional ties

As mentioned before, most project developers of citizen ownership models do also point to special merits of such ownership structures, especially highlighting issues of participation, democratisation, decentralisation and the establishment of regional ties and regional value creation. Also, in many cases efforts are made to specifically involve local residents as co-owners (see also section 3.1.2), thereby also increasing the degree of identification and acceptance. In Upper Austria these local ties are still felt very strongly in the area of wind power. Here citizen ownership models have remained strictly local (small companies owning one or two wind farms in the immediate surroundings) and interviewees note that selling the wind farm to a larger company would seem to them as a kind of betrayal. A small number of interviewees also point out that joint ownership of PV plants may also have a positive effect on local community ties. [11:7, 14:38, 17:44, 18:25]

“In the small region people know each other, meet each other almost every day, yes, they may even be together during the weekend in the pub and discuss, or they are on the church square and discuss. So this project is very conducive for the community for the cohesion in the entire region.” [11:7]

Political leverage, awareness raising and local acceptance

Finally, project developers of citizen ownership models also point to the positive effects collective citizen ownership can have on the promotion of renewable energy technologies. First of all this can include a political leverage effect, as a large number of participating individuals has the potential to affect political decisions in energy issues, especially at the local and regional levels [10:20, 16:45, 17:4, 21:46].

“It’s a huge difference whether I approach a federal state politician and say, well here we have a few companies that want to build something. Or I tell him (...) in Lower Austria there are five to six thousand people involved in wind power. That is a different message for a federal state politician than saying it’s seven companies that want to build something.” [21:46]

Secondly, some interviewees also point out that offering co-ownership of renewable energy installations to citizens can contribute to awareness rising for such technologies. Finally, especially in the area of wind power, *local* citizen ownership, is also seen as having a positive effect on the acceptance of wind farms. [11:10, 10:15, 10:20, 13:13, 15:11, 15:39, 15:40, 16:44, 17:1, 17:9, 21:19].

“For us it is very important that people participate locally. After all, on the one hand they have to identify a bit with renewable energy and wind power and that can be done best by an installation in the village (town) or in the surroundings. And of course (...) we are also dependent on acceptance. Many people say, yes, I know, Ok, I very much support wind power or whatever, but not in our place. And this principle can only be broken by getting people on board locally.” [15:11]

Nevertheless issues such as political leverage, awareness rising and local acceptance are usually characterised as positive side effects and not as the main rationale for a citizen ownership model.

3.4.2 Appraisal of interests and rationales of participating citizens

This section deals with the interests and rationales on the side of involved citizens (shareholders, providers of small loans, etc.) *as appraised by the interviewees* (project developers and other people centrally involved). The data thus differs from the previous section insofar as this is not a self-description but an outside assessment of motives of others.

Combining ecological ideals with economic investments

Several interviewees see a combination of idealistic, environmental goals and more down-to-earth economic interests of making a reasonable – albeit not necessarily exceedingly profitable – investment as the main factor motivating people to participate in a citizen owned green electricity plant. The emphasis in the combination of environmental and economic motivating factors has, however, certainly varied across time and between different technology areas. Thus, idealistic factors had a stronger role to play in the early days of wind power development in Austria in the 1990s. Economic viability was all that was expected (or hoped for) on the financial side. Meanwhile citizen ownership models in the area of wind power are increasingly seen as an investment that is judged in terms of its economic performance and that comes with an environmental added value. [10:30, 10:50, 14:22, 15:5, 16:6, 16:13, 19:24, 21:6]

“All processes had to be professionalized and of course with the 3000 shareholders we have today the class of investors has changed. What in the beginning was the non-materially oriented investor meanwhile has become the professional investor for whom two things are important: Ecology still [is important] – I don’t want to say that has weakened very much. It is also the ecologically oriented investor who knows what happens to his money. But of course he also expects professional structures like he is used to in other areas.” [16:13]

For some prospective associates the limited tradability of shares (companies organised as corporations are not listed on the stock exchange) also constitutes a serious drawback [12:34]. Nevertheless the original ‘pioneers’ still acting as company directors today are cautious about turning shareholding of the companies into a standard investment product traded at the stock exchange and hold certain expectations towards the motives of (prospective) associates.

“The investor should not see it as a speculative element but rather as a long term investment. One invests into the company in order to be part of clean power production on the long term and because of the black figures.” [16:16]

“Some people ask, how high is the return? Only 5%, but I want at least 6 or 7%. Now, we don’t want to have such people.” [15:31]

In technology areas such as PV and biogas, where economic viability is more difficult to achieve under given framework conditions, idealistic, environmental motives still have an important role to play to this day.

These environmental motives have of course always encompassed a wish to contribute to the diffusion of renewable energy technologies. The discourse frames this goal has been embedded in have, however, shifted in emphasis from providing an alternative to nuclear power (1990s) to the present concerns over climate change mitigation.⁵ Also the frame in which assessments of economic soundness may be changing in the light of the financial crisis of 2008 (and following years), as people have become more interested in the long-term economic value and security rather than going for short term speculative profits [17:16].

Identification

Another aspect that is named as being an important motivational factor is a certain degree of identification with the green electricity plant. This factor appears to be more salient for small companies with only one plant in a specific village rather than for companies operating several plants in various locales. Also, like environmental values, it tends to be more important where profitability expectations are or were relatively low (early developments in wind power, current developments in PV and biogas). Identification may involve different aspects: A feeling of pride for the green electricity plant as a distinctive element of the village, trust and support for the project developer which people may be personally acquaintance with, or a satisfaction stemming from the physical tangibility of one's investment [10:8, 14:26, 20:13, 20:15, 20:20, 20:21]:

“One maybe also participated [in our first wind farm] because [the initiator] was regarded very well in his hometown, as a trustworthy person and as someone who is realizing his dream, so to say.” [10:8]

“Identification is the crucial motivating factor, when I know I take some money and that isn't a savings account but rather I am in fact co-owner of a plant, of a real physical work, yes, a real estate, so to speak.” [20:21]

Some issues of identification also appear to be tied up with the specific legal forms chosen for citizen ownership of a green electricity plants. For example, several associates were initially very critical of the conversion of companies originally organized as a limited partnership (GmbH and Co KG) or a group of such companies to a corporation and felt they would not be able to identify with such a legal form. They tended to associate corporations with the image of a purely profit seeking company without any regional ties or environmental values. By contrast, the legal form of a cooperative was once characterized as particularly conducive to identification with the company. [16:12, 16:13, 16:34, 20:20, 21:6, 21:27]

Self sufficiency

Some interviewees also note that the idea of self-sufficiency (generating one's own electricity) can be attractive for people. At the same time some of them acknowledge that this motive can also be problematic, as green electricity plants typically feed in to the grid rather than directly supplying its owners with electricity. [14:41, 15:37, 19:24]

⁵ Providing an alternative to nuclear power may, of course, have become an important discourse frame once again after the nuclear accident in Fukushima in March 2011. However, all interviews this report is based on were conducted before this incident.

“Of course if one has e.g. a PV plant at home, that really is my own electricity, so to speak, that gives you the feeling of independence. But if I only feed in via the grid of EVN [a regional utility company] (...), then it is difficult for me to see an additional, personal advantage with respect to [energy] security. Because if EVN doesn’t like me, then they will disconnect me, so to speak. Many people have this psychological barrier. And one thing also is clear (...), I invest money in something, that is principally a good thing, but this direct relation is still missing.” [15:37]

One may also interpret this as another aspect of identification: People would feel a stronger relation to the power plant they co-own if the technical set-up would allow them to directly draw electricity from their plant.

In some citizen ownership or citizen participation models an opportunity was provided to indirectly consume electricity from the plant, e.g. by selling the electricity to a particular green electricity utility company and providing a voucher for a certain amount of free electricity for participants if they are customers of that utility. [13:21, 15:41]

Participation and community ties

Some interviewees also see a wish to participate and (co-)shape future developments (especially in energy issues) as a factor contributing to a willingness to become an associate. Furthermore, especially in the context of small projects based in a particular village, some interviewees also acknowledge the importance of community ties for motivating people to participate [11:32, 18:24, 19:13, 20:13, 20:20].

One interviewee, however, also suggests that people can also be frightened off by too broad participation and that some people prefer small projects with a small number of co-owners. Another person notes that interest in participation in company-decisions dwindled after the pioneer phase of setting up the plant was over. [15:8, 18:12]

“We also always had our annual assemblies and in the beginning very many people attended, especially in the pioneer phase, because after all we were the first wind farm in the area. But that declined soon, then hardly even 10% of the people came, even though we actually advertised it quite strongly. Because they said, well, now the wheel [turbine] is running, what decisions should I now participate in? I can’t decide if the wind is blowing or not.” [15:8]

Pioneering spirit

The last quote already hints at a further factor that may have contributed to motivating people towards engagement in early development phases, namely the attractiveness of being involved in an innovative project and the excitement of the ‘pioneering spirit’ that accompanied them, especially in the early phases of wind power development. During this ‘incubation phase’ individual associates could in some cases contribute substantially to the technical, economic and legal set up of the plants. Furthermore the novelty of such projects and the pioneering spirit appears to have been attractive to some people [10:30, 15:4, 15:6, 15:23, 16:4].

“I think the first people also saw it very strongly as being part of an innovative project. Later it increasingly also was about something lucrative about doing something renewable, ecologically sensible, but I would say it as an added value for most people.” [10:30]

3.4.3 Dynamics of interests and rationales

The previous section has already pointed towards some changes in the interests and rationales of the people involved in collective ownership of green electricity plants. In particular it was already noted that the salience of environmental ideals and economic interests has varied across time and between different technology areas. Here some further notes will be made concerning changes of interests and rationales over time.

Recruitment channels and legal form

First of all, the groups of people that can be mobilized for citizen ownership of renewable energy plants and their interests and rationales for involvement certainly depend on the recruitment channels that are used by project developers. For example, in wind power a certain shift has occurred from reliance on personal contacts and word-of mouth, concentrated in the village where a wind farm is to be set up, to larger marketing campaigns, directed at people spread out across Austria. This has contributed to an increase of the proportion of associates with interests that are more strongly investment driven and less oriented towards environmental ideals, and aspects of identification. The conversion of some of the companies into corporations appears to have given some further impetus to this development. [10:30, 16:13, 21:29]

“Of course with this modified breadth of our audience we are also entering a market that is similar to the financial market, where one is also judged in relation to shares of Verbund [Austria’s largest electricity provider] or bonds from a German company or to a investment fund product (...). And of course that changes something. And now increasingly people come that also have expectations concerning financial returns, that see it more as an investment.” [10:30]

Framework conditions

Also institutional framework conditions, in particular the level of public financial support, appear to have an influence on the groups of people that are attracted to citizen ownership of renewable energy plants. Not too surprisingly, under difficult and/or uncertain framework conditions (early phase of wind power, current situation in PV and biogas) such initiatives mainly attract people who are motivated by idealistic factors such as environmental ideals, identification and the pioneering spirit. The more framework conditions allow for the profitable operation of a green electricity plant, the more people with business-oriented motives are also attracted. [10:30, 10:50, 12:8, 13:33, 20:15]

Also macro-level societal discourses, such as discussions over nuclear power and, more recently climate change and the financial crisis, can shape the context in which people find it desirable (or not) to engage in a citizen owned renewable energy project. [17:16, 21:9, 21:29]

3.5 Regional comparison

Especially in the area of wind power, some differences can be made out between different Austrian federal states with respect to the extent and form of citizen ownership models. For a start, wind turbines have been set up in six of the nine Austrian federal states with the largest shares in Lower Austria (557,3 MW) and Burgenland (369,2 MW). Styria (49,8 MW) and Upper Austria (26,4 MW) also have an appreciable amount of total installed capacity, while in Vienna (7,4 MW) and Carinthia (0,5 MW) very

little wind turbines have been set up.⁶ However, with very few exceptions, citizen ownership models can only be found in Upper and Lower Austria.⁷

In Upper Austria all of the 10 wind farms currently in operation are based on citizen ownership models, typically in the form of a limited partnership or a limited liability company (GmbH & Co KG or GmbH). These companies operate at a local level, operating a maximum of two wind farms in their immediate surroundings. These wind farms are relatively small - apart from one exception the installed capacity of a single farm does not exceed 2 MW (two to three small or one large wind turbine).

In Lower Austria citizen ownership and citizen participation models also play an important role but co-exist with utility ownership. Furthermore citizen ownership takes a different form, typically as shareholding in a company that operates several wind farms of varying sizes in different locations. More than half of total installed capacity in wind power (approx 300 MW of 557,3 MW) is owned by three companies that offer various forms of citizen ownership (two corporations and one group of limited partnerships). They also started with small local projects but have meanwhile grown and operate wind farms in various locations across Lower Austria and partly also outside of Austria. Furthermore the regional utility company in Lower Austria started to operate wind farms in 2000 and now owns seven wind farms with a total installed capacity of 116,3 MW (i.e. about 20% of total installed capacity in Lower Austria).

By contrast, in Burgenland all wind farms are owned by a 100% subsidiary of the regional utility company. In Styria most wind farms are owned by large private investors, partly in co-ownership with local utilities.⁸

One may, of course, ask why such different ownership patterns have developed in different parts of Austria. The mere volume of wind power implementation in different regions certainly depends strongly on climatic and geographic conditions (average wind speed). These conditions are known to be best in Lower Austria and Burgenland. This may, however, also have influenced ownership patterns, as utility companies, accustomed to large scale power plants, only get engaged in regions where large-scale plants are viable. Indeed, Lower Austria and Burgenland are the only federal states where the respective regional utilities have engaged in wind power production at a significant scale. Also, companies based on citizen ownership in Lower Austria were able to develop an increasing number of increasingly large wind power projects. Conversely, the comparatively small wind farms that could be set up in Upper Austria may have lent themselves to strictly local citizen ownership models. [17:41, 21:7]

However, additional factors explaining ownership patterns were also mentioned in interviews. Some interviewees referred to differences in the mentality of people, with regional ties being more important to people in Upper Austria [17:41, 16:42]:

⁶ Source: IG Windkraft 2010 *Windenergie in Österreich 2010*, available for download at [http://www.igwindkraft.at/index.php?xmlval_ID_KEY\[0\]=1047](http://www.igwindkraft.at/index.php?xmlval_ID_KEY[0]=1047) as of 20 December 2011

⁷ One wind farm in Vienna is owned by the utility company oekostrom AG, a joint corporation not listed at the stock exchange. Furthermore one of the wind power companies with a citizen ownership model owns 20% of the company operating the largest wind farm in Styria (22,8 MW installed capacity).

⁸ Additional sources: Map of the IG Windkraft at <http://www.igwindkraft.at/landkarte/> accessed 20 December 2011 and <http://www.regioenergy.at/Windkraft>, accessed 20 December 2011

“I think in Upper Austria there would not be much wind power, if the issue of citizen participation wouldn't play a part in it. That is strongly rooted there. (...) It would have been looked at extremely critically, if somebody from outside would have wanted to do that. If a company from Burgenland, also if it had been in private hands, would have come to build a wind farm in Upper Austria, that would have almost been an impossible thing.” [16:42]

Furthermore it was suggested that people in Burgenland see utility ownership of wind power as an indirect form of citizen ownership:

“One can also see the AWP, the subsidiary company of BEWAG [regional utility company], as a participation model, because it actually belongs to the federal state. (...) That also strongly depends on the political culture, that it is perceived that way in Burgenland.

[interviewer: These are our wind farms because they are owned by the federal state and therefore they belong to all of us?]

Yes, in Burgenland I am sure, if you talk to people, that is the way things are.” [21:7]

Another factor that was referred to as relevant is support or opposition towards wind power from key actors in the federal states, especially regional utilities, members of the federal state government and regional energy agencies. In particular, the regional government of Upper Austria is seen to have turned against wind power in decisions concerning spatial planning that require a weighting of interests (landscape protection vs. climate protection). The regional government of Lower Austria was criticized for not supporting wind power development by designating preferential areas for its development. [10:76, 12:37, 14:53, 17:31, 17:33, 17:58, 21:7, 21:38]

4 Country Case Germany

4.1 Ownership and participation models

A broad array of different ownership and participation models can be found among collectively owned green power plants in Germany. Two citizen ownership models have proved particularly successful and spread out considerably, on the one hand citizen owned wind farms ('Bürgerwindparks') and on the other hand citizen power plants organized as cooperatives (typically but not exclusively in the area of photovoltaics). Seeing one of these models is defined by its technological basis (wind power) and the other by its specific legal form (a cooperative) these are in principle overlapping categories. Nevertheless the emergence and diffusion of Bürgerwindparks and of energy cooperatives can be separated analytically, seeing that only very few collectively owned wind farms take the legal form of a cooperative.

4.1.1 Bürgerwindparks

A number of authors have already pointed to the important role of bottom-up initiatives setting up citizen owned wind farms in the establishment of wind power in Germany (Bolinger 2001; Byzio et al. 2002; Toke et al. 2008). In Germany the term 'Bürgerwindpark' (citizens' wind farm) has become widely used to refer to such citizen-owned wind farms. It is, however, not an easy task to estimate the share of installed capacity owned by such initiatives, not least because different actors have different understandings of what constitutes a 'Bürgerwindpark'. As a first rough indication one may take that, according to study by trend:research (trend:research 2011), more than half of Germany's installed

capacity in the area of onshore wind power (51,5%) is owned by private citizens as of 2010 (offshore wind across all groups of investors is still negligible).

A 'Bürgerwindpark' may, however, be defined more narrowly than a wind farm that is owned by a group of private individuals. Most importantly, several interviewees emphasise that in their view a wind farm referred to as a Bürgerwindpark needs to be exclusively or at least predominantly owned by the *local* population. Another possible criterion for a Bürgerwindpark is that the initiative for setting up the wind farm is taken by a local group of citizens rather than by an outside project developer (who may then offer ownership shares exclusively or preferentially to the local population). In particular, some interviewees decidedly object to referring to co-ownership with large investors (e.g. a large investor offering a small share of a large wind farm to local residents) as a Bürgerwindpark. Nevertheless, usage of the term is by no means consistent and is increasingly used (or *misused* in the eyes of those advocating a narrower understanding of the concept) for other organisational setups. [4:14, 4:15, 8:17, 8:19, 9:9, 9:10]

In the narrow definition of the term outlined above, Bürgerwindparks mainly established themselves in the federal states of Schleswig-Holstein and Lower Saxony along the North Sea Coast of Germany from the early 1990s onwards. An important trigger for the emergence and further diffusion of such wind farms was the electricity feed-in law introduced in 1991, for the first time enabling the economic operation of wind farms by independent power producers (see section 4.3.1). [4:1, 4:7] (see also Byzio et al. 2002)

A particular concentration of activities could be noted in North Frisia, a district of Schleswig Holstein in the northernmost part of Germany. Here the first citizen owned wind farm, 'Bürgerwindpark Lübke-Koog', was set up by a group of farmers. After an outside investor had already set up a wind farm in this village, several farmers became interested in setting up wind farms on their own land. Following a suggestion from the municipality, these farmers teamed up to set up a joint wind farm and, in view of the considerable size of the project, also decided to open up the project to further interested citizens of the village. Through word of mouth the concept quickly spread to other municipalities and citizen groups in North Frisia, such that several similar projects were set up in the following years. Interestingly, in spite of the proximity to Denmark, where collective citizen ownership of wind farms had been an important organisational model in the 1970s and 1980s, interviewees report that these models did not form a source of inspiration. [4:1, 4:4, 4:7, 8:1, 8:5, 8:8, 8:9, 9:11]

„It was more the technological innovations that played a role at that time for orienting oneself towards Denmark and of course the legal framework with the feed-in remuneration. But that there really was contact and that groups went across and said, oh look, this is how a Bürgerwindpark works in Denmark, we'll also set up something like this in Germany, I didn't observe that anything happened in that way." [4:4]

The dominant legal form of such Bürgerwindparks (both in the narrower sense outlined above and also in more investment-oriented models) is that of a limited partnership (GmbH & Co KG). In some cases also cooperatives or general partnerships (Gesellschaft bürgerlichen Rechts, GbR) were formed, but these are generally considered to be less favourable in terms of tax and liability issues. Furthermore one interviewee also points to the dual structure of the limited partnership as an advantage, with the limited liability company (GmbH) in charge of day-to-day management decisions and the limited partners

(Kommanditisten) as owners of the wind farm that are consulted only with respect to fundamental company decisions. [2:2, 2:4, 4:12, 8:10, 9:15]

„As limited partners they are the owners, they also make the substantial decisions at the owners' assembly, so for example whether there is a [dividend] payout or not, but they don't need to see about the operational business, that is repairs, insurances, banking business and all that.” [2:2]

4.1.2 Energy Cooperatives

Energy cooperatives in Germany have a history dating back to the early twentieth century when cooperatives were set up to assure electricity provision in rural areas, especially in Bavaria (Flieger & Klemisch 2008). In recent years a new generation of cooperatives has emerged in the area of renewable energy, especially photovoltaics. According to Holstenkamp and Ulbrich (2010) the number of cooperatives producing energy from PV plants has risen from four in 2007 to an estimated 200 in September 2010.

Most of the newly emerging energy cooperatives are active in the area of electricity generation from PV plants. However, energy producing cooperatives also exist in the areas of wind power, biogas and local district heating networks (biomass). Furthermore some utility companies offering green electricity are also organised as cooperatives and in addition to that there also are some cooperatives in the area of trade with components for renewable energy plants (e.g. PV panels), power supply, energy savings via contracting and even research. In some cases cooperatives start off with a PV project and later also become active in other areas.

„Well, energy cooperatives often start with a PV plant. There are many reasons for that, one important reason is simply that a PV plant is quite easy for us in the preparation phase, it is quite clear how it can be represented in economic terms and therefore our cooperative can be registered within an acceptable timespan.” [6:2]

As mentioned above, in the area of wind power the 'standard model' for collective citizen ownership is a limited partnership (GmbH & CO KG), but some citizen owned wind farms also take the legal form of a cooperative. Furthermore both in Bavaria and in Baden Württemberg there are currently plans to set up citizen owned wind farms which are jointly owned by several cooperatives – an ownership structure that facilitates both identification (local cooperative) and allows raising a sufficient amount of capital for a wind farm. [5:13, 6:2, 7:15]

Quite generally, energy cooperatives operating green electricity plants often face the difficulty of being large enough to operate profitably, due to certain level of start-up costs and administrative costs (in particular auditing costs), while at the same time facilitating identification by focussing on (small) local projects. Broadly speaking two different approaches exist for solving this dilemma. One consists of supporting the development of several local cooperatives each located in a specific village or town. Specialised support organisations assist local initiatives in funding and running a local energy cooperative (see section 0). These cooperatives may then also join forces for larger projects such as wind farms.

A different approach consists in setting up a larger energy cooperative that operates several plants in different locales. One example is the ‚Solar-Bürger-Genossenschaft‘ in Baden-Württemberg. This cooperative intends to act as an umbrella structure which different local initiatives can use to set up their local projects:

„The Solar-Bürger-Genossenschaft differs from most PV cooperatives in that it is not restricted to a narrow region, a town or a village. Rather, it is available as a platform for different local initiatives that only wants to set up one, two or three plants. Setting up a cooperative would be too costly or time consuming for them, they don't want to go into all that effort. The Solar-Bürger-Genossenschaft offers itself as an umbrella organisation to such groups. They then have to raise funds themselves and as far as possible also secure the deal for the roof [for the PV plant], but they get some support from us.” [Burghard Flieger, board member of Solar-Bürger-Genossenschaft]

In this case membership in the cooperative and investment in a particular (local) power plant are separated; individual projects are financed via subordinate loans (Nachrangdarlehen). [1:28, 3:14, 3:33, 7:4, 7:13]

One particular feature of cooperatives generating electricity is that they usually operate in a grid-integrated manner, i.e. they sell their electricity to the grid. This means they cannot provide benefits in kind to their members, as is usually the case for cooperatives. Some interviewees see this as somewhat problematic and would therefore favour models enabling direct electricity consumption by cooperative members. Others consider this issue unproblematic. [3:15, 6:12, 7:27]

Concerning the strong increase in the number of energy cooperatives since 2008, interviewees name a number of factors that may have contributed to this development:

- Assistance from specialized support organizations has become available. Some organizations in fact actively propagate the establishment of energy cooperatives (see section 0) [1:9, 7:33, 7:34]
- Cooperatives are exempt from prospectus requirements which were introduced in 2005 and apply to other forms of collective citizen ownership of renewable energy plants [1:40, 3:7]
- Some changes made to the cooperative law in 2006 made it slightly easier to set up and run small cooperatives (e.g. lower number of people required to set up a cooperative, reduced audits for small cooperatives). [1:40, 7:33]
- Compared to private partnerships (Gesellschaft bürgerlichen Rechts, GbR), another very wide spread model for collective citizen ownership of PV plants in Germany, a cooperative is much better suited for setting up several plants (easy entry of additional members, liability of cooperative members can be restricted to their capital contribution) [1:40] (see also Rutschmann 2009)
- In view of the financial crisis several people consider cooperatives to be an attractive alternative form of economic activity, based on principles of solidarity and democracy [7:34]

4.1.3 Drawing boundaries

With the burgeoning number of citizen owned power plants and the diversity of models that have emerged, including more commercially oriented forms that are presented as 'green investments', it may not be too surprising that several actors have started to draw boundaries between what they see as genuine citizen power plants and models they perceived to be false or questionable imitations.

Cooperatives as more democratic forms of organisations

For one thing, advocates of cooperatives point to particular benefits of this legal form. One interviewee makes a case for cooperatives arguing that they contribute particularly strongly to regional value

creation. In general, however, interviewees in favour of cooperatives emphasise the democratic decision making structures involved, in contrast to other legal forms where voting power is often dependent on the volume of an individual's investment and/or many decisions are taken by an executive board without consulting all shareholders. [1:41, 3:29, 7:10]

„Of course that has the really nice advantage that cooperatives really are democratic models. Every shareholder has one vote, or every comrade (Genosse) so to speak. Compared to other types of enterprise that is quite a crisis-proof investment. Indeed, that basically is the most democratic type of enterprise I would think.” [1:41]

Another interviewee, however, is sceptical whether grassroots democracy as it is practiced within cooperatives is a practical approach towards setting up citizen power plants. [2:3, 2:38]

„The legal form [of a limited partnership] combines that the investor participates in [setting up] renewable energies, but without having to concern himself with the plants. Most participants also think that's a good thing but don't have the time to really take care of it. (...) Also there are not so many things in the company in the day-to-day operation that require participative management (...). If you participate in the decision whether the nail should be knocked in on the left or the right side, that doesn't provide any advantage to the people.” [2:3]

Moreover, also within the field of cooperatives several actors are keen to distinguish between what they judge to be genuine bottom up activity and top down interventions. Thus several interviewees are rather critical of the activities of EnBW, one of the four large utility companies in Germany, to support the development of small energy cooperatives (see also section 4.2.3). [1:8, 1:10, 1:23, 2:9, 3:27, 4:13, 7:28]

Bürgerwindparks: local rooting vs. investment oriented models

Also in the area of citizen owned wind farms interviewees see a need to differentiate between the original model of a Bürgerwindpark based primarily on the involvement of the local and regional population and more investment oriented models in which shares are offered to geographically dispersed individuals. Apart from the geographical scope of participation some interviewees also name further criteria defining a Bürgerwindpark, such as the initiative emerging from the local population and the wind farm being an independent enterprise rather than being based on co-ownership with a large investor. [4:11, 4:14, 4:15, 8:17, 8:19, 9:9, 9:10]

„I know, in North Rhine Westphalia there also are so-called citizen wind farms, there the municipal utility company set up a wind farm and one of the ten turbines was the citizen plant. That isn't a citizen wind farm in my eyes. That's a big wind farm with a small citizen participation.” [9:10]

4.2 Actor roles

4.2.1 Collective citizen ownership initiatives

One interesting question concerning collective citizen ownership of green electricity power plants is to what extent they have contributed to the diffusion of renewable energy technologies in Germany. According to a study by trend:research, private citizens and farmers own a remarkable amount of total installed capacity of renewable energy technologies – just more than half of total installed capacity as of 2010 (50,7%) (trend:research 2011). In the area of wind power the ownership share of this actor group amounts to 53,3 %, in the area of photovoltaics even 60,5 %. It must be said, however, that this study does not differentiate between individual ownership (e.g. PV panels on single-family houses) and collective ownership, e.g. in cooperatives or limited partnerships. Furthermore the study does not

differentiate between locally rooted and geographically dispersed models of citizen ownership, which several interviewees consider an important distinction between genuine citizen power plants and investment oriented approaches.⁹ Nevertheless these figures serve to get an idea of the significant role of (collective) citizen ownership in the area of renewable energy in Germany.

Also some interviewees point to the important role of initiatives setting up collectively owned green electricity plants for the diffusion of these technologies, especially in the early stages of the diffusion of renewable energy technologies. At least in the early phases, several initiatives setting up collectively owned power plants were not so much driven by profit-motives but drew intrinsic motivation out of contributing to a more environmentally friendly system of energy provision (see also section 4.4) and therefore contributed to market formation when other actors had not yet entered the field.

“Well, up till now [citizen participation models] had an exceedingly high relevance. That we managed in Germany within twenty years to move from 5 % renewables to 17 and that within the next years we will have around 30, that was quite decisively promoted by citizen participation models and by the commitment of citizens, that quite consciously invested in this area. The large utilities hardly made any contribution to this. In future the market will be much broader, but citizen participation will also have a role to play.” [2:46]

Several interviewees expect the share of citizen power plants to diminish over the next years as a process of commercialisation takes place. Some interviewees, however, also see a growth potential for citizen power plants specifically in the area of energy *cooperatives*, a prognosis that may be supported by the recent boom of activities in this area. Furthermore, considering increasing problems with the siting of wind turbines, one interviewee also expects local ownership of wind turbines to grow in importance in the future, as this is seen as a means to increase local acceptance. [2:46, 3:51, 3:52, 5:27, 8:12, 7:42, 9:28]

Next to these direct effects on the diffusion of renewable energy technologies by setting up power plants, initiatives in the area of citizen power plants may have some indirect effects contributing to the diffusion of renewable energy technologies. First of all some interviewees pointed out that such initiatives made a strong contribution towards awareness rising for and acceptance of renewable energy technologies.

“The [Bürgerwindparks] had an important role to play, because they contributed to high acceptance in the region for wind power. Because acceptance simply is very high if one sees that apart from the ecological benefit there also is a monetary benefit in the region, there is value creation.” [4:28]

“Well, since the cooperative model is gaining ground [renewable energy] plays a role in public perception. Seeing that we alone already have 5.500 active members (...), thereby I of course have multipliers.” [6:24]

One interviewee also suggests that participation in a citizen owned power plant bridges the gulf between energy consumption and production and thereby produces higher awareness for energy issues in general among shareholders of a power plant. [1:25, 1:31, 4:28, 6:24]

Secondly initiatives in the area of collective citizen ownership of green electricity may have had a certain role to play in creating political leverage for supportive policy frameworks for renewable energy, in

⁹ It must be noted, however, that investment funds and banks are listed as a separate ownership group owning 11% of total installed capacity as of 2010.

particular feed-in regulation. While most interviewees are rather sceptical towards the lobbying power of these initiatives in *establishing* this form of policy support, one interviewee emphasises the contribution of citizens engaged in collectively owned plants in *maintaining* this legislation and defending it against attempts to strongly reduce feed-in tariffs (e.g. participation in protests against unfavourable amendments of feed-in regulation). At the same time another interviewee suggests, that in case feed-in regulation dramatically changes for the worse, citizen initiatives may in fact once again constitute the actor group setting up green electricity power plants *in spite of* unfavourable framework conditions, due to the intrinsic (rather than economic) motivation of several of these groups. [3:51, 4:26, 4:28, 7:39, 8:38, 9:26]

4.2.2 Support Actors

Several organisations exist in Germany that provide support for initiatives in the area of citizen power plants. This is also visible from the large number of manuals that have been published that offer guidance on setting up such collectively owned plants. In 2011 alone, three manuals were published specifically dealing with energy *cooperatives* (DGRV & AEE 2011; George & Berg 2011; Staab 2011) and another one is due to appear in 2013 (Seiverth et al. in press). In addition to that a manual on Bürgerwindparks has been published (windcomm 2010, see also section 4.2.2 below) and some more manuals have been published dealing with citizen power plants in general (DAKS 2006; EnergieAgentur.NRW 2011).

Support actors in the area of energy cooperatives

Over the last few years a remarkably broad array of organisations has developed support services directed specifically at energy cooperatives.

„Well, that is actually quite funny, in the area of energy cooperatives one can say meanwhile there almost is a kind of competition. That is, meanwhile there are several providers that offer similar services, similar support.“ [3:27]

In several cases these organisations were set up with the specific goal to support energy cooperatives, in some other cases existing organisations in the cooperatives sector (such as auditing associations) developed specific support programmes for energy cooperatives.

Auditing associations, however, appear to play a somewhat ambivalent role in supporting the establishment of energy cooperatives. Several interviewees note that for a long time auditing associations were indifferent or even obstructive to the establishment of energy cooperatives. Different reasons are named for this stance, in particular auditing associations not being reliant on new members and actually fearing the burden of having a large number of small cooperatives as members. One interviewee also sees a rather conservative sentiment prevailing in auditing associations, resulting in reservations towards cooperatives characterised by a communitarian spirit and oriented towards social and ecological goals. Interviewees, however, concede that meanwhile several auditing associations have started to support the establishment of new cooperatives in general and sometimes energy cooperatives in particular, e.g. by providing counselling services, templates for statutes or reducing start-up and auditing costs. [3:11, 3:27, 5:18, 6:7, 7:35]

One of the most important types of support is *know-how development, training and counselling* in order to enable individuals to set up and run energy cooperatives. Some interviewees emphasize that the first important step in this direction is familiarizing people with the cooperative as a business model.

„Well, in the beginning there is the knowledge on what is required generally or what advantages, what opportunities are available via the cooperative [as a legal form], that is not very widespread knowledge.” [3:24]

„Of course we still have a communication gap, so to speak. The cooperative model simply was not present (visible) enough over the last 20, 30 years (...) and therefore the model requires explanation.” [5:3]

Innova, an organisation supporting the establishment of cooperatives in various sectors, together with the German Protestant association for further education (Deutsche Evangelische Arbeitsgemeinschaft für Erwachsenenbildung) has set up a specialized course, training people to become project developers of energy cooperatives. Since its beginning in 2010 four instances of the training course have been carried out, the fifth course starting in March 2012. The courses involve several days of training and additional online learning schemes for about 25 participants each.¹⁰ Further training courses directed primarily at municipal actors (mayors, employees of public institutions, etc.) are offered by the University of Applied Sciences Mittelhessen (Technische Hochschule Mittelhessen).¹¹

Furthermore, in the federal state of Baden-Württemberg, counselling services and some financial support for establishing a local energy cooperative is also offered by EnBW, one of the four large utility companies in Germany. Several interviewees, however, are quite critical of this programme and see it primarily as an image campaign designed to commit mayors to the utility company. They question whether the resulting cooperatives, which often are very small, will survive on the long term. [1:8, 1:10, 3:27, 6:3, 7:28]

A related but slightly different form of support consists of *providing ready-made concepts and templates* that assist in setting up an energy cooperative. For example Agrokraft, a company that grew out of the Bavarian farmers' association (Bayerischer Bauernverband), has developed a package that, together with a half-day workshop enables citizen groups to start off an energy cooperative in their village.

„Well Raiffeisen developed the banking system for rural areas, the cooperative banks, and he actually established a structure how one can set up a bank in every village in a standardised way. Now we said, just like Raiffeisen said for each village its bank, the bank needs to see the church tower, we gave every village its Raiffeisen energy cooperative.” [Michael Diestel, manager and founding member of Agrokraft]

The package consists of templates for various legal documents such as cooperative statutes and various contracts but also software for administrating the cooperative and design elements for an outside appearance (website, letter paper etc.). A similar package is also provided by the auditing association Weser Ems (Genossenschaftsverband Weser-Ems) in the federal state of Niedersachsen (Holstenkamp & Ulbrich 2010).¹²

¹⁰ See <http://www.energiegenossenschaften-gruenden.de/>

¹¹ See <http://www.thm.de/hzw/weiterbildung/angebots-portfolio/zertifikatslehrgang-kommunaler-energieprojektberater.html>

¹² See http://www.gvweser-ems.de/gvwe/DE/aktuelles/archiv-meldungen/24_2008/85_gvwe_15_photo.php

Finally, two organizations were set up recently to *support networking and exchange* between energy cooperatives. At the regional level, the association of energy cooperatives in Baden Württemberg (Verband der Energiegenossenschaften Baden-Württemberg) was established in 2009. This association is intended to serve as a platform for exchange, for developing joint projects (e.g. larger installations such as a wind farm) and for organizing further training. Furthermore the association cooperates with EnBW in the area of providing counselling and start-up support for new energy cooperatives (see above). At the national level, the ARGE Energiegenossenschaften (working group of energy cooperatives) was formed in 2010, mainly for facilitating networking, exchange and mutual empowerment.

Most actors supporting the establishment of energy cooperatives not only want to contribute to the further diffusion of renewable energy technologies but specifically want to promote the organizational model of cooperatives. This is supported by two main arguments. Firstly they emphasize the potential of cooperatives in contributing to regional value creation and secondly they underline the aspect of democratisation and empowerment (see also section 4.1.3). [5:11, 3:4, 3:29, 7:11]

„Regional value creation, which is seen as the backbone of every society by smart economists, (...) if you look how regional value creation is organized in different [organizational] formats, (...) then in the second or third step one will always turn towards the cooperative format and realize that that offers an almost un-negotiable enabling model.“ [5:11]

„In energy cooperatives there are more real potentials of what I would call real citizen participation, than in investment oriented models. Because apart from the mere financial participation they are set up in a way to allow for people to participate in conceptual issues, to get actively involved.“ [3:29]

One interviewee, however, takes a decidedly pragmatic stance towards energy cooperatives and also sees limits of cooperatively organized systems of energy provision.

“I clearly see that [the energy cooperative model] has its justification and I also fight for advancing a grassroots oriented cooperatives-model in the area of renewable energies. But I also clearly see limits to the cooperative model in the business arena. (...) Whether we should try, with this legal form, to think in larger structures, I’m not so sure about that, how quickly one simply reaches the limits of, let me say, the grassroots democracy of the cooperative model.“ [6:9, 6:11]

Further support actors

Apart from organisations dedicated specifically to the support of energy cooperatives, some organisations support initiatives in the area of collective citizen ownership of green electricity power plants more generally. For example, the association fesa in Freiburg, Baden-Württemberg, a regional association promoting the diffusion of renewable energy technologies, initiated some of the first collectively owned PV plants in Germany in the mid-1990s. Seeing such activities transformed from being idealistic, non-profit initiatives to economic enterprises, they were in 2001 transferred to a newly founded separate limited liability company, the fesa GmbH. Recently, however the fesa association has once again started to become active in this area and supports the development of the energy cooperative ‚Solar-Bürger-Genossenschaft‘ (see section 4.1.2).

In the area of wind power the Federal Association for Wind Power (Bundesverband Windenergie, BWE) represents the interests of the wind industry. As such it also has a positive stance towards plants operating on the basis of collective citizenship, especially in view of the higher local acceptance for wind power such models usually entail. However, as the BWE represents the entire wind industry (including

also manufacturers and service providers such as project developers, lawyers etc.), it does not engage in specific lobbying for such models or argue for their preferential treatment. For similar reasons the activities of federal associations dedicated towards other renewable energy technologies are generally not considered to be relevant support actors for citizen power plants. BWE is, however, considering publishing a manual for setting up 'Bürgerwindparks' based on an already existing regional guideline for the federal state of Schleswig-Holstein. [3:28, 4:18, 4:20, 5:19, 6:8, 9:13]

The latter manual was published by the regional wind power agency windcomm. Windcomm was founded in 2004, originally only as an agency of the districts along the North Sea coast, where wind power and in particular Bürgerwindparks had first emerged. Meanwhile it acts as a wind power agency for the entire federal state of Schleswig-Holstein and among other things aims to spread the Bürgerwindpark-model beyond the boundaries of the district of North Frisia, where the model emerged and is particularly widespread (see section 4.1.1). The manual, together with information events, forms their most important contribution towards spreading the Bürgerwindpark-model and four to five thousand copies have already been distributed.

Another group of actors that has become important for initiatives aiming to set up collectively owned PV plants or wind farms are professional service providers such as project developers that take care of planning the installation and gathering all the required permits and technical and legal expert reports. Administrative and financial requirements for setting up a green electricity power plant (especially a wind farm) have risen over the last years, often necessitating citizens' initiatives to draw on such services. [3:27, 8:28, 9:18]

„There are service providers, like we meanwhile are ourselves (...), and we then are available for such initiatives with the entire know-how from launch of a company to permits and financing and above all also the rules of the game in communication.“ [8:28]

In some cases administrative support and advice is also provided by representatives of initiatives that have already set up collectively owned green power plants.

„What is also available is support from those that have already managed or planned Bürgerwindparks. (...) I would say people here know the operators or managers of large Bürgerwindparks and we have a small pool [of people]. We have some mayors from villages with Bürgerwindparks, we have planners and we have managers (...) and those provide assistance.“ [9:18]

Finally, one interviewee pointed out that in Germany there are a large number of local agenda 21 groups and some citizen power plants emerged from these initiatives. [2:37]

4.2.3 Utilities

The electricity market in Germany is strongly dominated by four large utilities (RWE, EON, Vattenfall and EnBW) that together account for a market share of 65 – 70 %.¹³ These large utilities, however, are hardly active in the area of renewable energy technologies. According to trend:research (2011) they only own 6.5 % of total installed capacity of renewable energy as of 2010. The largest part of this share comes from hydropower plants, but wind power is also growing in importance. Small local and regional utility

¹³ See <http://de.statista.com/statistik/daten/studie/154054/umfrage/marktanteil-der-energiekonzerne-am-strommarkt-2008/> and <http://www.shortnews.de/id/913988/RWE-und-Co-verlieren-immer-mehr-Marktanteile> (accessed 14 May 2012)

companies taken together account for a smaller share of total installed capacity than these four large utilities (4.3 %) but if this is set in proportion to their market share it can be seen that they are in fact much more active in the area of renewable energy technologies than the large utility companies. Furthermore they also exhibit much stronger growth rates in this area (trend:research 2011).

Also several interviewees point out that to date renewable energy plants are largely owned by citizen collectives and medium sized enterprises. Large utilities are generally seen as adversaries that for a long time have tried to inhibit large-scale diffusion of renewable energy technologies and still have not become seriously engaged in this area. Several interviewees also are strongly supportive of the decentralised structures that have emerged so far. Thus a number of interviewees would in fact not necessarily welcome a stronger engagement of the large utilities in the area of green electricity, but rather see the decentralised structures involving, among other actors, citizen collectives as something that is to be defended. [1:22, 1:23, 3:3, 2:8, 2:36, 2:46, 2:48, 7:36, 8:12]

„The large bulk of renewable energy is decentralised and in relatively small units. And if those are utilised and they belong to citizen participation companies or private individuals that have it mounted on their roof, then the large utilities every day loose market shares, power and money. And that leads to these enormous conflicts in energy supply in Germany, that the large energy companies are losing market shares every day, because they don't own the plants, they are owned by others. But we want the structural change, we want to break up the dependency on monopolies.“ [2:8]

This position must also be seen as being part of a larger societal conflict over energy issues, in particular the conflict over nuclear power. Large utilities have always been advocates of nuclear power plants while renewable energy has been positioned as the 'antithesis' to nuclear power in this conflict. Among renewable energy advocates large utilities thus have always been perceived as the enemies in the fight against nuclear power and for the further diffusion of renewable energy.

„Here in Germany (...) energy supply is one of the largest economic area of conflict at all (...), well, it is the most important at all. No other sector can evoke such conflicts as energy supply.“ [1:23]

It is of course not unreasonable to assume, however, that large utilities will play an increasing role in the area of electricity generation from renewable in the coming years, at least in the newly emerging area of offshore wind power. [2:9, 4:13]

Finally, it should also briefly be mentioned that there are also some initiatives that have realised or are planning to set up collective citizen ownership of utility companies. Most prominently this includes the 'Elektrizitätswerke Schönau', a citizens' initiative that took over the local grid in 1994 and meanwhile provide electricity for 115.000 households from renewable sources.¹⁴ Another prominent example is Greenpeace Energy, a German utility company organised as a cooperative with currently around 21.000 members and serving about 110.000 customers.¹⁵ Furthermore the initiative 'Energie in Bürgerhand' (energy in citizens' hands), organised as a cooperative, aimed to take over a significant share of Thüga, Germany's fifth largest utility company. However, after having failed to do so the cooperative is now attempting achieve citizen participation in local utility companies by acquiring ownership shares.

¹⁴ See <http://www.ews-schoenau.de/> (accessed 28 March 2012)

¹⁵ See <http://www.greenpeace-energy.de/> (accessed 28 March 2012)

4.2.4 Municipalities

Municipalities usually have some sort of role to play in the establishment of power plants owned by a citizen collective, although their part may vary strongly.

The mayor or other representatives of the municipality may in some cases *initiate* a local community owned project. For example, the regional wind power agency windcomm in Schleswig-Holstein (see section 0) tries to support such municipal initiatives by targeted information on Bürgerwindparks to municipalities that have applied for parts of their municipal area to be designated for wind power. Some municipalities may then decide to promote a Bürgerwindpark-model and try to arrange a deal with land-owners guaranteeing that only a wind farm based on this local ownership model will be realised on their land, once it has been designated for wind power. [1:18, 1:32, 9:5, 9:6]

In the case of Germany's first Bürgerwindpark (Lübke-Koog) the municipality did not originally take on a proactive role, but after receiving several requests for permits of farmers for setting up individually owned wind turbines initiated *a coordination* of these activities, eventually leading to a collectively owned wind farm, also involving further people from the village. In this case the municipality itself in fact also became a *shareholder* of the wind farm. In most cases, however, municipalities do not become directly involved as co-owners of such projects but profit from the local business tax. [8:1, 8:42, 9:16]

In other cases the initiative for a citizen owned power plant may come from engaged citizens but they may succeed to gain *support from the municipality*, e.g. in the form allowing a jointly owned PV plant to be mounted on the roofs of municipal buildings. One example of this model is the energy cooperative in Rosenheim, Bavaria, where two PV plants could be mounted on the roof of a school building (Reiner 2011). [1:18]

Finally, there are of course also cases in which the municipality is either *indifferent* or *obstructive* towards an initiative aiming at setting up a collectively owned green electricity plant. In the area of wind power, however, a passive stance of the municipality is hardly possible, as the municipality is involved in the designation of areas for wind power together with the federal states that bear the main responsibility for this task. [2:15]

4.3 Institutional framework conditions

4.3.1 Feed in regulation and other subsidies

Feed-in regulation, guaranteeing buy-off of green electricity at fixed tariffs, is considered to be the most important policy framework supporting the establishment of citizen owned green electricity plants. A first feed in law was introduced in Germany in 1991 (electricity feed-in law / 'Stromeinspeisegesetz') which enabled the economic operation of wind farms by independent power producers. While this feed-in law also subsidised electricity from PV plants, tariffs were still too low to make them economically viable. This changed with the reorganization of the feed-in system with the introduction of the Renewable Energy Act (Erneuerbare Energien Gesetz, EEG) in 2000. [2:23, 3:45, 4:23, 5:25, 6:23, 7:37, 8:4, 9:25]

However, a small number of citizens' initiatives already set up green electricity plants before the feed-in law was introduced. They had to negotiate grid connection and tariffs on a case by case basis and often were dependent on other forms of subsidies. [1:13, 2:23]

„[Before the electricity feed-in law] we had direct selling contracts, remuneration was miserable and dependency was high. (...) And that then changed fundamentally in 1990 with the electricity feed-in law. (...) That was the purchase obligation and the minimum rates for remuneration. (...) From then on it actually got going, that one could set up citizen participation models.“ [2:23]

Several interviewees pointed out that feed-in regulation is particularly important to facilitate collective citizen ownership models, seeing that it provides the financial security that is crucial for them – more so than for other market actors capable of large investments with certain risks. Apart from reducing the risk for individual citizens of losing the money they invested, it also enables citizens' groups to take up bank loans. Furthermore, subsidised tariffs in combination with guaranteed grid access and buy-off of electricity is seen as an important measure to level the playing field, enabling small, independent power producers to access electricity markets without being hindered by large incumbents. [2:23, 2:28, 4:23, 8:35]

„Whether the EEG was particularly relevant for Bürgerwindparks? (...) Yes, certainly by all means. (...) Because it gives them a clear legal framework that states that they can feed-in, that there is a requirement to accept this feed-in, that they have to get a fixed price. That provides the high degree of security to these companies that they need. That is different with the large energy companies, that can take on the risk or can act themselves via a marketing system or something like that.“ [4:23]

However, interviewees generally do not view the introduction of feed-in regulation as a deliberate response to the needs of citizen-led green electricity plants [1:25, 2:34, 8:38, 9:25]

One interviewee in fact pointed out that with the recent interest of policy actors in supporting the development of offshore wind power, feed-in regulation may shift to the disadvantage of citizen ownership models. Seeing that offshore wind farms are difficult to handle via collective citizen ownership, offering attractive feed in tariffs for offshore wind farms at the cost of reducing tariffs for electricity from onshore wind farms would probably reduce the market share of citizen ownership models. [2:9]

4.3.2 Bureaucratic hurdles and prospectus requirement

Another problem several interviewees point to is the large amount of bureaucratic work involved in setting up a company, putting together applications and acquiring various permits needed for the installation of wind farms and (large) PV plants. Interviewees point out that these requirements are particularly hard to meet for citizens' initiatives often (initially) operating on the basis of voluntary work. Nevertheless one interviewee also concedes that strict planning requirements also help to avoid planning mistakes such as setting up a wind turbine too close to settlement areas. [1:19, 2:27, 2:28, 3:18, 3:45, 6:22]

A particular salient problem among these bureaucratic issues is the prospectus requirement. In legal terms, publicly advertising co-ownership of a green electricity plant amounts to advertising a particular investment option and thus is treated like any other publicly advertised form of investment. In view of some problematic cases of investor-deceit (largely unrelated to the renewable energy sector), regulations concerning prospectus requirements were tightened in 2005. Complying with these

requirements is considered to be both costly and time-consuming and to be particularly burdensome for small to medium-sized projects.

„If you want to set up a plant now, that falls under the Federal Financial Supervisory Authority. There you have to compile a prospectus and have that reviewed and so on. You can do that for a wind turbine, but for a PV plant you can forget about it, it's not worth the effort. The investment costs you face there are so high that it is not worthwhile for one thing, and for another thing, it takes so long that any normal investor simply is quicker.“ [1:14]

One interviewee points out that too strict requirements have in fact had perverse effects as prospectus becomes very elaborate and incomprehensible, counteracting the goal of greater transparency and consumer protection. As cooperatives are exempt from the prospectus requirement, the tightening of this legislation has contributed to the increasing attractiveness of the legal form of a cooperative (see also section 4.1.2). Furthermore, projects in which project developers refrain from public advertising of participation opportunities and co-owners are only recruited via personal contacts can avoid the prospectus requirement. [1:14, 1:19, 2:29, 3:47, 4:25]

Another problem emerges when a municipality is prepared to lease a roof to a local citizens' initiative for the purpose of setting up a PV plant at preferential conditions. At least for large roof areas the municipality is legally required to issue a call for tenders and select the bidder making the best offer rather than directly arranging an agreement with a local citizens' group. [3:32]

4.3.3 Social and cultural contexts

Interviewees also referred to a number of social and cultural issues that shape the opportunities for citizen owned green electricity power plants. At a general level the awareness for renewable energy technologies has risen strongly over the last 10-15 years. While originally only considered a crazy idea or niche phenomenon pursued by environmental idealists and technology tinkerers, renewable energy technologies are meanwhile taken as a serious and indeed necessary alternative to conventional forms of energy generation. Among other things this has improved the standing of initiatives aiming to set up citizen owned power plants in relation to banks and policy makers (possibly a virtuous circle, as citizen power plants are themselves seen as a factor contributing to increased support for renewable energy, see section 4.2.1). [1:21, 2:19, 2:30, 2:33]

More specifically, the environmental and antinuclear movement certainly had an important role to play in establishing collective citizen ownership of green electricity plants in Germany. Several early collectively owned plants can be interpreted as attempts to develop environmentally friendly alternatives of energy generation. In this context it must be noted that the environmental movement was comparatively strong in Germany. [2:30, 2:37, 3:30, 3:48, 4:27, 9:27]

„Well, I don't really know if that is so pronounced in other countries, or so broad, the environmental movements. Anyway in Southern Germany (...) and also in other areas, these are now people who started this 30 years ago, who are now partly established but who still stick to the thoughts and also have the required means in order maybe to invest a little. Because of that it does have a strong basis I would say.“ [3:48]

Sometimes singular events may play a decisive role in shaping public perceptions and discourses. For example, the nuclear accident in March 2011 in Fukushima has of once again reinforced public interest in renewable energy and the rejection of nuclear power. Furthermore it once again discursively positioned

the installation of renewable energy plants in the context of the phase-out of nuclear power, after discourses had centered more on the issue of climate change over the last few years. Several interviewees also refer to the massive protests in Stuttgart in 2010 against the construction of a new railway station which protestors oppose on the basis of high costs, a perception of lacking benefits for railway passengers and ecological impacts. Interviewees interpret this as an event epitomizing citizens' frustration with top-down infrastructure planning decisions and perceive a renewed interest in citizen involvement in infrastructure development on the side of policy makers and project developers, also extending to renewable energy installations such as wind farms. [2:30, 2:33, 2:39, 3:5, 8:36, 9:28]

Finally, some interviewees report that the financial crisis starting in 2008 has increased public interest in alternative forms of economic organization such as cooperatives. Furthermore people now have turned to less profitable but secure forms of investment, which may take the form of membership in a renewable energy cooperative. [1:30, 6:19, 7:21, 7:32]

4.3.4 Framework conditions specific to cooperatives

Apart from feed in regulation, citizen participation models taking the legal form of a cooperative are subject to some framework conditions specific to this legal form. The legal framework for cooperatives is defined by the cooperative law. In 2006 some amendments were made to this law making it somewhat easier to found and run small cooperatives (e.g. only three people required for founding cooperative instead of previously seven, reduced auditing costs for small cooperatives). While welcoming these changes in principle, some interviewees consider them as not going far enough. [3:9, 5:11, 5:25, 7:37]

„In 2006 there was the amendment to the cooperative law. But from my point of view (...) it did not bring about any noteworthy easing. Well, it did reduce some, let me say, excessive cost demands for the cooperative [as a legal form], but, well, from my point of view, the only positive thing about this amendment was that cooperatives were brought up as an issue.“ [3:9]

Furthermore some interviewees note that for a long time many auditing associations were not particularly supportive of new, small cooperatives. However they notice improvements in recent years, with some auditing associations actively supporting the establishment of new cooperatives. [3:11, 5:18]

In some cases also federal states have started to support the establishment of new cooperatives. For example, the federal state of Baden-Württemberg launched a programme supporting the establishment of new cooperatives in 2010 in cooperation with the regional auditing association BWGV. This includes subsidies for founding costs and for auditing costs during the first five years as free counselling services and an information campaign. [5:8, 6:18] (see also Schorr 2010)

4.4 Interests and rationales attached to collective citizen ownership models

4.4.1 Interests of initiators and support actors

Diffusion of renewable energy technologies

An important factor motivating the initiators of citizen owned green electricity plant certainly is to contribute to the diffusion of renewable energy technologies and providing an alternative to nuclear power.

„Well, our company group was founded in order to take part in the energy transition (Energiewende) and to set up plants that produce electricity from renewable sources. (...) That is the goal, that people also participate and that energy supply is transformed. That’s why our company was founded and that is our business.” [2:1]

Especially many of the early citizen power plant projects in the 1990s were idealistic pioneer projects not promising a great profit margin. [1:2, 1:15, 2:1, 2:17, 2:32, 3:25, 3:30, 6:9, 7:14, 7:18, 8:11, 9:19]

Regional value creation and decentralisation

Strongly linked with the idea of renewable energy diffusion in Germany is the idea of a decentralisation of the energy sector. Shifting from fossil fuels and nuclear power to renewable energy is also seen as moving away from centralised structures depending on large utility companies to small and medium sized companies, which includes citizen ownership models. [2:7, 2:46, 2:48, 3:3, 7:18]

Interviewees also emphasise the benefits of regional value creation that can be achieved through such a process of decentralisation. [1:32, 3:4, 4:5, 7:16, 8:11]

„Well, the reason [for setting up Bürgerwindparks] of course is that one realized that value creation can be achieved through the generation of wind power and that one noticed that it is of course important to keep this value creation in the region as far as possible. In particular because wind turbines are visible, that isn’t something that takes place underground or in small units, rather that is a big area. So that one says, the region should profit from that.” [4:5]

Regional value creation through citizen power plants can involve a number of different aspects. Apart from direct revenues for the local citizens that are shareholders of a plant, the municipality also benefits from the business tax of a locally registered company. Furthermore in several cases local or regional banks and businesses are involved in financing and setting up such a plant. One interviewee sees value creation via local cooperatives, including energy cooperatives, as a means to work against migration from rural areas to larger cities. [1:16, 1:44, 5:2, 5:11, 5:17, 7:14, 7:16, 7:42]

Democratisation and empowerment

Some interviewees view this process of decentralisation not only in the economic terms of regional value creation but also emphasise the political aspect of democratisation and empowerment. This particularly holds true for people engaged in the area of citizen power plants taking the form of a cooperative. In fact some see energy cooperatives as a means to revive the grassroots character of citizen owned power plants in face of a process of commercialisation.

“A commercialization, a de-ideologisation, that has clearly taken place. In that respect one can say that cooperatives are kind of an attempt to defend this original pioneering spirit in the field. To defend this field of renewable energy a little against commercialization.” [1:29]

For example, cooperatives frequently adhere to the principle of ‘one person one vote’. However, similar principles are sometimes also implemented within other legal forms, e.g. by limiting the maximum share any individual may hold within a limited partnership and thus avoiding domination by large investors. [1:5, 1:29, 2:12, 3:3, 3:4]

Capital mobilisation

In the 1990s, citizen ownership models also provided a means of raising sufficient capital for green electricity plants, as loans from banks were still difficult to obtain and only few other investors had

entered the field. Meanwhile, however, this factor is not as important anymore because other modes of financing are more easily available. [1:2, 1:16, 2:17, 2:20]

Acceptance and awareness rising

While the aspect of capital mobilisation has declined in importance, the aspect of acceptance and awareness rising for renewable energy technologies via citizen power plants has gained prominence.

„It wasn't a problem for us to raise the capital. First of all one also gets loans for that and secondly there are also many investors that would invest there, for example municipal utilities (Stadtwerke) or also large utilities or pension funds. That isn't the issue, but if we set up the participation models, we basically turn everybody who participates into a potential ally for the energy transition (Energiewende).“ [2:7]

One interviewee points out that, apart from increasing acceptance among the general population, local decision makers such as mayors are also more likely to support a project if it involves financial benefits for local people. Especially actors in the area of wind power consider acceptance to be an important benefit of citizen owned power plants, as resistance against wind farms has turned into a serious problem for wind power development over the last years. [1:16, 1:33, 1:44, 2:7, 2:17, 2:32, 4:28, 4:29, 6:9, 6:26, 7:16, 7:38, 8:19, 9: 8, 9:12, 9:28]

4.4.2 Interests of participants

Most interviewees see a combination of environmental ideals and an interest in financial returns to motivate people to become a co-owner of a citizen power plant. [2:3, 7:19, 9:21]

„Most of those who participate have two motives: The one thing is, they consciously want to get involved in the area of renewable energies, but they also want a reasonable return. That can indeed be accomplished.“ [2:3]

The relative importance of these two factors has, however, changed over time. It is clear that the first citizen power plants set up in the 1990s were often carried by an idealistic spirit and drew people opposed to nuclear power and wishing to develop alternative and more environmentally friendly ways of power generation. During this phase people participating in a citizen power plant initiative were prepared to invest money before the economic viability had been proven. Meanwhile financial interests have become more important and people with motivations characterised more strongly by financial returns are increasingly also drawn to such participation models. [1:2, 2:31, 8:14, 8:16, 9:21]

One interviewee points out that the motivations of the people who get engaged also depend on the participation model or on the way it is advertised. For example, some citizen owned power plants are initiated by banks and are typically presented as a form of investment. These projects tend to draw people whose motives are more strongly characterised by financial interest. By contrast, citizen power plants initiated by politically oriented citizens' groups may frame co-ownership of a PV plant as being a contribution to a more environmentally friendly and democratically organized energy system and attract further people who share these political goals. Another interviewee points out that the geographic participation structure of a project is related to the motivational structure of the people involved. In geographically more dispersed forms of joint ownership financial returns tend to be more important, for locally owned projects environmental and social aspects tend to be higher on the agenda. [3:35, 4:17]

Some interviewees, however, also observe different motivations of people *within* a particular initiative. These different rationales for becoming engaged in a citizen power plant are usually characterised as a positive aspect enabling the mobilization of different groups rather than contributing to internal conflicts. [6:16, 9:21]

„That also reflects the diversity of the population. In rural structures (areas) we do in fact [manage] (...), that really all fractions, all generations participate in the energy cooperative and also engage financially. Of course there are the most diverse motivations there.” [6:16]

Aside from environmental and economic factors, identification with a particular project also has an important role to play. Several interviewees note that it enables mobilisation if people live in close proximity to the plant, making the project visible and tangible to them.

“We also have remarkable dynamics emerging here, if we consider how important it is to people to express this regional relation (connection) also in the projects, in the realization of projects to say, OK, we can walk past them, we can go there we can watch how it is mounted, I own one part of that. Maybe that is related to the most deep-rooted interest of people, yes, to identify [with things]” [6:13]

Also drawing electricity from the jointly owned plant can increase this identification, but feed-in to the grid usually tends to be technically and economically more viable. [2:5, 3:33, 6:13, 6:14]

5 Comparison between Austria and Germany

5.1 Ownership and participation models

The German and the Austrian case show some similarities but also differences with respect to ownership and participation models in the area collective citizen ownership of green electricity plants. In both countries such citizen ownership models first emerged in the area of wind power; in Germany from the late 1980ies and early 1990ies onwards, in Austria from the mid-1990ies onwards. In both countries the legal form of a limited partnership (GmbH & Co KG) initially established itself as the standard model for implementing such citizen owned wind farms (see also Enzensberger et al. 2003; Hantsch & Nährer 2006). Some citizen owned wind farms, however, were also established using different legal forms (e.g. in Germany also two citizen wind farms organized as cooperatives, in Austria also limited liability companies). Furthermore in Austria two companies setting up wind farms based on citizen ownership later transformed into a corporation (not listed at the stock exchange).

In recent years a new emphasis on citizen owned PV plants has emerged. In particular, Germany has seen a boom in the number of PV cooperatives being set up since 2008 (see also Rutschmann 2009; Holstenkamp & Ulbrich 2010; Stappel 2011)). This boom of cooperatives is totally absent in Austria. However, also in Austria there has also been an increased interest in citizen ownership and citizen participation models in the area of PV plants. Models applied here include limited liability companies (GmbH), limited partnerships (GmbH & Co KG), private partnerships (GbR) and participation via loans. Furthermore several utility companies are developing ‘sale and lease back models’ where money for large PV plants is raised by selling individual PV modules to citizens that then lease back the module to the utility that operates the plant.

5.2 Actor roles

Collective citizen ownership initiatives

Both in Austria and in Germany citizen initiatives setting up green electricity power plants have contributed to the diffusion of renewable energy technologies (in particular wind power and PV) in various ways:

They were critical *pioneer actors* and significantly contributed to market development in the early phases of technology diffusion. First of all this involved the overall exploration of possibilities and potentials to set up plants (collecting and exchanging information, conducting wind measurements, etc.) and secondly the actual implementation of wind farms and PV plants. Among other things citizen participation models constituted a way to raise sufficient capital for setting up wind farms and PV plants in these early development phases, when other actors (in particular energy system incumbents) were still reluctant to engage with renewable energy (Hantsch & Nährer 2006).

Furthermore the broad involvement of citizens also contributed to a certain political leverage effect. To be sure, feed-in tariffs in both Austria and Germany cannot be seen as a direct reaction to the needs of citizen initiatives that had set up power plants or were planning to do so. However, the mobilising force of such initiatives (e.g. engaging in public protests and putting together petitions) has contributed to defending feed in tariffs when plans to restrict or repeal them were discussed. Furthermore at regional and local levels, policy support for wind farms can in some cases be traced back to broad citizen involvement. Finally, citizen ownership of green electricity plants also had positive effects on the local acceptance of wind farms and may also have contributed to awareness rising for energy issues in general.

Support organisations:

In Germany a broad array of support services for setting up and running citizen owned green electricity plants have emerged over the last years. Especially in the area of energy *cooperatives* specialized support organization are available that offer training and counseling or even provide ready-made concept and templates for setting up an energy cooperative. The associations representing the interests of particular technologies (such as wind power and PV) are, however, not considered to be of particular relevance as support organizations for citizen owned power plants. This is different in Austria, where no specialized support organizations for citizen power plants exist. Here the interest groups representing particular renewable energy technologies (especially the Austrian Wind Power Association) alongside with regional energy agencies have a greater role to play.

Utilities

Both in Austria and Germany utility companies were initially reluctant to engage with renewable energy technologies. Activities by independent initiatives to produce electricity from wind turbines and PV panels were often met with outright hostility (see also Jacobsson & Lauber 2006 for the German case). In Germany this hostile sentiment between the large utilities and independent power producers in the area of green electricity (especially citizen power plants) has persisted. This may be attributed to the fact that the German electricity market is strongly dominated by four large utilities, all of which are strongly engaged in the area of nuclear power. These utilities have hardly become active in the area of renewable

energy. Due to this dominant market position and the utilities' involvement in nuclear power (often positioned as the 'anti-thesis' to renewable energy in public discourse) the large utilities are generally viewed as opponents by advocates of green electricity citizen ownership models. Advocates of citizen ownership models would generally not welcome a stronger involvement of the large utilities in renewable energy technologies but rather want decentralized structures in this area to spread further (see also section 5.4).

The situation in Austria is quite different. Several large utility companies have meanwhile also become seriously engaged in the area of wind power. Most representatives of citizen ownership models see this positively, as a welcome contribution to the shared goal of renewable energy diffusion. Joint interests such as good framework conditions for operating wind farms in Austria are emphasized over differing organizational models (centralized / decentralized).

Municipalities

Both in Austria and in Germany municipalities are usually important actors for setting up citizen power plants and can take on different roles (municipality as decision maker in spatial planning, as initiator, as shareholder, as coordinator of different actors, as support actor; see sections 3.2.3 and 4.2.4).

5.3 Institutional Framework conditions

Both in Austria and in Germany feed-in tariffs constitute the most important policy support for citizen owned green electricity plants. Even though this policy was not specifically developed as a support tool for *citizen owned* green power plants it is particularly important for that actor group as it provides the high security that this actor group (citizen-investors) usually requires. Furthermore it enables citizen groups to access bank loans for setting up green electricity plants.

Nevertheless some differences exist in the way feed-in tariffs were implemented in Austria and Germany. From an Austrian perspective, Germany is generally regarded as a country with an exemplary feed-in law, allowing for security of investment and therefore long-term planning. In contrast, support for electricity from renewable sources in Austria is characterised as a 'Stop and Go' process (frequent changes in feed in regulation, on and off investment subsidies for PV). Although political goals are articulated they are not pursued consistently. In part this is attributed to lobbying from actors with opposing interests. Germany, however, is seen to pursue a consistent support policy for renewables, also withstanding changes of government. [12:44, 13:44, 15:51, 17:55, 21:36]

In the area of photovoltaics the lacking long-term support is seen as a reason for the low number and small size of jointly owned plants, as compared to Germany. In the area of wind power the situation is characterised as having achieved an installed capacity similar to many German regions *in spite of* lacking political support. Also, lacking security of investment is seen to have inhibited the development of a wind power industry in Austria, only a supply industry has developed. Also in the area of photovoltaics, industry development in Austria is seen to be lagging behind. In Germany, by contrast, this industry was acknowledged to be of political importance (export, jobs) early on. [13:34, 13:44, 15:51, 18:18, 21:30, 21:53]

A barrier for the development of collectively owned green power plants that emerged in recent years in both Germany and Austria is the prospectus requirement that usually applies to advertising such models (see sections 3.3.3 and 4.3.2). This regulation was tightened in both countries over the last years. In Germany cooperatives are exempt from this requirement, which appears to be one of the reasons for the recent boom of cooperatives.

Another factor contributing to the boom of energy cooperatives in Germany are the changes that were made to the cooperative law in 2006 making it easier to set up and run small cooperatives. This has led to general rise in the number of newly established cooperatives in Germany, with renewable energy cooperatives constituting one of the most important sectors of startup activity (Stappel 2011). In Austria nothing comparable can be observed. Although the 1980s and 1990s saw a rapid diffusion of biomass district heating networks, which often are organized as farmers' cooperatives (Rakos 2001; Weiss 2004; Madlener 2007), the cooperative model has hardly been applied in the area of photovoltaics.¹⁶

5.4 Discourses and ideas

In spite of fairly consistent support mechanisms for green electricity in Germany, discourse on renewable energy in Germany is more strongly characterised by conflict. On the one hand this can be attributed to the fact that the conflict over nuclear power is much harsher in Germany than in Austria (discussions over phasing-out nuclear power in Germany, no nuclear power stations in Austria). This also rubs off on discussions over renewables, as such energy sources, in particular wind power, are often positioned as the 'antithesis' to nuclear power. This confrontational discourse can help to push support for renewables, as it increases the saliency of the issue. However, Austria has benefited from the fact that different actors in the wind power sector (utility companies, small local companies) have acted in concert to promote the technology field, while conflicts have arisen between such different actor types in Germany. [15:51, 21:53]

As part of the more confrontational discourse on renewables in Germany, citizen power plants position themselves both as a technological alternative to conventional power systems (renewable energy instead of nuclear power) *and* as a socio-economic alternative (decentralized structures, regional value creation). The latter aspect certainly is less salient in Austria – initiators of citizen owned power plants mainly want to contribute to the diffusion of renewable energy technologies, alternative socio-economic structures appear to be more of a side-issue. But also the former aspect has a different flavor in Austria: While renewables certainly also are positioned as an alternative to conventional power systems in Austria, this is not so strongly tied up with the societal conflict over nuclear power, due to the strong societal consensus against nuclear power and the absence of nuclear power plants.

Nevertheless debates over nuclear power were still more salient in Austria in the late 1980s and 1990s and certainly contributed to the willingness of many citizens to become involved with setting up wind farms as a way of actively developing alternatives to nuclear power in the wake of the Chernobyl disaster.

¹⁶ To the author's knowledge there is currently one PV plant owned by a cooperative in Austria (Regionale Energie Anlage in Bregenz owned by the Talentgenossenschaft, in operation since June 2012) and one more cooperative that has recently been set up (in Judendorf-Straßengel) and is planning to install PV plants.

5.5 Development processes

Both in Austria and in Germany collective citizen ownership models spread out in various ways. This included replication of successful models, growth of individual initiatives and the entry of new actors.

- **Replication:** Both in Austria and in Germany the first citizen wind farms typically emerged from small, local initiatives setting up a wind farm in their village or in close proximity to it. The model spread via information exchange and word of mouth. Sometimes a local initiative also made an excursion to another place where such a wind farm had already been set up. In Austria models from other countries (in particular Germany, Sweden) played a role in this process. Interestingly in Germany, in particular in Northern Frisia at the border to Denmark, where the first German ‘Bürgerwindparks’ were set up, Danish examples of collective ownership do not appear to have had a significant influence. Currently replication of successful citizen ownership models can be observed in the area of PV cooperatives in Germany.
- **Growth:** In Austria (not so much in Germany) some of the initiatives that started as small, local citizen wind farms have meanwhile turned into medium sized enterprises developing wind farms in various location across Austria as well as abroad (see section 3.2.1).
- **Entry of new actors:** Over the last years new actors also have entered the field with citizen participation models that are more commercially oriented. In Austria there are an increasing number of citizen participation PV plants operated by utilities, usually as a ‘sale and lease back’ models (see section 5.1). In Germany some utilities offer co-ownership of wind farms to local citizens. At the most commercial end of citizen participation models, wind and PV closed end funds are offered to citizens as largely anonymous investment options (Enzensberger et al. 2003; Bettzieche 2009).

As can already be seen from the latter two forms of diffusion of citizen ownership models, this diffusion process has also brought along a process of professionalization and commercialization, especially in the area of wind power. Several factors contributed to these developments, including the introduction of feed-in tariffs that allowed for the profitable operation of wind farms, the increasing size of wind turbines that required larger amounts of capital to be raised and the tightening of regulations concerning wind farms (spatial planning, safety requirements, etc.) making the planning process more expensive and time consuming.

Several developments can be understood to be part of this process of professionalization and commercialization:

- Small, local initiatives turning into medium sized enterprises (see above)
- Centrally involved individuals turning their voluntary work for setting up wind farms into their full time job (less so with PV plants)
- With the improvement of framework conditions an increasing number of people participate who are motivated more strongly by profitability expectations than by environmental ideals
- This investment-orientation also goes along with a more geographically dispersed participation structure
- In Austria two companies setting up wind farms on the basis of citizen participation transform from a limited partnership (GmbH & Co KG) to corporations (not listed at the stock exchange)

- Entry of more commercially actors also offering some sort of citizen participation in green electricity power plants (see above)

The boom of energy cooperatives in Germany, however, can be interpreted as a counter-trend to this process of commercialization. These cooperatives typically are run on the basis of voluntary work and social and environmental values typically play an important role for cooperative members (Volz 2011).

Concerning possible future developments, the most recent amendment to the Austrian feed-in law coming into force in July 2012 will provide a larger overall funding volume for wind farms and PV plants, which is expected to boost these technology areas in Austria in general. Falling prices for PV panels are further contributing to the increasing attractiveness of setting up PV plants (Janzing 2011; ÖGUT 2012).

Indeed, this is also mirrored in the sharp rise in the number of collectively owned PV plants that have gone into operation or are in the planning stage over the last two years. In the area of wind power a further diffusion of citizen owned wind farms can mainly be expected to take place via a further growth of the three medium sized enterprises that are based on citizen participation and developed out of initially small, local projects. Due to the high costs and the expertise that is meanwhile required for setting up wind farms it currently seems rather unlikely that new, strictly locally owned wind farms will be set up.

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