Valorizing biomass – Strategies for financing bioenergy networks for regional added value

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Abstract

Bioenergy can be produced in short value chains which can be covered/captured on local and regional scale. As a result the valorization of biomass through the production of bioenergy produces regional added value, defined as income (including taxes) and jobs, especially in rural areas.

In Germany, the environment for investments into renewable energy and therewith into bioenergy are good to very good. Technique for production is available on nearly every scale and the framework conditions to enlarge the production of renewable energy are enclosing feed in tariffs (Renewable Energy Sources Act (EEG; since April 2000 displacing the Act on the Sale of the Electricity to the Grid from 1991), Energy Tax Act, Biofuel Quota Act, Renewable Energy Heat Act, simplified biogas feed-in into the natural gas grid or reduced VAT for firewood and wood pellets.

Renewable energy support instruments used in Germany in 2009

	Support instrument	Support in ct/l or ct/ kWh	Yield in l/ha or kWh/ha (fuel equi-valent)	Support in €/ha	CO_2 mitigation per hectare (in t CO_2 eq.)	Support per tonne CO_2 saved (€)	Support as a proportion of the turn-over or value-added
Biodiesel (oilseed rape)							
Pure biofuel	Energy Tax Act	28.75*	1,450	417	3.0	139	20–35 %
Biofuel mandate (Quota)	Biofuel Quota Act	20–50 (real)	1,450	290–725	3.0	97–242	20–60 %
Biofuel mandate (Quota)	Biofuel Quota Act	60 (max.)	1,450	870	3.0	290	50–80 %
Vegetable oil fuels (Oilseed rape)							
Pure oil	Energy Tax Act	28.89*	1,480	428	3.0	143	20–35 %
Bioethanol							
from cereals							
Pure bioethanol	Energy Tax Act	65.45	1,660	1,086	3.7	294	ca. 45 %
Biofuel mandate (Quota)	Biofuel Quota Act	60–85 (real)	1,660	996–1,411	3.7	269–381	50–85 %
Biofuel mandate (Quota)	Biofuel Quota Act	90 (max.)	1,660	1,494	3.7	404	70–90 %
from sugar beet							
Pure bioethanol	Energy Tax Act	65.45	4,054	2,653	9.4	282	ca. 45 %
Biofuel mandate (Quota)	Biofuel Quota Act	60–85 (real)	4,054	2,432–3,446	9.4	259–367	50–85 %
Biofuel mandate (Quota)	Biofuel Quota Act	90 (max.)	4,054	3,649	9.4	388	70–90 %
BtL	Energy Tax Act	65.45	3,910	2,559	10.0	256	n.a.
Biogas (Maize)**	EEG	5–16	20,000	1,000–3,200	7.4	135–432	40–80 %
Ground-mounted photovoltaic**	EEG	23–29	270,000	62,100–78,300	185.0	336–423	70–90 %

Sources: nova 2009, Schmitz et al, 2009, *After a reduction in the duty derogation, **before degression of payments from 1.1.2010

Source: nova-institute (2010).

If the technique is available and the financing is secured what are the main factors of success to valorize the biomass potentials in a region? It is the human factor which has to be taken into focus: The people on local and regional level must be convinced to act. To do so the regional political and administrative framework conditions must be supportive.

1. Introduction

From 2009 to 2012, the German Federal Ministry for Agriculture, Food and Consumer Protection supports (BMELV) 25 ”Bioenergy Regions” with 400.000€ in their attempts to generate and use their biomass potentials for energy use. The model project was just prolonged for additional three years.

The **competition** aspires to support regions that have identified bio-energy prospects and wish to realise innovative forms of energy supply. The announcement of the competition created a larger than expected interest all across the nation, which led 210 regions to apply for funding with their ideas on how to use biomass and other renewable energies.

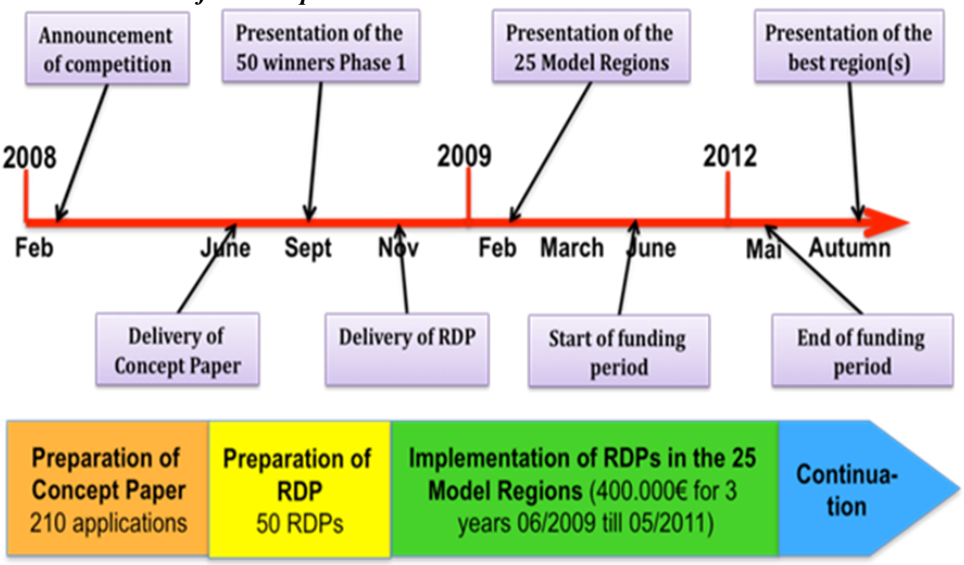
The selection of the 25 winning regions was carried out in a two-tiered process. The first tier asked all regions to hand in a first conceptual application according to a specified structure. The FNR, as the administrative office for the competition, assessed the first drafts corresponding to an evaluation pattern and selected the regions for the second tier. The tier one winners were announced during a central event in Berlin on September 29th, 2009.

In the course of the process, the BMELV raised the initially planned 30 regions for the second tier to 50 regions because of the high numbers of applicants (210 first drafts were handed in) and high-quality applications. On March 19th, 2009, the Minister awarded the winners of the second tier and, with it, the 25 bio-energy regions.

The selection of the winning regions was based on the submitted regional development plans (RDP). As in the case of tier one, the FNR assessed the RDPs in an initial evaluation, which was based on 22 criteria concerning concept- and stakeholder-structure, potential for creativity and innovativeness as well as transferability (cf. Bio-energy Regions homepage). Subsequently, an independent expert jury, that consisted of scientists, experts as well as organisations and covered all topic areas of the competition, received the results of the initial evaluation . The final decision about the 25 winning regions was made by the jury within the scope of a meeting on February 3rd, 2009. The following image summarises the most important dates of the competition, from the call for entries to awarding the best bio-energy region, and the associated working phases:

The overall **aims of the national model project** can be divided into two parts: those that benefit German society as a whole and those that benefit the regions themselves. Nationally, the competition aims to activate economic potentials of rural areas in Germany, contribute to reach climate protection goals, create alternatives to energy imports and develop model regions with innovative energy concepts. On a regional level ”Bioenergy Regions” aspires to create regional value added and sustainable network structures, to improve the quality of life, foster know-how transfer and employee qualification whilst also helping to solve conflicts in connection with bioenergy.

Illustration: Process of the competition



Source: Elbe 2010

Based on the understanding that regional development works best when progress is initiated from within the regions (endogenous regional development) rather than imposed from 'above', the model regions applied for the funding as 'regions' in their individually chosen regional demarcation. Some 'regions' represent whole rural districts, others a co-operation of different towns or just a single provincial town and many applied in regional demarcations where they had already participated in similar competitions, e.g. LEADER, Active Regions, IdeeNatur, etc. In general, the chance to independently assess the regional demarcation allowed applicants to build up on existing networks, infrastructure and natural resources that offered the best potential to realize their respective goals without being constrained by formal limitations.

The funding of the 25 model regions is based on individual regional development plans (RDP). Each of the 25 regions can spend the funding on travelling, personnel and material expenses. Among other purposes, the regions are encouraged to finance network offices and management, the build-up of co-operation and network structures, public relations, integration of volunteers (by means of fairs, workshops, etc.), co-operation with other model projects, know-how transfer, and qualification of employees as well as research and feasibility studies. Importantly, direct investments into bio-energy plants or single enterprises are not funded. This strategy stimulates independent initiatives on the side of the region and requires inner-regional efforts to acquire third-party funds.

Throughout the whole process of the competition, research institutes will provide scientific support. Thematically, the accompanying re-search is divided into two parts: a technical-economical research and a political-social research.
Whilst the former examines the 'hard facts' like innovative technologies that are used, biomass potentials, capacities of biogas or woodchip plants, material flows and regional value added, the latter is concerned with process related topics: approaches and strategies to improve regional value added, bio-energy networks, coping with conflicts, know-how transfer and process-continuation.

2. Concept and methodology

The paper is based on the empirical experiences of the accompanying research to the German Model Project Bionergy-Regions and gives an insight into the different strategies followed by the 25 Bioenergy Regions to finance networks for regional added value.
Concerning the regional networks, the experiences are based on a quantitative network analyses in all 25 model regions (based on more than 700 interviews) and a developed network typology. The experiences in the field of financing the networks, the network management and projects are based on the analysis of the regional concepts, written questionnaires and several workshops.

Quantitative Network Analyses

(for details see S. Elbe, J. Elbe, M. Albrecht, W. Meyer (2012))
Because quantitative network analysis is first and foremost a theory-independent approach, the selection of an appropriate theoretical foundation for the design of the data collection and the interpretation of results is a necessary first step for this survey. The assumption, that social structures behind regional networks substantially influence shape and modes of operation, represented the main thesis for the analysis. Quantitative network analyses at two different points in time in all 25 bioenergy regions are at the core of the approach. Data collection was conducted at the beginning of the funding period in 2009 and at the end of 2011/ the beginning of 2012. The selection of interviewees for the first data collection was left to the network actors themselves. The survey was started by interviewing the appointed contact person of each bioenergy region, then followed by the snowball principle and continued to interview the actors who were named by the contact person. Actors who were named multiple times were prioritized. The surveys were finalized after three rounds in each region, if no additional actors were named or a maximum number of interviews were reached. This approach was slightly modified for the second round. Here, all actors who were interviewed in the first round were interviewed again first. Additionally, new actors who were named multiple times were contacted just like in the proceeding of the first round.

Results of the first round of network analyses

As of today, the survey is not completed yet, but two tendencies already stand out prominently:

1. "The networks tend to decrease in size; certain parts grow closer together.
   Considering the context of start and continuation of regional cooperation in the process of bioenergy-regions, this tendency appears to be logical. Cooperating actors grow closer together, while those who do not want to invest time/money or pursue different interest withdraw from the networks.
2. Networks are shifting. In some regions, it can thus be observed that the core of the network shifts from one group of actors to another or that new sub-groups emerge as a new core within the network, or that completely new network structures emerge next to the networks of the first survey. This phenomenon can possibly be explained with the different orientations of political, animating actors who were responsible for the application and those actors who now administer, plan, and implement the goals of the project" (S. Elbe, J. Elbe, M. Albrecht, W. Meyer (2012)).

3. Results and examples

The results and examples are described along a basic distinction between networks, network management and single projects. The core question of the chapter is how to find ways to finance the continuation of these three parts of a bioenergy region. The text is not written in academic language but more to call upon actors in regions to activate their biomass potentials. This is due to the fact that the text will be integrated into a guidebook for bioenergy initiatives.

Networks, Network Management and single Projects

Every bio-energy initiative needs implementation structures to achieve its objectives. In the process, the structures should follow the objectives – and not vice versa. At the beginning of each implementation phase, the question which objectives you want to achieve with the bio-energy initiative arises. It has to be taken into consideration that the starting point of initiatives often consists of single individuals or small groups. If the person or group commands a network the chances for success are rising.

Finding *common* objectives is a huge challenge for the determination of objectives. A common understanding between currently involved actors but also for additional, yet to be convinced fellow campaigners needs to be developed. As a general rule, the common understanding as well as the objectives, that are to be realized in the region, should be written down. This can be realized, e.g. within the framework of a general principle, a regional development concept or a bio-energy action plan or strategy.

Public funding programmes can act as triggers for processes of this kind respectively support them (financially), particularly in the beginning. If your research yields the possibility of public funding, you necessarily need to pay close attention to the requirements connected to the utilisation of these funding programmes. This is mandatory because the source of the funds defines the rules of the game – and oftentimes the structures, too. For this reason, public funding programmes should only be utilised if the respective programme really suits your bio-energy initiative.

The question of implementation and structures necessary for that purpose arises once the objectives are determined. Essentially, there are always at least three structural elements that need to be considered and filled with life:

- **Network:** Besides notorious lone fighters, there is always one person, but normally a group that incorporates the initiative and, then, starts the search for fellow campaigners and support in order to further the implementation. Subsequently, attempts to increase agency and assertiveness can be undertaken by means of expanding one's own networks.
- **Network management:** There should always be a person or a small team, whose responsibility it is to advance the process and to manage daily business. The network management is often not the initiator or idea generator. The latter strategically push forward the initiative and acquire additional strong partners. Daily business only restricts these activities. Management can be conducted on a voluntary basis or full-time. Occasionally, the worst solution is to have a management that is not recognizable, neither from the inside nor the outside, respectively a management, which follows the motto: "I can do that on the side".
- **Projects:** Just like all other initiatives, bio-energy initiatives depend on the realization of tangible projects. These projects internally and externally demonstrate the initiative's capability to act. Projects can be investment-related as, e.g. the building of a biogas plant or a district heating network, or non-investment-related as, e.g. the funding of feasibility studies or public relations. Either private or public sponsors, who are located within or outside the region, can provide the financial means for projects.

Continuation Starts On Day One and Requires Resources

The determination of objectives for your bio-energy region does not only in large part condition implementation structures, but it also defines the framework for its continuation. Continuation means nothing but to permanently embed something in the region and to make it an element of it. If, e.g. the increase of regional value added is an objective, you will need regional investments and, thus, suitable investment and carrier plans.

One needs to take always into consideration is that structures change over time or need to be adjusted, respectively, and that the continuation of networks, managements and projects is neither an end in itself nor something that can be taken for granted. It is a permanent task that requires temporal forerun and preparation concerning the contents. Normally, temporary public funding programmes can only serve as an impulse for this. Previous experiences from initiatives and competitions (e.g. LEADER, Regionen Aktiv, but also Bio-Energy Regions) regarding the activation of private and public funds within the regions themselves are rather patchy: There still exists a gap whenever the question of who can provide which kind of resources arises. On the one hand, regional actors emphasise the significance and acceptance of the process, network management and network in reports and at events; on the other hand, there is the unreadiness of regional actors to bindingly provide (public and private) resources (personnel, money, space). Reasons for this are oftentimes open or hidden distribution conflicts, fear of autonomy, and perseverance of existing structures: „We have survived much worse". When it comes to the question of continuation it is therefore even more important to:

- Analyse existing structures against the background of your objectives. The development of networks is path-dependent, i.e. dependent on existing structures und previous developments. Therewith, networks can only be modified in the long run – one should always be aware about this and try to utilise it;
- In the best case, attach oneself to existing structures, respectively, to integrate them closely and convince their members that „nobody is going to take anything away from them" but rather that the whole region should – and will – profit;

- Be aware that resources for continuation can never come from only one source. For this, structural elements are too different from each other. The solution is a mix of different sources (public and private funds from regional and other levels).

To avoid carrying the crucial test of resource assurance as a permanent question and possible conflict throughout the development process, you should schedule appointments for binding commitments. For investment-related projects this would be, e.g. a financing commitments, for regional management it could be personnel or financing commitments, as well. If these commitments fail to materialise, one needs to look for alternative solutions or, in the case of missing alternatives, to modify the objectives. These predetermined breaking points are important to stay credible: For a successful realisation, it is not sufficient to permanently announce the implementation but you rather need to prove the initiative's capability to act time and time again.

Continuation of Networks

The continuation of networks is particularly challenging because a differentiation of network members is often not possible and their affiliation with the networks ranges between temporary (e.g. only for the implementation of an assistance measure) to indefinite. At best, one can get an idea of who is currently „needed". But who needs to be included in the future and what about those who were active in the past but are currently inactive? Eventually, the continuation of networks is decided based on the contents and tasks that are (still) to be taken care of. In particular, indications of a rewarding continuation[1] of networks are:

- The network possesses regional, national and/or international charisma / model character.
- The network is financially successful.
- The objectives of the network are prioritized by all actors and implemented promptly and with dedication.

In contrast, following indications point towards a network-weariness[2]:

- The actors no longer experience a win-win-situation for everyone.
- The know-how within the network is exhausted.
- The objectives of the network (or parts of them) have changed without the participants' awareness respectively the objectives are no longer commonly shared.
- The projects do not achieve the expected success.
- The financial means of the network are exhausted.

The following graphic shows possible development paths, which all have something in common: Continuation should happen all but randomly, but much rather be based on conscious and planned changes. The following overview shows possible paths. Strategies to strengthen internal network structures, e.g. development of transferable methods or reduction of one's own standards, too, can be found inside the inner circle. The outer circle contains strategies to strengthen the network externally, e.g. through increased marketing or the integration of decision makers.

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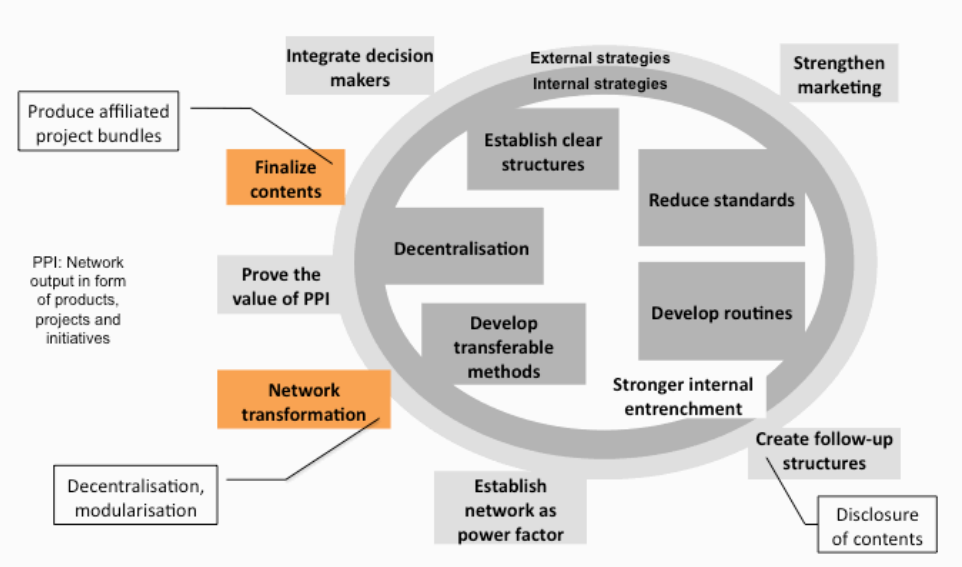
1 Source: Elsholz, Uwe et al. (2006)

2 Source: Elsholz, Uwe et al. (2006)



The German original that served as the template for the diagram above can be found in the following publication: Elsholz, Uwe et al. (2006), p. 37.

A network's future development paths are dependent on the starting conditions as well as the framework conditions in the region of the bio-energy initiative. You should assess the framework conditions as clearly as possible und attempt to utilise them. At that, key questions are:

- Do (first) activities already exist in the bio-energy sector, e.g. in a work group of the local agenda or through council orders?
- Are there funding programmes, which can be utilised as an initiation spark in the region?

You should condition continuation paths and the pace with which they can be realised on the framework conditions. The two classic continuation paths of networks are 1) maintenance of an informal network or 2) partial institutionalisation around a core network, e.g. around a (community) foundation, an energy agency or a bio mass yard.

Example: Community Foundation „Energiewende Oberland“

86 founders established the Community Foundation “Energiewende Oberland – Community Foundation for Renewable Energy and Energy Conservation” with the signing of the charitable founding act in 2005. The foundation acted as the agency responsible for the bio-energy region Oberland und constitutes a network continuation strategy.

A community foundation is an autonomous and independent institution, which aims to advance benevolent and charitable purposes in a geographically confined area, i.e. in a local or regional domain, pursues long-term asset accumulation and whose organisation structures and granting of funds are transparent.

50% of the founders of the community foundation “Energiewende Oberland“ were private persons, 30% enterprises (e.g. the energy supplier E.ON, savings banks but also engineering consultants or carpentry shops) and the remaining 20% miscellaneous institutions (e.g. Agenda work groups, the Friends of the Earth Germany) as well as cities and municipalities. More private persons, enterprises and all municipalities of the administrative districts Bad Toelz-Wolfratshausen and Miesbach joined as additional donators until September 2009.[3]

It is the mission of the foundation to organise energy supply and demand in a way that protects, sustains or, if necessary, recovers the natural basis of life of humans, animals and plants. This is to be achieved through the funding and initiation of projects and measures. The main objective is to entirely supply the administrative districts Bad Toelz-Wolfratshausen, Miesbach and Weilheim-Schongau with regionally produced energy by 2035.

The mission of the foundation – if the financial means of the foundation will allow for it – will be particularly realised by means of:

- Allowances for charitable institutions or charitable projects of enterprises and the acquisition of commodities, which suit the mission of the foundation,
- Realisation of events and campaigns,
- Formation of networks that serve the purposes of the charter,
- Advancement and realisation of scientific events and research projects,
- Advancement and awarding of research contracts.

Further information:

- http://energiewende-oberland.de/die-buergerstiftung
- http://www.stiftungen.org/
- http://www.die-deutschen-buergerstiftungen.de/de/news-wissen/buergerstiftungswissen.html

[3] Cf: http://energiewende-oberland.de/die-buergerstiftung/ihre-organe/die-stifterversammlung/

Continuation of Network Managements

The planned continuation of the network sets crucial framework conditions for the question of the network management continuation. In contrast to the network, it is immediately clear that money is needed to finance the management personnel. The financial needs for a broadly positioned regional management, i.e. beyond the field of bio-energy, range from ca. 150.000€ to 250.000€ (incl. material expenses) per annum. If the management is to consist of only one post for the project realisation, between ca. 65.000€ and 95.000€ need to be provided. Commercial services of the management, junction to a public agency or additional public funds are often mentioned as possible sources of funding.

It is crucial to take into consideration that network management financing takes place between the conflicting priorities of public agencies and the objectives of all network partners on the one hand and yield expectations on the other hand. You should be aware that a network management, which provides commercial services, e.g. project consulting for the construction and operation of a biogas plant, emerges as a new regional actor that competes with other market participants. A contortion of the (consulting) market occurs if the management is, in addition, (partially) publically funded. This can lead actors, who are not publically funded, to cancel their participation in the initiative or to even start acting against the initiative's objectives. It should be added here that, because commercial services provided by the network management bind its working capacities, these services conflict with the time needed for the actual work of the management. Accordingly, an early clarification is crucial.

Again, the objectives of your bio-energy initiative should dictate the form of management. Characteristics, that need to be taken into consideration here, are:

- **Connectivity**: Is it possible to purposefully connect the management to an existing institution (e.g. by expanding the hitherto existing scope of duties) or is it necessary to create a new institution?
- **The source of funds defines the rules of the game:** Which resources are available (in perspective) and what conditions are they subject to (e.g. if personnel for the initiative is made available by an administrative districts, the personnel will normally still be employed by the administrative district and have their physical workplace there)?
- **Legal form:** Does the implementation of the bio-energy initiative create liability risks? If so, capital companies (e.g. PLC, Ltd) should be preferred over business partnerships.
- **Public interests and yield return:** Should the benefits of the bio-energy initiative for the whole region be highlighted for the public? If so, charitable legal forms (e.g. gGmbh (non-profit limited company), non-profit registered associations, community foundations) lend themselves to this end.
- **Adaptability:** Is it not yet known how long the initiative should persist? If not, one should initially choose a legal form whose modification is less complex. This holds true, particularly, if the start of the bio-energy initiative is significantly financed with limited funds. With regards to continuation, consequential costs need to be considered, too.

Example: Klimaschutzagentur Weserbergland gGmbH

The climate protection agency Weserbergland gGmbH (charitable limited company), amongst other goals, attempts[4] to advance climate protection, to support municipalities and consumers with climate protection-relevant measures, to continue existing and initiate new climate protection campaigns, to provide consulting for networks and, additionally, be a central contact point for businesses and municipalities as well as for interested citizens. The climate protection agency works in close cooperation with the sponsor of the bio-energy region Weserbergland and constitutes a possible continuation path.

A climate protection agency, respectively, energy agency often operates as a charitable limited company (gGmbH). The gGmbH is a capital company. The deciding element is the authorised capital that is provided by shareholders and is available as liable equity, starting with the date of founding. The gGmbh is – partially or completely – exempt of certain taxes, as long as its charter and actual manner of conducting business is in accordance with the requirements of the German laws on non-profit organizations. A gGmbH's profits have to be used for charitable purposes and can, principally, not be distributed to shareholders.

The fields of activity of the climate protection agency e.g. reach from the utilisation of regenerative energies via energy saving through power-heat-coupling to climate protection-related services provided for citizens, craftsmen, architects and municipalities.

Shareholders of the gGmbh are 8 cities and municipalities, 2 municipal utilities, 1 energy enterprise as well as a friends' association (through which, e.g. the district craftsmen's association is included).

The authorised capital of the climate protection agency Weserbergland gGmbH amounts to 50.000€, of which the administrative district, the cities and municipalities each provide a primary deposit of 3.000€, the energy enterprise and municipal utilities of 5.000€ each and the friends' association (economy) of 8.000€. Beyond that, the shareholders were willing to provide maximally 195.000€ for the fiscal years 2010 to 2012.[5]

Further information:

- http://www.klimaschutzagentur.org/
- www.dewezet.de/.../startseite_Klimaagentur-beschlos-sene-Sache-_arid,247377.html
- www.dewezet.de/.../politik-in-der-region_Nun-also-doch-Stadt-Hameln-tritt-Klimaschutzagentur-bei-_arid,245363.html

[4] Adapted from the memorandum of association of the Klimaschutzagentur Weserbergland gGmbh (Effective May 27th, 2010) 27.05.2010).

[5] cf. the memorandum of association of the Klimaschutzagentur Weserbergland gGmbh (effective 27.05.2010), p.2

Continuation of Single Projects

Not every single project is worthwhile to be considered for continuation, i.e., to think about the question of how the project could become a permanent element of the region. But there are three aspects of projects, which one should consider with regards to continuation in the preliminary stages of implementation:

- **Utilisation of studies**: Against the background of continuation, feasibility studies only make real sense if they are not solely used to „study“ but to realize projects provided that they produce positive results. There is no use in doing biomass potential studies if they do not lead to the utilisation of identified potentials. Therefore, you should attempt to tightly include potential sponsors for the valorisation of potentials right from the start. If possible, conceptualise a feasibility study as a first step within the framework of a comprehensive project, so that its implementation can immediately follow once the study has produced positive results.
- **Consequential costs**: The implementation of a project is only *one* cost factor. Accordingly, the expenses for, e.g. the operation of a bio-energy information centre (expenses for e.g. personnel and public relations) is, related to the runtime, much more expensive than the construction itself. Not only against the background of continuation, you should include these considerations into the question of how to finance projects.
- **Profits**: Investments in plants producing bio-energy are well calculable under the current framework conditions. This particularly includes the feed-in compensation over the German renewable energy law and favourable credits for investments from the reconstruction loan corporation (KfW) or the agricultural annuity bank. You should communicate the quality and reliability of these framework conditions as a huge chance for the implementation of bio-energy projects: Regional investments in „civic plants“ will increase regional value added.

From the perspective of a regional bio-energy initiative a crucial goal of continuation should be an adept combination of preparatory feasibility studies with profitable investments as a consequence. With the profits, in turn, consequential costs or network managements can be (partially) financed. Other funding programmes, e.g. LEADER, can be utilised to lower any investment barriers and to increase the willingness to invest through provision of information, public relations and conflict prevention.

Example: Eifel energy cooperative eG (eegon)

The Eifel Energiegenossenschaft eG (eegon) (Eifel energy cooperative eG) was founded within the framework of the implementation of the model project Bio-Energy Regions and its objectives are, among others, the democratisation of the energy economy (stronger civic participation), the development of the renewable energy landscape as well as the generation of profits through sustainable and efficient energy systems.

A cooperative is a consolidation of natural respectively legal persons who co-act entrepreneurially. The so-called „S-principles" and the identity principle are characteristic for cooperatives. The S-principles include member advancement, self-help, self-responsibility and self-administration.

Overall, 1800 member cooperatives with 4 million members and 88.000 jobs in the credit services sector, agriculture, commerce, trade and services are organized in the German association of cooperatives. In the last 5 years alone, approximately 300 new cooperatives in the field of renewable energies were founded in Germany[6]. 2012 is the year of the cooperative

The **German cooperatives law (GenG)** constitutes the legal foundation for cooperatives respectively energy cooperatives. The legal form of registered cooperatives is common in Germany. Even though non-registered cooperatives are possible, they barely play a role in practice.

The foundation of eegon took place with the support of the model project Bio-Energy Region. The fields of activity of the Eifel energy cooperative eG (eegon) encompass the instalment and operation of plants that produce regenerative energies, the distribution and sales of produced energy in form of electricity and/or heat, the support of and consulting for regenerative energy generation and efficiency including information of members and third parties (public relations) as well as the trade of energy. Members of the cooperative are regional citizens who become co-owners with a minimum deposit of 500€. The return is at ca. 5%.

Further information:

- http://www.eegon.de/de/Daten_und_Fakten.html
- http://www.genossenschaften.de/

[6] Agentur für Erneuerbare Energien e.V.; DGRV–Deutscher Genossenschafts- und Raiffeisenverband (ed.) (2011): Energiegenossenschaften. Bürger, Kommunen und lokale Wirtschaft in guter Gesellschaft, p. 4. http://www.kommunal-erneuerbar.de/fileadmin/content/PDF/Energiegenossenschaften_web_normal.pdf

Conclusion

The structures for the implementation of a regional bio-energy initiative normally encompass at least the following three elements: network, network management and individual projects. How the actual implementation takes place is dependent on the initiative's objectives and framework conditions in the region. The same holds true for continuation, i.e. for the permanent entrenchment (of parts) of the three elements. There is more than one path or type of continuation. However, the following always applies:

- Networks can be profitable indirectly – namely, if network members see an individual benefit in the initiative and if projects can be planned and realised from within the network.
- Network management can indeed be profitable right from the outset, but this also involves a risk, namely, if the relationship between regional and intercompany objectives and benefits on the one hand and corporate benefits on the other hand do not correspond with the initiative's objectives.
- Investments in plants have to be profitable right away and can contribute to the financing of the initiative itself – namely, if profits are kept in the region by means of appropriate investment models (e.g. civic investments).

For successful continuation, it is crucial that you take into account that continuation starts on day one of the implementation and requires resources. Regional effects of value added in rural areas can currently be easily extrapolated in the field of energy use because:

- In the field of energetic utilisation, regional actors conduct all stages of value added, respectively, all stages of value added can be situated in the region. I.e., the production of resources, their manufacturing (e.g. chipping, ensilage, compression) as well as the energy production (e.g. heat from wood, bio-gas electricity) can all occur in the region. This is because of the relatively „short and simple" value-added chains in the field of energetic utilisation as well as because of the availability of necessary technologies.
- Regional actors can create value added or partake in it. This includes primary producers like agriculturalists, forest managers, municipalities (e.g. through owner-operated municipal enterprises of plants), regional crafts and service providers (e.g. trough construction and upkeep of plants), regional banks and savings banks but also citizens (who can partake in regional value added as „co-owners" through the installation of civic plants or civic funds).
- Available or previously unused resources, remnants or by-products, e.g. from landscape preservation, can be mobilised and valorised.
- Necessary investments are readily comprehensible and it is possible to already establish closed values added chains with small plants, like, e.g. a wood chip heating. The required actor networks are relatively easy to build up on a local (e.g. a bio-energy village) respectively regional level.
- A sufficiently high demand for products (heat, electricity and gas as mass products of daily needs) exists in the regions, respectively, their consumption is guaranteed, regional demand for regionally produced bio-energy can be purposefully stimulated or influenced (e.g. by means of image campaigns for bio-energy) and supply can be interlinked with demand on a regional level.
- It is possible to substitute imports of fossil fuels into the region, to close regional economic cycles and to avoid the loss of regional purchasing power. Particularly for structurally weak areas, this constitutes a promising (defensive) and low-risk strategy to valorise existing potentials and resources as well as to keep purchasing power in the region.

4. References

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