

Energy Agency Region Göttingen – a local driver and networker for the energy turnaround

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ABSTRACT

The German government committed itself to reduce the CO₂ emissions up to 80% while the energy demand shall be reduced up to 50% at the same time. In addition, the main part of the used energy shall be produced renewably.

The region of Göttingen has bound itself to the same aims but even more determined: 100% renewable energies until 2040 while the energy demand shall be reduced to 50%.

In 2009, the non-profit Energy Agency was founded by the city and region of Göttingen and by 45 other founding members such as political parties, municipalities, different organizations, architects, a university, businesses and private persons. They all finance the Agency. The main sponsors are the city and region of Göttingen as well as local energy producer, savings banks and housing associations. They all support the work with money, ideas and projects.

The Energy Agency Region Göttingen is the driver, motivator and networker for this big socio-political project “Energiewende”. Energy and climate protection is a topic for every societal group: consumer, homeowner, businesses, administrations, energy producers as well as others. The Energy Agency informs the broader public, implements funding systems for energy-saving-actions, initiates round tables and organizes different information events for all societal groups. The topics are diverse – energy saving, renewable energies such as wind, sun and biomass, founding energy cooperatives and many more.

For the process of changing the energy system, it is important to establish an organization that acts on the spot. Furthermore, it is essential to have contact persons and somebody in contact with the people who speaks with them as well as explains and shows how a transformation can work out: Someone who “gives the climate protection a face”.

Keywords: energy turnaround, socio-political project, non-profit, networker, communicator

INTRODUCTION

In Germany, first steps were undertaken to turnaround the energy policy in 1980. At the end of the 1980ies, pioneers began to build solar systems and the first communities began to establish wind energy. The German government started with the campaign to turnaround the energy policy within the years 1998-2005. New parties changed the course again but the terrible accident in Fukushima changed the German strategies again: therefore the parliament decided to close the nuclear power plants in Germany till

2022. Now the changing process began. In 2010, Germany has set out ambitious targets for developing renewable energy and an energy saving system. The German government committed itself to reduce the CO2 emissions up to 80% while the energy demand shall be reduced up to 50% at the same time. In addition, the main part of the used energy shall be produced renewable.

This energy system transformation is an ambitious project for every societal group. One needs actors and players: municipalities, administrations, businesses, energy producing companies, consumer, homeowner, universities. To stay credibly and to lead this process in the right direction, one needs someone who takes care about the climate protection and who advances climate projects. Therefore, 41 local climate-protection and energy agencies were founded in Germany since 1989. They all work differently. In addition, local structures are different, but they all pursue the same objective: to bring the climate protection and concrete projects in the region to the people. For more information, please refer to: www.energieagenturen.de . On the other hand, the map reveals that these agencies to push the German energy turnaround do not cover all of. It is still much to do!



Source: <http://www.energieagenturen.de/index.php/cat/27/id/72/title/Wir>

THE LOCAL ENERGY AGENCY IN GÖTTINGEN

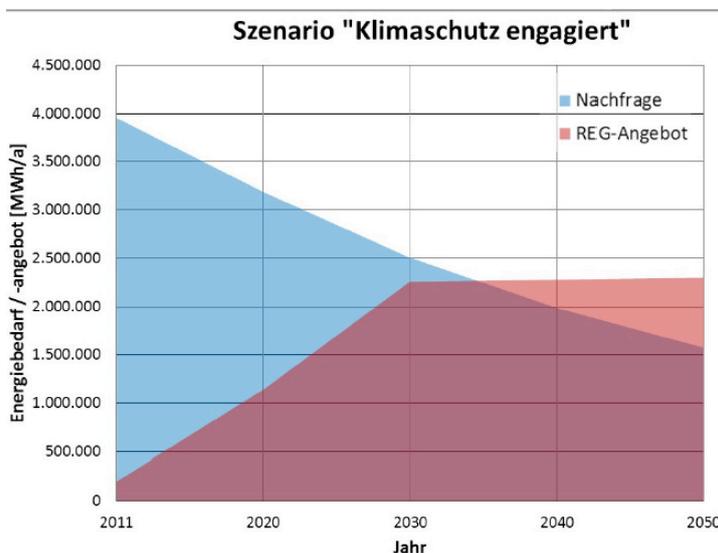
The structure of the Energy Agency Göttingen

Göttingen

Göttingen, situated in the middle of Germany between the Harz mountains and the Weser river, is well known for its University Georg-August, the fame of which is enhanced by 43 Nobel Prize Winners. The region has a total area of 1.120 km² and a population of 248.000 people. It is a region with three bigger cities and less industry. It is characterized by landscape, trade, service businesses and agriculture with less livestock.

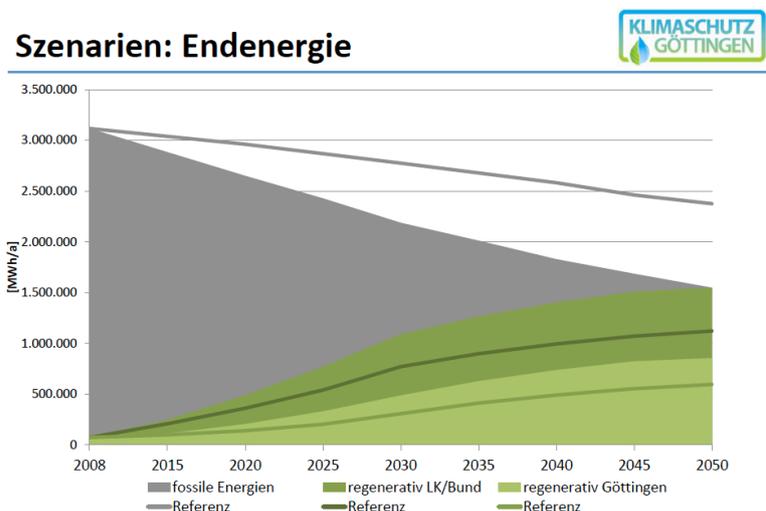
The political decisions in climate protection

The city and the County of Göttingen are members of the Climate Alliance in Germany since 1993 and committed themselves to reduce CO₂ emissions up to 50% until 2030. In 2010 with an Integrated Climate Protection Concept and in 2014 with the Master Plan 100% Climate Protection, the parliament of the city of Göttingen decided to pursue the following three aims: (1) the CO₂ emissions will be reduced up to 100% until 2050, (2) the energy demand will be reduced up to 50%, (3) the rest of the energy demand will be produced locally by renewable energies. In 2013, the parliament of the County of Göttingen adopted the Integrated Climate Protection Concept with the following aims: (1) Until 2040, the energy demand will be produced by renewable energies, (2) all buildings in public property will be heated by renewable energies until 2040, (3) the energy demand will be reduced up to 50% until 2040.



Source: Integrated Climate Protection Concept, County of Göttingen 2013 (blue: demand on energy; red: Renewable energy-offer)

The diagram shows that the rural areas will produce the energy for the cities in the future. The energy overage is “reserved” for the City of Göttingen.

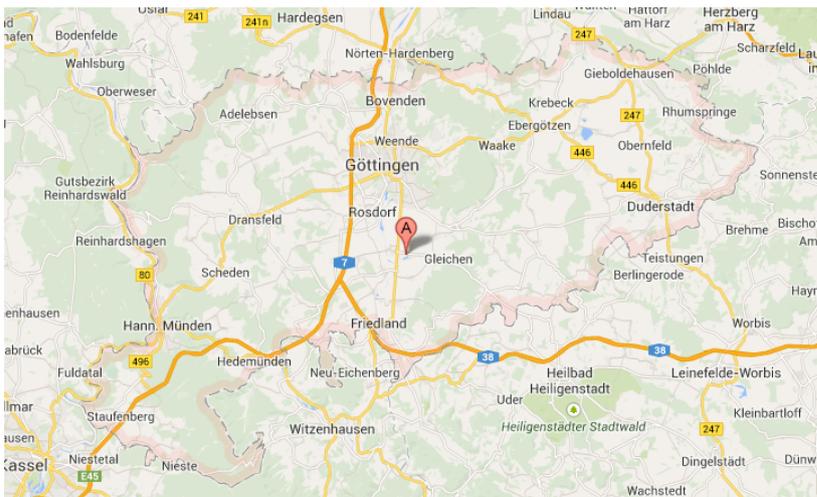


Source: Master Plan 100% Climate Protection City of Göttingen 2014 (grey: fossil energy; dark green: renewable energy from the County of Göttingen, light green: renewable energy from the City of Göttingen)

Much earlier, in 2007 politics decided to establish an Energy Agency in Göttingen to advance the climate protection process. The Energy Agency was founded in 2009 by the city and the county of Göttingen and 45 other founding members.

The Energy Agency

The Energy Agency is a non-profit independent organization and is firming as an association not as a Ltd. The aim is not to earn money – but to establish the climate change process in a non-profit way. Members are the city of Göttingen, the county of Göttingen, other smaller cities of the county, political parties, different organizations such as nature protection associations, housing associations, agriculture association, the Chamber of crafts, energy producers, savings banks, the University, different businesses such as heating engineers, chimney sweepers, electricity engineers, building contractors, solar- and windmills engineers, biogas engineers, architects and private persons. It is important that they all come from the region of Göttingen. Therefore, they are involved in their region and in their community. Their interest is always a regional so that they always support the Energy Agency with a view coming directly outside their own doorstep!



Source: [google-maps.de](https://www.google.com/maps)

The statute of the Energy Agency describes the aim of the association: public relations and information about and for climate protection. It is the purpose to inform about all questions on energy saving, energy efficiency, the production by renewable energies and the reduction of CO2 emissions. Therefore, the association has to cooperate with all stakeholders in the region. The most important part is to bring people and groups together, to connect stakeholders and to create a project to fasten (festmachen?? oder accelerate - beschleunigen?) the energy turnaround. The Energy Agency neither builds energy plants or renovates houses nor works like an engineering office. The Energy Agency is a non-profit public communication agency.

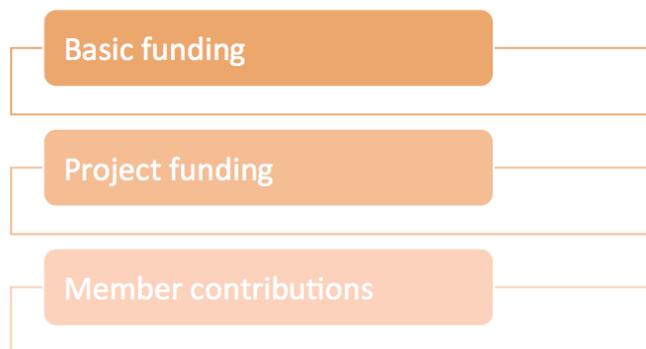
The Energy Agency has a managing director and an eight-man-board of directors. These eight people are: two heads of departments (city of Göttingen, county of Göttingen), one

member of a savings bank, two directors of municipal energy producers, one engineer (building), one craftsman and one member of an environmental organization. This organization structure reflects the expertise and the topics as well as the high priority of the Energy Agency.

At the moment, 14 employees work in the office. They are architects, engineers, public relations experts and consultants.

The office is located in the city of Göttingen, but not in the City Hall. It has placed outside the structures of a local municipal administration in order to act independently.

In order to act independently and credibly, the most important issue for the people is the financing.



The basic funding is given by the city of Göttingen and the County of Göttingen, by all five municipal energy producers of the County of Göttingen, by the housing associations from Göttingen and an insurance company. It is very important to notice that the main part of the basic financing is given by the city and the county – municipal institutions. This fact emphasizes the public mandate of the Energy Agency.

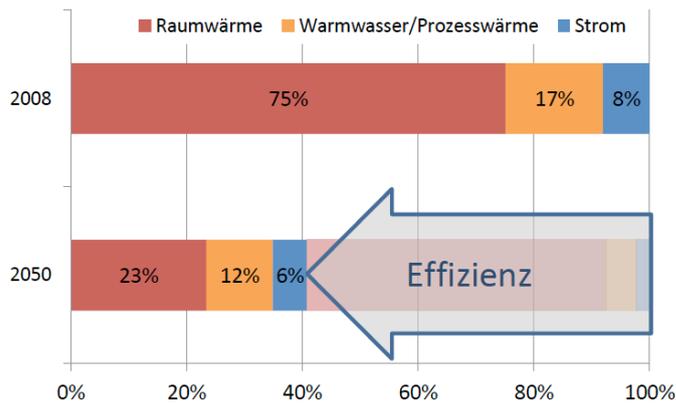
The project funding is made available by the Federal government or the European Union as well as by the state government. Therefore, it is indispensable to have these funding instruments and as well as good ideas and creative writers to hunt these fundings.

The members of the Energy Agency pay 100 Euro per year. This is rather a symbolic contribution which shows the participation, the support and that we together are *the* association to create climate protection. Members are students as well as architects, craftsmen and academics.

The multitude of projects and the explanation show how important it is to have such a non-profit public association, because these projects will be handled by the Energy Agency.

Campaign “Old building renovation”

29% of the energy demand results from households. The other 28% demand results from the industry in Germany. 73% have to be given in Germany for the heating, 9% for household-energy. The same picture can be found in Göttingen. This is the reason why it is a necessary project to reduce the heating energy demand. In the County of Göttingen, there are 49.757 houses built before 1995 which are enabled to receive funding.



Source: Master Plan 100% Climate Protection Göttingen, 2014

(red: heating, orange: warm water, process heating; blue: electricity)

The arrow shows the “efficiency”.

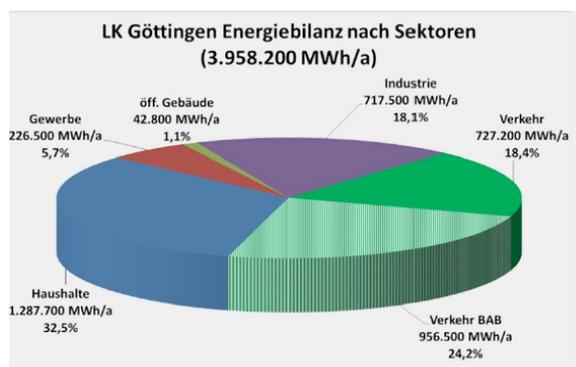
Information for homeowners, craftsmen and architects are important to start the process to increase the renovation rate up to more than 2%. Therefore, the Energy Agency organizes many information events for this stakeholder in savings banks, in workshops, etc.. The secret is to go where the people are. Take an expert or two and go to the people and tell them about renovation, funding and energy-efficiency.

For the energy consultants (architects, engineers), the Energy Agency creates consultant papers, produces flyers and posters. The requirement is to implement a qualified consultation with qualified consultants. Next to the consultation, it is purposeful if there are funding systems. In Germany, there is the KfW Bank – a governmental bank – , which offers very attractive credits and grants. Because of the engagement by the city and the County of Göttingen, the Energy Agency implemented a local funding system for reducing CO2 emissions through heating systems. There are grants for renovation and for building new efficient heating systems. Next to the climate protection aspect, there is one more: the local value – over 80% of all craftsmen are from Göttingen. One Euro funding generated 22 Euro investment. Such a funding system is a local economic development program.

In the future, the Energy Agency plans to implement a qualified system – a network of consultants, architects, engineers, craftsmen. They have to take part in seminars and forums to show their expertise at least once a year. With such a seal of quality, the Energy Agency acts charitably and opens the possibility for homeowners to choose a qualified actor who works in a energy efficient and sustainable way.

Campaign Energy saving in households

A typical low-invest project for households is the household-energy-consultation.



Source: County of Göttingen – Energy balance sheet sectors, Integrated Climate Protection Concept, County of Göttingen 2013 (blue: households, green: mobility, purple: industry, red: trade, dark green: public administration)

The diagram shows a huge potential in the sector of households. It is important to mobilize the people where they live – in their homes. The Energy Agency offers a cost-free consultation in homes and apartments. For people with low income, the consultant installs directly energy saving equipment such as lamps (LED), power strips, water reducer, etc. This project makes it necessary to involve charitable associations like churches and welfare associations. They help to communicate the offer – to “speak their language”.

The Energy Agency is a communication agency. To address people in rural areas with energy savings in their homes, the Energy Agency sets out competitions within the villages, e. g. the competition “Unser Dorf spart Strom” (Our village saves energy). Within one year, the people of one village had to document their energy demand. This village with the lowest energy demand per person won a prize for a new photovoltaic plant for the church, the city hall or a public building in the village. With the competition one can reach the people, one can consult them, explain the efficient refrigerator, the pump in the basement and how to use energy sustainably. Public information events with the mayor, the church, the sports club make the topic “touchable”. This competition won many prizes in Germany and fascinated more than 8.000 people in the villages.

Campaign Energy saving in companies

The graphic above also shows the energy demand of the trade sector. Therefore, the Energy Agency offers a consultation program for companies as well. Information events will be organized in cooperation with the Chamber of Trades, the public economic development association and the Chamber of Commerce.

Campaign Renewable Energies on buildings

To implement renewable energies in the private sector one has to be very patient. In Göttingen, solar systems and heating systems with wood have the highest priority. Therefore, the Energy Agency is at first sight an information transmitter: how does a system work, when is a system efficient, when is the system profitable. People do not know it and political messages often give a wrong impression. That is why the Energy Agency uses many ways of communication: (1) information events with engineers and consultants, (2) the website: www.solarportal-goettingen.de which is an information platform around the sun, (3) the website: solar cadastral – an information platform for homeowners to see the roof suitability, the profitability and the technical possibilities, (4) special solar consultations, (5) the competition “Our village uses solar energy”, (6) written materials like a brochure, (7) the implementation of a network of communication partners in the county: timber merchants, heating engineers, heating system merchants, small village shops etc., (8) seminars for builders, consultants and engineers, financiers.

Campaign Renewable Energies in rural areas

The most efficient renewable energy is given by the wind power. Windmills are huge and represent an intervention in the landscape. It is an emotional topic and shows the explosive force of the energy turnaround in Germany. As an independent non-profit organization the Energy Agency gives a platform for discussion, concerns and fears, for information and round tables. It is important to elucidate the technique, the law for planning processes and the possibilities to join a project. In Göttingen, many energy cooperatives were founded in the last years. The investments for windmills, biogas plants or solar plants are put together by private persons and energy producers. To raise

the acceptance for renewable energies, it is important to involve the people. Furthermore, it is the role of an Energy Agency to moderate the process of founding energy cooperatives: planning working groups, find experts for different topics (finance, planning, law etc.)



Source:

www.unendlich-viel-energie.de;

Development of energy cooperatives in Germany

CAMPAIGN FOR A SCIENTIFIC PROJECT - BEST

BEST

With a specific focus on woody biomass, the BEST project consortium was composed of scientists from Göttingen University together with nine further research institutions and regional energy management bodies, who together responded to the call for proposals of the German Federal Ministry of Research and Education (BMBF) entitled "Sustainable Land Management" in 2009. After success of the proposal, BEST commenced its work in September 2010 and continued until August 2014. Core motivation of the consortium was to investigate and to demonstrate

- how wood biomass production for energetic and (cascaded) material use can be boosted in example regions which are representative of the central German intermediate mountain ranges
- how such production can be accomplished in a sustainable and environmentally compatible manner
- how wood biomass sources both from existing forest land and (newly established) fast growing plantations could contribute to the overall regional yield
- which economic gains may be facilitated by such production and which economic risks may be involved, and finally
- which ecological consequences the new avenues of wood biomass production may entail.

In order to test and to demonstrate the practical applicability of project results from the beginning on, the research activities were located in two German "Bioenergy Regions": the Göttingen county and the Thuringian field plain. Their development represents ongoing processes in similar regions throughout Germany.

The BEST project is based on a close and interdisciplinary collaboration of researchers from different scientific disciplines ranging from climatology and soil science to wood

material science, forestry and resource economics. BEST consists of seven thematic work areas (clusters), which focus on environmental, economic and regional socio-economic consequences of land use concepts:

- Ecological landscape functions
- System solutions for mobilisation of timber reserves
- Innovative wood biomass production systems and techniques
- System solutions for cascade utilisation of materials and energy
- Ecological impact assessment of different cultivation techniques
- Socio-economic assessment of utilisation concepts
- Integration of results, implementation and participation.

Using this approach, utilisation concepts were formulated and comprehensively evaluated. Within the seven thematic clusters, 31 component projects to the overall joint project were in operation. A project coordination team integrated the results gathered from the clusters and individual sub-projects, summarised them, and communicated the outcomes with stakeholders at regional conferences. Opportunities of biomass-based energy systems and material uses for integrated regional development strategies were identified and evaluated jointly with potential users and stakeholders.

Production and use of woody biomass as renewable resource and the information demand of the different parties

The information demand concerning bioenergy differs between the multiple stakeholders. The producers, i.e. farmers and foresters, usually want recommendations with regard to the sustainable productivity of certain established crops on their sites. Questions such as availability of seed and planting material, needs for soil tillage or stand management, requirements at harvest or recultivation after the crop are in the centre of attention.

Consumers are even more heterogeneous than the producer side. Industry, logistics, trade, municipalities and generally everyone who consumes energy for heating has different information needs. For example information on available biomass amounts, quality and location are needed parameters for establishing working value-added chains. Since there are strong economic interests, the flow of information is supported by the sides of producers and consumers. However, niche products such as wood from hedge rows which are more or less a side product of another purpose – in this case of landscape conservation - usually need further information support. The same is true for soft criteria such as potential CO₂ savings or sustainability of production, which are of interest for politics, municipalities or the general public. In this case the sources of information are as heterogeneous as the information itself and therefore harder to link, the establishment of a secure flow of information is complicated.

Passive vs. active offer of information by research projects

A **passive offer** of information is a very common one. Professional journals, brochures, internet platforms or poster presentations on trade fairs offer a lot of information and allow a general overview on new developments. However, this information deluge is hard to handle, especially for practitioners or the general public. In addition, for doctoral students it is usually not attractive or feasible to publish all results in generally understandable journals or newspapers. Researchers are usually assessed via publication in scientific journals and publications outside of this scientific circle, for example, usually cannot be integrated into the doctoral thesis.

From our experience the personal contact between stakeholders is more successful than the written word. In general producers know appropriate contact persons in the competent authority, who they can ask for information on current crops or suitable tree species, their management and harvest. It is usually difficult to motivate for the cultivation of new crops, cultivation methods or management methods in this way since the linked change is, due to lacking experience of the farmer or forester, very often regarded as a risk. Hence, producers only seldomly asked for information on new methods if no external factors are forcing them to do so like new pests or political changes.

The **direct information** and communication of new findings is on the one hand complicated by the mass of passive information, but on the other hand also a problem of research structure. In fact, a lot of science projects seek for cooperation with local stakeholders in order to guarantee usability of the research results in practice. However, when the project approaches its end, this cooperation with informative meetings commonly ends, as well. Even if the research institutes work very often for a longer period of time on a certain topic, the actual project team with master and doctoral students usually leaves when the project is finished and with them a lot of knowledge leaves Göttingen. The research sites are, in addition, usually wide spread and therefore the development after project end is only hard to follow from the point of view of local stakeholders.

In general only familiar topics are asked for. In order to establish new topics, the integration of research findings into events and media outside of the subject area could be helpful. Consumers and producers can only be interested for a certain topic if the contact with them is directly sought.

At the point when the scientific project finishes the work probably even starts! Because know we have the results and the research dates and nobody any more to communicate. The Energy Agency will integrate different stakeholder over the time of funding, because mostly the stakeholder need there time to think about changes.

Regional characteristics and the role of networking

Within the BEST project the described problems have been addressed by an own project part for public relations. A strong focus was put on the integration of local needs. Already at an early stage, regional conferences addressed local stakeholders in order to identify their needs and wishes. Later, counselling with regard to wood combustion plants was offered by the project partner 3N and the partner Energy Agency made research findings available to the general public through identifying stakeholders, organising events and preparing information delivered by the different project members. In presentations and field trips tailored to the different stakeholder groups, members of BEST also provided insight to their research and results or introduced the information tool that was developed by BEST. This communication of research results was not only done with a single focus on BEST but linked to related topics. Presentations of the Energy Agency on events related to climate protection or renewable energies offered another platform for the communication of BEST results and helped addressing a wider audience. In addition, a recently released brochure being distributed and edited by the Energy Agency put the results of BEST into the context of the regional bioenergy production of the region Göttingen (<http://www.energieagentur-goettingen.de/energieagentur/ueber-uns/publikationen/>). BEST provided actual data and supported the cooperation with the research project AgroForNet, which also made

information available. The network of the Energy Agency also helped to gain further project partners for the brochure and to increase the acceptance of the BEST results.

Networking also with stakeholders from other renewable energies or even more distant topics such as energy saving or house construction did not only extend the audience of BEST topics but also helped identifying information needs or possible links. For example, the Energy Agency is project partner in the program for bioenergy regions as partner region of the bioenergy region Wendland-Elbetal (<http://www.bioenergie-wendland-elbetal.de/zwillingregion-goettinger-land.html>). Concepts and information gathered in BEST or the bioenergy region can be used in both programs. These synergies helped also to use the projects budget as efficient as possible. The same is true for the cooperation with the network for regenerative energies (Netzwerk für Regenerative Energien), which is also managed by the Energy Agency.

For all networks of the Energy Agency, the close link to city and county of Göttingen is essential. The EU project LEADER (<http://www.goettingerland.de/>) and the application of the county of Göttingen as bioenergy region were a good base for BEST. In addition, both municipalities are at the moment addressing the topic of climate protection in concepts and a comprehensive master plan (<http://www.energieagentur-goettingen.de/de/energieagentur/aktuelles-presse/stadt-landkreis-goettingen/>). The topicality of BEST allowed not only the establishment of the relatively new topic of short rotation coppices into these concepts but gave valuable data and inspired new local projects on woody biomass (climate protection concepts – implemented projects like: establishment of short-rotation plantations (KUP) in the region Göttingen, establishment of agroforestry systems in the region Göttingen, establishment of more woody heating systems).

Furthermore politics has to be involved in structures and changes. Therefore the Energy Agency brings the project BEST and its research data in different political committees like the environment committee and the committee for climate and energy.

Recommendations for upcoming projects

During the BEST project it turned out to be helpful that regional concepts needed data on topics that were subject to BEST. City and county were already involved in the project proposal as member of the Energy Agency and were therefore able to integrate needs and wishes and to prepare for the project to come. Hence, an early cooperation with the study region, which manifests in joint staffing, seems to be advisable. Even if public relations are not directly delivering research data, they can, as in the case of BEST help researchers to attain data from local stakeholders. It is hardly possible for researchers to meet the demands of comprehensive public relations. Therefore, we recommend the cooperation with a partner who focuses on public relations and networking on a topic related to the planned research project.

CONCLUSION

Participation and networking by an independent non-profit organization is necessary to implement successfully the energy turnaround in Germany, in Thailand or anywhere else. The energy turnaround is a big socio-political project, which implements an energy system transformation. The aim is to make energy production sustainable and to act

responsibly for subsequent generations. Germany has set out ambitious targets for developing renewable energy and saving the energy demand. It is a project for everyone.

REFERENCES

Master Plan 100% Climate Protection Göttingen, 2014, <http://www.energieagentur-goettingen.de/de/energieagentur/aktuelles-presse/stadt-landkreis-goettingen/>

Integrated Climate Protection Concept, County of Göttingen, 2013, <http://www.energieagentur-goettingen.de/de/energieagentur/aktuelles-presse/stadt-landkreis-goettingen/>