

Green Energy Clusters

Stimulation of renewable energy markets through the establishment of regional clusters



Introduction

A substantial increase in the use of renewable energy sources is essential to achieving a sustainable development at local, national, European and global levels.

The best way to stimulate a long term and self sufficient development is to create a good business environment. This environment is characterised by a high awareness and availability of information in combination with well run corporations and products that fulfil the demands.

However, this is often and in many regions not the case today for the renewable energy market due to several barriers such as a lack of understanding and information in combination with the small size of key participants with limited resources for marketing and dissemination of information.

The establishment of regional Green Energy Clusters can facilitate the critical mass needed for activities to decrease these barriers for an increased deployment of renewable energy. Through this project 4 new regional Green Energy Clusters have been established in cooperation with the one existing in Upper Austria. The clusters today have about 400 members in total. Most of them are SME's.

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About clusters

A cluster can be defined as a group of independent but related industries/companies that both cooperate and compete with each other. Clusters can be geographically situated in a region (like Silicon Valley) and the cooperation can be both formal and informal.

Successful clusters are typically developed in an organically, bottom-up style. They are based on an idea or some companies that have worked as a catalyst, and attracted more companies and people.

At the same time there are important top-down processes, like political strategies as well as local culture etc. that support the emergence of clusters.

Geographical connections are a main feature in many forms of clusters. Clusters are usually located in a region.

The situation of a developing market without any clustering initiatives compared to the situation with a well functioning cluster in a region is shown schematically below.

Without clustering

- limited resources for marketing, business and technology development, to find new partners, export and sales channels
- sceptical about working with competitors
- technology based development

With clustering

- joint forces = more resources for
 - ➔ marketing
 - ➔ training
 - ➔ partnering
 - ➔ R&D
 - ➔ export initiatives

The Green Energy Clusters project

Objectives

The key issue addressed in the Green Energy Cluster project is the fact that most market actors in i.e. the solar thermal and biomass sector are small or medium sized enterprises. The situation for small companies is often flexibility and entrepreneurship, but also lack of resources and limited knowledge of support schemes, export markets and other companies in the same situation.

By bringing several companies together, joint efforts will increase the possibilities for visibility by the customers as well as enhanced business and product development.

The overall objectives of the Green Energy Cluster project are to:

- Create 4 regional Green Energy Clusters in cooperation with the existing EcoEnergy Cluster in Upper Austria.
- Increase the sales of equipment and services for market actors participating in the regional clusters.
- Establish a platform of good examples and a guide for the formation of similar clusters within other regions in Europe.

The clusters will serve as engines and coordinators for the member's initiative to increase the deployment of renewable energy in the regions. Each cluster will set its own strategy and action plan based on the specific needs and barriers identified.

The regions and partners

West Sweden:

KanEnergi Sweden AB (co-ordinator)
www.kanenergi.se



Upper Austria:

O.Ö. Energisparverband
Oekoenergie-Cluster
www.esv.or.at or www.oec.at

The South-West, UK:

South-West Wood Fuels Ltd
www.swwf.info

The BTV-region, Norway:

GreenPartner
www.greenpartner.net

Rhône-Alpes, France:

Rhônealpnéergie-Environnement (RAEE)
www.raee.org

Norsk Enök & Energi
www.nee.no

Lyon Chamber of Commerce
www.lyon.cci.fr

Target groups & areas

The main focus in this project is on products and services in the field of renewable energy for heating. However, companies offering products and services in the fields of renewable energy for electricity production and energy efficiency are also welcome to join the clusters.

The target groups are:

- SME's offering technology and/or services in the field of renewable energy.
- Regional key actors in Europe such as regional energy agencies, trade associations and other regional public bodies.

Methodology

The general idea of the project is to focus on regional ambitions and demand in the first level, with national priorities taken into account, extending the work to the international level where appropriate. The key element for success is the creation of clusters focusing on the joint economic, environmental and social benefits.

The work has been stimulated through networking and clustering activities, making the actions taken at the local/regional level important and essential for the follow up activities at the international level.

In order to succeed in the project it was of vital importance to work with a bottom-up approach, i.e. have the "practical" market actors involved at the local/regional level, and a top-down approach, i.e. policy makers, municipalities and regional decision makers, in parallel.

The latter is essential for long-term and sustainable clusters and for utilisation of results on the end-user side. Policies and planning instruments need to be written in a way that makes renewable energy technologies a natural choice.

Actions

- Inventory and interviews of potential cluster members in each region
- Development of a regional cluster action plan based on findings from meetings and workshops with SME's
- Training in entrepreneurship, management, marketing, export activities etc.
- Development of information tools such as websites and brochures and a regional seminar for specific target groups
- Facilitate the exchange of experience and knowledge amongst the members
- Facilitate joint resources for marketing, business development, export activities etc.
- Facilitated new business contacts and potential co-operation with cluster members in the other participating regions.
- Dissemination of results and experiences to other regions in Europe to stimulate similar cluster initiatives

Background

In the Västra Götaland Region (West Sweden) there has in recent years been implemented a range of projects to support the renewable energy market such as wood pellet and solar heating equipment manufacturers, installers and other key stakeholders. Among others a range of information activities targeting different key stakeholders and customer groups such as seminars, local exhibitions, brochures and a website. This work has also led to the establishment of a regional working group for solar heating, a national association for wood pellet equipment manufacturers, distributors and installers and a national network for wood pellet R&D.

However, when these projects ended the networking activities in the renewable energy market in the region became more limited. Also the increasing growth in the market resulted in bottlenecks in production, sales and installers. Due to this the companies were forced to focus on internal short-term matters.

The main part of the regional market for renewable energy products for heating is more or less small SME's with a few up to 50 employees. This means that their resources for marketing, product development and export activities are rather limited. On the other hand they are very flexible and have close relations with their customers. Many of the installers operate on a local level.

Based on this situation as well as the information gained from the success of clustering initiatives in others market areas and regions the idea came up to initiate a regional cluster or network for the SME's involved in the renewable energy market. The prospects of cooperation in a cluster were evident in this context. However, there was a clear need for someone to take the lead in the initiation process.

Based on a discussion with some key stakeholders and SME's in the region the structure of a cluster initiative was formed. It was foreseen that to be able to establish this cluster public involvement and funding was a key element due to the limited resources of the SME's as well as their current focus on solving the short-term barriers in the growing market. Issues like export, competence, business and technology development were at risk of lagging behind.

Methodology

The initiation of the cluster was based on an investigation of all potential cluster members in the region. Firstly the SME's and other key stakeholder organisations were identified. In this initial stage it was decided to focus mainly on equipment and fuel manufacturers and service suppliers.

All SME's were interviewed with the focus of identifying their business plans, renewable energy products and services, current cooperations with and connections to other companies, their needs and prospects. Some of the companies were also visited to get a more indepth knowledge of their situation in order to be able to describe the cluster initiative.

Most of the SME's stated similar problems, bottlenecks and needs such as lack of resources and capabilities in marketing and sales, good market information targeted at specific groups and complete technical solutions.

In relation to the findings of the interviews and meetings, workshops were set up to discuss the current situation and possible solutions and actions to tackle some of the most important barriers. Based on the outcomes of the workshops a range of achievable actions was identified to be carried out in cooperation between the SME's.

An action plan for the cluster was set up containing a range of actions in the fields of:

- Market communication and information to specific target groups
- To support the cluster members abilities to grow through competence development and exchange of experiences and knowledge amongst the companies.
- To promote the region and the companies internationally to attract potential business contacts and to execute export support activities.
- Implementaion and operation of specific common projects initiated by the members.

Results so far

The cluster members offer a wide range of high quality products and services within areas such as bioenergy production and heating equipment, solar heating equipment and systems and PV installations and services in the fields of technical, business and market development and investment capital and financing solutions for green energy technology SME's.

The cluster is not a legal entity yet but is more of an informal platform for exchange of experiences, know-how and cooperation between all or some of the members.

Within the cluster, a range of meetings, workshops, training sessions and seminars have been arranged. These activities were all based on the intial inventory and interviews as well as the cluster action plan developed.

- Three workshops have been held with the focus on identifying barriers, bottlenecks etc for an enhanced market development of green energy technologies.
- Three training sessions has been held to increase the know-how in specific areas.
- A cluster website has been set up with both information about the cluster as well as internal information for the members.
- A cluster brochure in both Swedish and English has been produced.
- A seminar was arranged during August 2006 which attracted 169 persons.
- Presentations about our activities and cluster members have been held in Rhône-Alpes (France) and in South West UK.

Joint stand at World Bioenergy 2006

One of the activities within the cluster was to, in co-operation with ECOEX, to arrange a joint exhibition stand at the World Bioenergy Exhibition in Jönköping, Sweden in May 2006. A range of companies supplying, amongst others, bioenergy production and heating equipment presented their products to the international attendees at the exhibition and conferences.



Austrian cluster partners visited the joint West Swedish exhibition stand.

The Bioenergy Days

By arranging a seminar for market actors, within the framework of "Bioenergy Days", we wanted to stimulate business development and cooperation between the market actors in the region. Another aim was also to inform about the Green Energy Cluster, existing and potential member's technologies, products and know-how. The event was arranged in close cooperation with the association MiljöPunkten (the Environmental Point) which bring together SME's and public partners from the region active in the environmental fields together and the farmer lead programme "Energigården" (the energy farm).



The seminar attracted 169 participants from mainly Sweden but also other European countries as well as the US and Canada.

The future

The cluster will stay active as a part of the regional activities for market and business development and especially export activities within the framework of the regional organisational platform called ECOEX. ECOEX is supported by the regional administration and operated by three public organisations with the objective of increased growth through the development of eco-technologies such as energy efficiency and renewable energy technologies and services.

ECOEX have also initiated similar clusters in the fields of water technology and air quality technology etc. The future work will be coordinated with these clusters as well as other supporting actions carried out for the eco-technology field in general.

This will ensure a long-term operation as well as a larger platform for coordination of activities and resources.

For more information about ECOEX see: www.ecoex.se

Success factors and lessons learned

The main key success driver of a cluster initiative is to have a continuous communication with the market actors and other stakeholders. It is vital to gain their trust and to be able to illustrate the potentials of cooperation.

It is also important to have this communication to be able to plan and coordinate the cluster activities well ahead of time.

It is recommended, in the initial stage of the cluster establishment, to focus on the internal side of the work i.e. to discuss the forms of cooperation, the needs, barriers and prospects before you initiate outreaching activities towards the market. The marketing activities should mainly be made by the SME's themselves in terms of their own market strategies.

To operate a cluster requires a lot of resources and a long term approach to identify the best solutions. This implies that in many cases public involvement is a prerequisite to be able to establish a cluster at all. The SME's seldom wants to invest in this kind of activities before it has been proven to support their development.

FOR MORE INFORMATION:
www.ecoex.se
www.greenenergycluster.info/se



Background

“Clustering” is a regional economic policy in Upper Austria. Since 1998, the region has followed a cluster-oriented economic and technology policy fostering innovation and competitiveness of Upper Austrian businesses. The ambition of cluster initiatives in Upper Austria is to “strengthen the strengths”, therefore cluster creation is based on the identification of relevant sectors, the number of companies, their staff, export rates and how this compares to other regions. Presently, there are 8 sector specific networks, including automotive, health technology or mechatronics.

Due to its active energy technology sector, the high market penetration of renewable energy sources as well as the large number of enterprises involved in this field, in the year 1999, the regional government decided to create a cluster for sustainable energy, the OEC (Ökoenergie-Cluster). They entrusted O.Ö. Energiesparverband, the regional energy agency, with the management of the cluster.

The cluster is strongly perceived to have an important and active role in achieving the energy policy targets of the region, which includes - for example - doubling the use of biomass and solar energy until 2010.

Presently, the OEC has 145 partners, covering all renewable energy sectors as well as selected areas in the field of energy efficiency.

Methodology

In preparation of the cluster, two studies were carried out by the University of Linz which also included interviews of a number of potential cluster partners, focusing on their interests and needs related to a future cluster. A preparatory workshop was held in 1999, followed by a kick-off workshop in March 2000. During the preparation phase, six main activity areas were defined which are still being used: information and communication; training; co-operation projects; research and development; export; marketing and PR.

In the past few years, a significant focus of the cluster work were market development actions within the region in the field of solar and biomass, low energy buildings and Third Party Financing. Usually, an activity is started by analysing the market barriers and needs, supported by market research (e.g. who are the actors, what is their level of knowledge, what are the real and the perceived obstacles for the market introduction). Based on the understanding gained, information and promotion activities are prepared and carried out, aimed at increasing the market penetration of a specific technology or solution within the selected market segment.

In addition to the home market development, there are significant activities in the field of export support as well as joint research and development.

The cluster partners are a mix of companies producing equipment (with a focus on small-scale biomass boilers and solar collectors), providers of related services (e.g. consultants, research organisations) as well as companies specialised in energy efficiency topics (e.g. ESCOs, architects).

By an active media policy, the OEC tries to have a public profile in the region, thereby making it attractive for new companies to join the network.

Results so far

So far, more than 145 companies and organisations have joined the OEC partnership. They have a total turnover of more than 1.6 billion Euro and 3,500 employees. Several of the cluster partners are European market leaders in their respective fields, especially in small-scale biomass boilers. The export share of the OEC partners is over 50 %.

The OEC covers the businesses from the following sectors:

- Solar energy (solar thermal energy, photovoltaics)
- Biomass and biogas
- Wind energy
- Geothermal energy and heat pumps
- Small hydro power
- Energy efficiency technology
- Low energy / passive buildings
- Third party financing

About 40% of the partners are producers of equipment, about 40% are active in planning, distribution as well as consulting, about 20 % are organisations and institutions in R&D, training and other related fields.

Market development project “Biomass heating for service buildings”

Compared to the excellent market development in the field of private homes, the biomass heating market for non-domestic buildings was lagging behind. As a main barrier the lack of awareness as well as an insufficient number of companies actively promoting this solution were identified by the OEC team. Based on a survey of relevant actors, an information campaign was started, including press activities, the preparation and dissemination of information folders. These were complemented by several information events and trainings for companies interested in enlarging the business portfolio. An internet information platform was established which now also includes a list of companies offering related technologies and solutions. The OEC team and partners were very pleased to see a significant increase in the number of installations as a result of these activities.

Exporting to Spain

An important service of the OEC is the support of cluster partners in the entering new markets. In 2005, several partners showed an interest in starting to export to the Spanish market, also supported by data and information provided by the OEC team. In autumn 2005, a market exploration tour was organised in which about 10 companies participated. The programme of this tour included site-visits to related installations, meetings with relevant market actors as well as information seminars with details about the Spanish market. Based on the knowledge gained on this trip, several partners decided to enter the Spanish market. In order to support them in identifying sales partners, a group stand at an important fair was organised in 2006 where four partner were able to successfully conclude cooperation agreements. By now, very promising sales activities have started.



The future

Presently, the OEC is growing constantly, also by including new areas and sectors. For the next year, the organisation and the type of activities will not significantly change, from a technical point of view, an increase in activities in the field of energy efficiency is planned. A continuation of the public support from the Regional Government of Upper Austria is expected.

Success factors and lessons learned

Since its start in the year 2000, the Oekoenergie-Cluster (OEC) follows the clear vision of making Upper Austria the leading region in Europe for renewable energy sources and to make our partners the European market leaders in as many fields as possible. The OEC has been rather successful in both: with more than 30 % of the primary energy in our region coming from renewable energy sources (the European average being 6 %), and several partner companies have developed in the same time frame from small, craft type businesses to European market leaders in their field (e.g. automatic boilers for wood pellets developed from wood chip units) or at least are among the leading European companies (e.g. solar thermal).

One success factor is that the management concept of the cluster is strongly built on having personal contacts and exchange of views with the owners and managers of the companies. The

OEC operates on the understanding that there is a lot to learn from each other. The O.Ö. Energiesparverband (ESV) - responsible for the cluster management - provides energy advice to 15,000 energy consumers every year as well as a close link to regional, national and European institutions. ESV offers this know-how to the partners companies and they from their side bring in their experiences in the marketplace. This approach brings new insights and has resulted in a number of innovative projects - both on the product development side but also in finding new approaches to market the products and services of the partners.

Presently, the sustainable energy sector is growing very quickly and the main issue for many partner companies is how to cope with the fast growth of their companies. In 2006 alone, the OEC invested more than 100 million Euros in new plants and buildings and created more than 500 new jobs! Company managers therefore have very little time and it is very important that their time - the most precious input into a cluster - is used in the best possible way. Thus, a success factors is a highly professional approach in all activities.

The cluster management team must have high skills in communication, in organisation but also in the technical aspects and in understanding the functioning of the market.

FOR MORE INFORMATION:
www.oec.at



Rhône-Alpes, France

Background

Until very recently, renewable energies represented only a niche in France and also in the Rhône-Alpes region. But since energy prices have climbed, more and more people have become interested in renewable energies. These new customer have different patterns and expectation and care about different values (price and comfort). The transformation from a niche to a mass market implies that the companies present in the RES sector (mainly SMEs) need to adapt to these changes.

An increase in the regional skills and competitiveness in Rhône-Alpes is therefore needed. This is the reason why the companies need to group to face the new demand and the competition of the international leaders. The general objective of the cluster is to help the Rhône-Alpes companies to become specialists in sophisticated integrated solutions through the development of (relatively) standard solutions integrating both products and services (renewable energies and energy efficiency) for different categories of consumers (private residential, apartment houses, industry etc.). The support activities are organised around the eco building theme including technologies to reduce energy consumption and to cover partially the energy demand by renewable energies.

Different players in Rhône-Alpes were involved and supported this tool at the start of the cluster. The Regional Council reorganised its support to the existing companies choosing as sectors the most important and promising ones for Rhône-Alpes, which included also the companies supplying know-how and technology for RES and RUE. The cluster idea was also taken up through the analysis of positive experiences in other countries, like in Austria, by the regional energy and environment agency of Rhône-Alpes. Players from the vocational training area had identified a lack of coordination and planning to respond to the increasing needs of the companies of these sectors and were very much in favour of the cluster set up. The economic players like the Lyon Chamber of Commerce and Industry wanted to replicate the good experiences already made with clusters in other technology fields.

Methodology

The key idea with the set up of the cluster is the objective to organise a plan of positive actions with and for companies and to bring out sophisticated and competitive regional offers for eco-buildings. The heart of the cluster consists of all services and solutions around the eco-building. In the preparatory phase 6 actions had been identified (“brand”, “innovation”, “new offers”, “apartment houses”, “training” and “business: national and international”) together with the interested companies. These actions are complementary with regard to each other and thus closely linked together to reach a common objective. The “innovation action” aims to define the performance potential offered by the technically updated state of the art, while the “brand action” is in charge of the promotion of these efficient eco-buildings in the marketplace to meet the demand and adapt the offer according to the results of the market study. A particular application of the eco-building concept is promoted

in the frame of the “boarding houses action”, in order to meet and develop a demand for eco-buildings already present in the tourism sector.

The “new offers action” is set up to gather a certain number of SMEs so as to improve the company network and to help them to develop integrated products and services. The “training action” is set up to prepare vocational training dedicated to the employees of the involved companies and their future employees.

The specific “business: national and international action” aims at supporting the regional companies in their business development at national and international levels through encouraging business development plans, making available export support schemes and creating promotional tools.

For each of the identified action a manager has been identified, who has the necessary know-how in the sectors concerned and has the capability of animating a working group. Regular meetings are held involving the interested companies and other organisations in order to develop the initial ideas and orientations towards concrete actions. The participating companies are in the majority small SME and consulting companies. In addition banks, energy supply companies and associations for the promotion of RES are also participating.

The cluster organisation have been chosen in such a way as to have an informal organisation in the start phase. According to the wish of the Regional Council of Rhône-Alpes the management of the cluster has been assured in the preparatory phase by a private consultant and was handed over in the beginning of the starting phase (January 2006) to a person employed directly by the Regional Council.

Results so far

The cluster management has been assured for 2006 by a person directly employed by the Regional Council of Rhône-Alpes. In the different actions about 80 companies, consultants, architects, vocational training organisations, banks, associations, agencies etc are participating regularly. The inventory of active companies in the Rhône-Alpes region has risen to 140 entries, ranging from consultants with two or three employees to manufacturing companies with 150 employees. The web site has been optimised and will propose new services to the cluster members.

The main services put into practice are a cluster presentation leaflet, the inventory of companies and organisations in Rhône-Alpes working in the RES and RUE sector, a special inventory of initial and secondary vocational training and facilitation for participating in fairs. The first participation as a cluster in a fair was the first Renewable Exhibition in Paris in June 2006.

Of the six initiated actions three are very active and have produced interesting results within a one year period. The “business action” for example has organised three training seminars to facilitate export activities for the companies and elaborated a framework action plan for international export. Within the working group, “training action”, an inventory of the existing training courses in. In addition the future needs for vocational training

Information and exchange seminar in Lyon

During the second Renewable Energy Fair in February 2005 in Lyon a conference was held to present the first steps and activities planned for the cluster in Rhône-Alpes. The conference was a great success with more than 200 participants. The main focus was set on the five different actions, which were to be launched. In addition partners from three foreign clusters were present. Interesting and motivating activities were presented by the striking examples from the OEKO-ENERGIE cluster of Upper Austria and from the network for future energies of Northrhine-Westphalia. The participants were very eager to understand how they could get involved in the newly created cluster and the advantages they could benefit from.

Participation in the Renewable Energy Exhibition in Paris

For the Renewable Energy Exhibition in Paris in 2006 the Regional Council of Rhône-Alpes welcomed the cluster on its stand together with four companies. For this first presence the company directory showing the competence and the capacity of Rhône-Alpes enterprises was distributed, as well as a directory presenting the different vocational trainings available for the RUE and RES companies. The impact for the cluster was very positive giving the opportunity to convince 30 new companies from the region to join the network. The companies present seized also the occasion and succeeded in obtaining 50 to 80 qualified contacts in a two days period.

were estimated taking into account the rapid increase of the RES and RUE market in Rhône-Alpes. Within the "brand action" the working group has identified the first target for an energy efficient building brand and launched a market study for determining the feasibility of such a brand.

The future

At the end of 2006 the informal members of the cluster have decided to set up a dedicated association in order to further develop the work and the services proposed by the cluster. This new association will give a more important role to the companies present and involved and give the opportunity to the cluster to be considered as a proper player. An important number of the companies and organisations involved have already declared to become member (at least 50).

The activities foreseen in the near future are:

- Continuation of the work and cooperation within the active action groups and new encouragement for the ones, which are not so active
- Identification of new action groups especially targeted to the needs of engineering and consultants offices (high number in Rhône-Alpes ~ 50).



- Communication and promotion of the know-how of the regional companies:
 - Preparation** of a common stand during the 4th Renewable Energies Fair in Lyon (February 2007)
 - Organisation** of business introductions during this fair with foreign delegations and companies
 - Elaboration** and production of a "Concept house" for the fair presenting the available technologies and services by the Rhône-Alpine companies
 - Updating** and improving the cluster's internet presentation
- Organisation of informal meetings between the cluster members and visit of member companies facilitating a better mutual understanding and new opportunities for cooperation.

The anticipated activity programme in the next three years will need additional human input within the newly created association. It is foreseen to create a half time post.

Success factors and lessons learned

The coincidence of several factors gave a good opportunity to start a cluster in Rhône-Alpes:

- Rising interest among building owners and private persons in RES and RUE due to an increase of the fossil fuel prices and national frameworks financially supporting RES and RUE technologies
- Substantial number of companies already present in the RES sector or having an activity close to it, which could and will develop new activities and increase their turn over
- Political support and even leadership to initiate technically and financially the starting phase of the cluster (in Rhône-Alpes: the Regional Council)
- Existence and involvement of affiliate organisations like Chambers of Commerce and Industry, regional energy agencies, RES promotion associations, economical development agencies etc., which are facilitating the start phase and assure the technical, financial and organisational input rapidly and in a competent manner.

The involvement of the companies in the cluster depends a lot on the direct return for them. This is not so easy to guarantee from the cluster side in the starting phase. Therefore small, but concrete actions in the starting phase like producing common promotion materials or participating in fairs or creating working groups based on the expressed needs can give these positive outcomes.

The cluster concept for the development of the companies in the RES and RUE sector is spreading rapidly in France. Several other regions (like Alsace or Poitou-Charente) having started or are starting such a cluster.

FOR MORE INFORMATION:
www.ecoenergies-cluster.fr



BTV Region, Norway

Background

In Norway the state owned company Innovation Norway is a key company for the promotion and development of a bioenergy market. Innovation Norway promotes nationwide industrial development profitable to both the business economy and Norway's national economy, and helps release the potential of different districts and regions by contributing towards innovation, internationalisation and promotion.

The biggest property owner in Norway is the state, in our area through the Buskerud County Municipality and the County Governor. The Municipality uses a lot of energy to heat their properties. At the same time the Municipality has decided to use more renewable energy and stop the consumption of fossil energy for heating.

There are lots of SMEs (1-10 employees) that are trying to do business by selling products for heating with renewable energy. Their resources for marketing and product development activities are limited. On the other hand they are very flexible and have close relations with their customers. Many of the installers operate on local level.

Based on this situation as well as the information gained from the success of clustering initiatives in others market areas and regions the idea came up to initiate a regional cluster or network for the SMEs involved in the renewable energy market. It where therefore natural to make a meeting place for the Buskerud County Municipality, Innovation Norway and the supplier of bioenergy equipment. The best way was to visit "best practice sites" where use of bioenergy had succeeded. After the study tours there have been lot of small meetings where the participants have discussed real possibilities for use of bioenergy in their region.

Methodology

The initiation of the cluster was based on an investigation of all potential cluster members in the region. Firstly the SME's and other key stakeholder organisations were identified. In this initial stage it was decided to focus on bough equipment and fuel manufacturers, County Municipality, Innovation Norway and the organisation GreenPartner. All had plans for seminars, workshops and study tours that suited this project. The SME's that had contacted Innovation Norway became a part of the small start of a cluster.

The goal in the first part of the project was to find the barriers opposing the introduction of bioenergy. The second goal was to combine knowledge from the participants in the cluster to find ways to tackle the barriers.

The study tours gave the participants ideas of how to make the dream become real, and show best practice. After the tours the cluster had to carry out some work by them selves so as to find the best bioenergy projects.

In the end of this project the goal was to have an active bioenergy cluster with an informal platform for exchange of experiences, know-how and cooperation between all of the

members with lot of new projects going on and some bioenergy plant heating buildings owned by the County Municipality and the County Governor.

Results so far

Now the Buskerud County Municipality has decided to convert the heating system in their building from fossil fuel to bioenergy in the next 10 years period. The supplier of bioenergy equipment and fuel has recieved economical support from Innovation Norway to promote and install bioenergy equipment, especially located on farms.

The SMEs now have a growing business by selling products for heating with renewable energy. Their resources for marketing and product development activities are increasing. Some SMEs have now got their first demo plant which is very important for doing more business.

The Cluster Kick Off

A kick-off workshop was arranged in September 2005 in Buskerud with the aim of presenting the project and discussing needs and views; meeting and presenting the cluster members to each other; establishing agreements for participation and a basis for developing an action plan for the cluster.

The workshop attracted more than 30 participants from businesses, public authorities and other supporting organisations. The feedback of the workshop was positive to the cluster initiative and activities involved. The discussions also gave valuable input from the potential members in terms of needs and a basis for the development of an action plan. 13 cluster membership agreements were signed during the workshop.

Networking and exchange of experiences

A workshop was arranged in June 2006 in Vestfold County to present bioplants with varying fuels to relevant actors. The aim was to networking and tocreate an arena for exchange of experiences between actors and discussion with people responsible for practical development and operation.

The participants found it very useful to see different types of bioenergy plants in real life and to talk to the people responsible and discuss practical operational issues.

The workshop was successful related to the aims and contributed to reducing the barriers towards bioenergy (lack of knowledge of fuels and operation in particular).



The future

There is now a good innovative environment for bioenergy suppliers in Buskerud County. And the rise of bio energy use will be evident in the next 10 years due to Buskerud County Municipality's decision to convert the heating system in their building from fossil fuel to bioenergy.

The company Innovation Norway has now the responsibility to develop the cluster. The cluster will stay active as a part of the regional activities for market and business development. The SMEs now have a better economical situation. And the banks are more willing to finance bioenergy activities, especially after the contract with the Municipality is signed.

Success factors and lessons learned

The main success factor of a cluster initiative is to make the economical situation for the SMEs better so the company exists for more than 2-3 years. The SMEs credibility has to be established to the biggest buyers of bio energy heat in the region. It is also important to have a continuous communication with the market actors, the buyers of heat and other stakeholders.

To operate a cluster requires a lot of resources and a long-term approach to identify the best solutions. This implies that quite a lot of resources are needed. In the Norwegian situation the solution was to combine the government's activities and responsibility with the activities in the SMEs. The SMEs do not usually want to invest in this kind of activities before it has been proven to support their development.

FOR MORE INFORMATION:
www.nee.no

**NEE**
NORSK ENØK OG ENERGI AS

GreenPartner Norway

GreenPartner is a professional organization acting on behalf of enterprises in the Environmental Energy & Technology sector. The role is to contribute to innovation, co-operation and project development on behalf of the members of the organization.

GreenPartner has its own set of rules and regulations and is led by a Main Board, which is elected each year at the General Assembly. The operative work is carried out by a Secretariat, which is elected by the Main Board.

The running costs are financed by membership subscriptions and contributions from the co-operating partners.

GreenPartner assistance is project orientated, with a particular focus on innovation. The organisation is aiming for projects that may generate new business, strengthen existing companies and new market possibilities as a result of two or more companies working together.

The GreenPartner services towards membership companies are more commercially than technically orientated. This approach is based on the needs of SME's in different branches (within the Environmental Energy & Technology sector) and their position in the value chain to meet common challenges concerning:

- Innovation practice (what their capabilities are in terms of quality and resources in developing their products and services)
- Limited strategic capacity (in terms of organizational and financial resources to develop existing and new markets)
- Identify best available partnership (research as well as commercial environment)

GreenPartner Norway provides initial assistance such as project establishment, process assistance, guidance in private equity issues, company spin-offs and internationalization activities.

The experience from running a network of SME's in the Environmental Energy & Technology sector gives GreenPartner the position to address challenges typical for SME's.

FOR MORE INFORMATION:
www.greenpartner.net

**GreenPartner**
Norway

Background

Since 2000 South West Wood Fuels (herein SWWF) has operated as a non-profit co-operative promoting and advising on industrial and domestic wood heating. The main objective in the initial years was the 'securing of the wood fuel supply' and this was heavily represented within the forestry and timber processing membership.

At that time (2000-2004) awareness of renewable energy heating was low and the main competitors for heating, oil and gas were very cheap oil 0.40 euros per litre in 2003, the wood fuel industry was embryonic and the main work remained 'hearts and minds'. Solar and ground source heating was at a similar level of development although slightly more advanced.

The opportunity to participate in the Green Energy Cluster project came at an interesting time that saw oil and gas prices double in 6 months in 2005 and a sudden main stream political and media awareness of global warming issues. The net result was a proliferation of businesses, groups, councils all doing or trying to do 'renewable energy' and equally a huge wave of interest from 'customers' wanting information and site visits. It was noted that activity was often frantic and disjointed and demonstrated on the ground by a 'mixed bag' of successful and less successful projects. Customers often complained about poor service, conflicting advice and high costs. This problem was confirmed by many of the participants of the subsequent project that a lack of consistency in the industry, sound impartial advice and confused grant structure was denting consumer confidence and initial enthusiasm, and they were remaining on fossil fuel.

In early 2005 the details of the green energy cluster project was circulated across the South West with an open invitation to all players in RE to join. Subsequent analysis of the 105 signed up participants of the clustering project shows a wide spread of skills that if co-operating and co-ordinated could be able to deliver the above. Only 2 companies during the project offered the complete in-house wood fuel solution, and this was found to be expensive particularly for the smaller private sites.

Methodology

Early debate amongst the participants at the formation phase, raised the question – what is a cluster?

Three definitions were identified:

1. Geographical cluster (GC) – it had already been noted that certain embryonic hot spots of RE existed in the South West. A complex combination of physical, socio-economic factors

coupled with regional grant incentives have lead to a greater interest in renewable energy in some places. It was equally noted that where public projects had gone wrong a 'black hole of negative energy' persisted for many years, negating subsequent efforts to stimulate interest and positive energy.

2. Linear 'chain of supply' cluster (LCSC) – the above areas of geographical clustering that have become well known, gave SWWF the locations for concentrated effort through demonstrations, training and product fairs, within the short period of this project. However, the LCSC was identified as the main area for useful project input.

A frustration and therefore a barrier to renewable energy uptake indentified during customer research was the need (and general lack) of co-ordination and co-operation between the many trade disciplines. For example: A wood fuel heating project might require the following linear chain of events:

- a. Planning phase:** heat load calculation, grant availability, planning issues, building regulations
- b. Implementation:** hardware suppliers, general builders, plumbers, electricians
- c. Aftercare:** servicing, maintenance, parts, monitoring and feedback
- d. Fuel supply:** Raw timber, drying and handling, processing, transportation, quality assurance.

3. True industry cluster (IC) – The aspirational standard of clustering and co-operation within the project was the cluster of EcoEnergyCluster in Upper Austria. It was clear from the outset of the project that the UK and Austria are completely different in so many respects of market size and development. The project in the South West has found that co-operation between similar but competing companies is viewed with suspicion. Whether this is due to the embryonic nature of the industry or a cultural difference in the way English companies operate is a moot point – clustering at this level has been virtually impossible to attain at the present time.

Results so far

In 2007 the lack of a national umbrella for renewable energy still remains a topical debate. The green energy cluster project in the South West could be described as a regional pilot scheme to bring together some of the main industry and public sector players to the table and establish some common ground.

The future

As the project reaches completion in 2007 approximately 30% of the participants can be described as active within the cluster, the remainder are silent partners or have lost interest and drifted away. The future of the cluster remains unclear, although the need for an umbrella organisation is clear. A number of the 'linear supply chains' assisted are developing well, and can be used as templates for other areas, although the resources to initiated replication are not sufficient at the present time.

Information and training in Chagford

A town on Dartmoor called Chagford, has a very active renewable energy group assisted by Devon Association for Renewable Energy (DARE) a heat cluster member. Considerable interest amongst the inhabitants and support from the Dartmoor National Park Authority has created an environment suitable for domestic scale affordable renewable energy solutions delivered by local suppliers through the green energy database. The provision of information and training from the Green Energy Cluster project has been an important part of this ongoing development.

Promoting renewable energy for farmers

Working through the cluster project on Exmoor to promote renewable energy to farmers has allowed SWWF to identify and tackle a number of barriers to uptake.

1. Lack of awareness – attended agricultural shows with demonstrations
2. Lack of affordable equipment – Dunster Woodfuels Ltd has identified log boiler from Eastern Europe, Eco-Exmoor Ltd imported solar collectors
3. Lack of understanding and support from authorities – organised capital grant assistance, briefed planning department and decision makers on subject
4. Lack of processing equipment – SWWF ran machinery ring
5. Perceived lack of quality fuel – training provided, worked with members on certification and quality marks
6. Lack of installers knowledgeable about modern wood fuel – organised training



Photo: Exmoor plumber training in Dulverton

Success factors and lessons learned

A conclusion reached during this project is to be realistic in terms of scale, focus and cultural limitations of the group participants. Creating small scale examples that work and can be replicated achieves more on the ground than a wide regional approach. To run a regional umbrella group requires considerable resources, especially when the industry is developing and less inclined to contribute financially and co-operatively. The industry is developing rapidly and therefore the viability and needs of the industry will be quite different in 5, 10, 15 years time – therefore flexibility is also important.

The UK as a whole is at a very different stage of development of renewable energy systems as compared to other members states of the EU. However there is now feverish activity and rapid progress is being made. The four members of SWWF who supply wood fuelled heating boilers have long waiting lists for installations and their number of employees has more than tripled since the start of this project.

There are now 2832 contacts on the SWWF database which shows 162 members; 287 records show interest in installations and 118 records are marked as having shown an interest in fuel supply. There are numerous categories on the database including Architects, Plumbers, Builders, Planners and Development Officers, Government Offices, Installers and Equipment Suppliers. These people have been contacted by SWWF and a certain amount of networking has taken place amongst them.

The website attracts great interest, January 2007 figures for the website are 2705 hits per day and 246 actual visits.

People who telephone the office often mention that SWWF is the only place they can find for impartial advice and when searching on the net our website is the one offering the most information, indeed, some find it the only one with so much scope. We handle many calls throughout the UK not just in the Westcountry. This project was hugely helpful in attaining this level of interest and action.

FOR MORE INFORMATION:
www.swwf.info



Cluster development

Cluster initiatives

The main objectives of most clusters are to foster regional/local economies through business and technology development etc. The beginning of the cluster development usually starts with a range of different initiatives which encourage the actual foundation of a cluster.

EXAMPLES CLUSTER INITIATIVES:

- Studies and analyses to identify the green energy businesses and their economic potential, bottlenecks and barriers etc.
- Service and interviews of potential members.
- Workshops, meetings and round-table discussions with different parties and stakeholders to find common problems, barriers and prospects for cooperation.
- Individual projects on a regional scope with elements of cooperation and joint activities such as export actions, study tours, seminars and conferences.

Benefits

The benefits of being part of a cluster are several and often depend on the specific needs and situation of each member.

EXAMPLES OF CLUSTER BENEFITS:

- New contacts and business opportunities
- Promotion and market communication with new market groups and areas
- Information and experience exchange on market and technology development
- Possibilities to financial support for joint activities
- Joint projects and cooperation's for R&D, market communication and business development

Management

The management of the cluster development is vital to gain the trust of potential members and other stakeholders. It is important to have a management organisation that consists of persons and organisations with a commitment to common market growth and development.

Continuity in supporting and developing is essential!

The management organisation most usually also deals with administration and coordination of actions as well as information to the potential members and the management of joint activities.

Activities

In each cluster a range of different activities could be initiated and managed depending on the will and needs of the potential members.

EXAMPLES OF CLUSTER ACTIVITIES:

- Market communication and promotion; branding, brochures, exhibitions and other information activities
- Supporting "Business to Business" contacts, matchmaking and cooperation in specific fields
- Supporting cooperation between businesses and universities; R&D services and coordination
- Market analysis and studies; existing and new markets
- Transfer of information, knowledge and experience between members
- Export actions and support
- Education and training actions
- Getting access to financial support
- Specific projects initiated or suggested by the members

Success factors and lessons learned

Our experiences from the Green Energy Cluster project has given us better understanding of the success factors and problems in relation to the development of, as well as being the management organisation, of a regional cluster initiative. Below we summarise some of the most important ones.

Success factors

- It is vital to have close contacts with the cluster members to understand their needs and interests
- Develop the cluster initiative on a long term and strategic approach for future cooperation and market development
- Make sure that the management organisation and involved parties have the trust of the potential members and the experience, social skills, technical competence and network required
- Involve a large group of different types of stakeholders such as small, medium and large businesses, public organisations and universities
- Make sure that the cluster initiative is backed by the region and establish close contacts between the regional government and administration and the management organisation
- Work hard for a long term public support for the cluster activities, especially the cluster management organisation!
- Highlight the added-value of regional market development in terms of job creation, environmental benefits, export trade, indirect impacts on economy and promotion of the region itself
- Take your time in analysing the prospects for cooperation, activities and structure of the cluster and be sure to communicate this with all relevant stakeholders
- Make use of synergies and historical or ongoing cooperation's between stakeholders
- Try to have simple, non-bureaucratic but well functioning administrative routines within the cluster
- Initiate joint activities as soon as possible to foster networking and cooperation between the businesses
- Support members in project implementation and getting financial support

Lessons learned

- The short duration of funding from public bodies can lead to suboptimal or inefficient development of the cluster initiative
- Lack of political commitment to the aim of the cluster and contact between the managing organisation and regional government and administration
- The lack of awareness amongst potential members of barriers and prospects that could be tackled through cooperation and joint activities
- To find an appropriate, neutral and competent managing organisation that can, and will, take this role on a longer term
- Companies of booming markets have less time for cluster activities although they are well aware of the prospects and needs
- Beware of the fact that in most cases some members will be competitors. Confidence and trust between the management organisation and individual companies are highly important.

To develop a cluster takes time!



For more information about the Green Energy Project:

West Sweden:

KanEnergi Sweden AB (*co-ordinator*)
www.kanenergi.se

Upper Austria:

O.Ö. Energisparverband
Oekoenergie-Cluster
www.esv.or.at or www.oec.at

The South-West, UK:

South-West Wood Fuels Ltd
www.swwf.info

Rhône-Alpes, France:

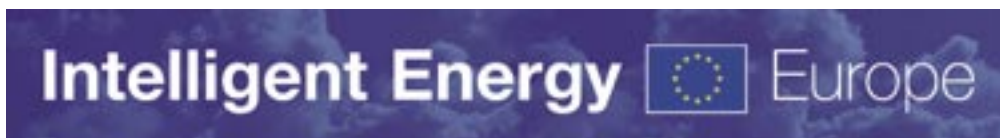
Rhône-Alpénergie-Environnement (RAEE)
www.raee.org

The BTV-region, Norway:

GreenPartner
www.greenpartner.net

Lyon Chamber of Commerce
www.lyon.cci.fr

Norsk Enøk & Energi
www.nee.no



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