

GUIDELINES FOR CREATING AND MANAGING THE RES  
SCIENTIFIC, TECHNOLOGICAL AND BUSINESS PARKS

# **MINUTES OF THE STAKEHOLDERS MEETINGS**

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## 1. SCIENCE AND TECHNOLOGY PARKS IN THE VYSOČINA REGION, Czech Republic

**Opportunity for successful regional development through European experience (IEE SUNFLOWER PROJECT)**

### A) Minute of the meeting

Date: 28. 4. 2009, 10:45 – 16:00,

Place: Žižkova 57, Jihlava, Czech Republic

Under the auspices of the President of the Vysočina Region (Mr. Jiří Běhounek)

### **Initial Situation**

The Vysočina Region is considering building a science and technology park to develop and extend possibilities for business and innovation. Vysočina is one of the last regions in CZR (from 14 in total), together with Karlovarsky region, where up to now there is no such a science and technology park.

### **Summary**

In case of such a big project, i.e. investment of hundreds of millions crowns, it is in the interest of the region to get familiar with the experience of those who implemented similar projects in Europe – be it project preparation, implementation or the very operation of the park. Although there is no universal model, which would be transferrable to a different place in Europe, it is important to compare different approaches and based on their combination to select the one that could work best in Vysočina.



For this purpose experts from all over Europe who are jointly working on the development of sustainable energetics met at the local level with local communities, representatives of the Vysočina Region and also other regions in the Czech Republic within the framework of a SUNFLOWER Project *Stakeholders Meeting* in order to make new contacts and exchange valuable experience. Within the framework of this meeting there was held also an *Executive Meeting*, which enabled a more detailed discussion among those interested in cooperation on specific issues relating to the development of science and technology parks and promotion of renewable energy sources as an important economic driving force.

The Stakeholders Meeting also included 2 visits to see particular application and use of RES in the Vysočina Region – a “*solar swimming pool heating system*” in the City of Havlickuv Brod and a “*biogas station*” in the Town of Lipa.

Also the Head of the Vysočina Regional Council appreciated the meeting by saying: “*It is necessary to take the opportunity that those who have long experience with science and technology parks met in Jihlava at the time the Vysočina Region is in the phase of preparation of a science and technology park project in Jihlava.*”

### **Development of Science and Technology Parks in Europe and the Czech Republic - Presentations**

After the introductory word and welcome of all the participants by Jiří Běhounek, the Head of the Vysočina Regional Council, António Martins, the Project Coordinator, informed the participants about the international project Sunflower.

A. Martins briefly introduced individual partners and their roles in the whole project. Together with A. Martins also a representative of the town of Moura

Rafael Rodrigues appeared whose presentation raised a discussion on the topic of photovoltaic industry, its potential elsewhere in Europe and its application also in installations smaller than the one of 47 MW in Portugal. Namely the way this project was originated was interesting to the representatives of the Vysočina Region and also the fact that even a small town of Moura could significantly strengthen its economic and social development thanks to the investment in renewable energy sources.



Next presentation, this time by a representative of the technology park Bilbao, Marian Ibarrodo, focused on specific obstacles that have to be overcome by all those who want to develop these type of parks. The presentation focused both on general barriers, which are known from the experience of European technology parks, and on the specifics identified by individual project partners. M. Ibarrodo among other things said that the data from individual partners would be further analyzed and would make a basis for one of the important outcomes of the whole project, which would include different barriers to the development of technology parks as well as specific approaches to overcome them based on the experience from several of these parks in Europe.



Two particular technology parks – in Bilbao and in Turin – were presented in the presentations by M. Ibarrodo and Davide Damosso. Namely the TP in Turin caught the attention of the representatives of Jihlava because it is basically built on a brownfield that was reused and served as a place for the future TP. Not only Jihlava but much more places in the Czech Republic has quite a similar conditions / these

areas are often located also in the middle of towns or in their vicinities. TP Bilbao takes advantage also of its strategic position close to the international airport and metropolis of the region. This fact was stressed also in the presentation of M. Černý who presented the situation in the Region of Vysočina and its metropolis Jihlava (see below).

The program was closed with two presentations of representatives of two Czech regions – the Region of Vysočina and the Region of Zlín. Martin Černý from Vysočina focused on general characteristics of the region, its advantages and disadvantages and its future potential, while focusing on the possibilities of development of a technology park in the Region. He pointed out the strategic position of the Region as a connecting line between Prague and Brno, two biggest cities with international airports and connected with the biggest highway in the Czech Republic.

Petr Konečný, representative of the Technology Innovations Center in Zlín, presented specific achievements of the Region of Zlín in the area of development of the technology center, which we can consider to be sort of preliminary stage of a TP. He stressed namely the need for broad cooperation between the region, companies, research centers and universities, without whose help the technology center would be impossible to start. The key point also included initial

financing from various grants, in this case named Prosperity Fund. P. Konečný was also one of the presenters who actively joined the discussion regarding the barriers to TP development and possibilities of international cooperation.

### **B). Program of the Stakeholders meeting in Jihlava, 28/04/2009**

## **SCIENCE AND TECHNOLOGY PARK IN VYSOČINA REGION, CZ** **opportunity for successful regional development through European experiences**

- Date: 28. 4. 2009,
- Time: 10:45 – 16:00,
- Place: Žižkova 57, Jihlava, Czech Republic

### Programme

10:45 – 11:15	<b>Registration</b>
11:15 – 11:25	<b>Opening</b> <ul style="list-style-type: none"> <li>• <b>Welcome speech by representative of Vysočina</b> (Jiří Běhounek, President of the Vysočina Region Government) <i>Introduction of the Vysočina region and the reason why the meeting takes place there</i></li> <li>• <b>Welcome speech by representative of Sunflower Project</b> (Antonio Martins, Logica, City of Moura, Portugal) <i>Brief introduction to the Sunflower Project</i></li> </ul>
11:25 – 11:40	<ul style="list-style-type: none"> <li>• <b>Presentation of the Sunflower Project</b> (Antonio Martins, Logica, City of Moura, Portugal) <i>Main objectives, partners, the steps that have been taken so far</i></li> </ul>
11:40 – 12:20	<ul style="list-style-type: none"> <li>• <b>The Role of Science and Technology Parks in the Regional Development</b></li> <li>• <b>Barriers in the creation of a STBPs in selected regions identified by the Sunflower Project</b></li> </ul> <p>(Marian Ibarrondo, Bilbao Technology Park)</p> <p><i>The role and importance the Science and Technology Parks play in the society and regions where currently located; a review of the Science and Technology Parks taking part in the IASP: objectives and achievements derived from the cooperation between the partners of the association</i></p>

	<p><i>What are the main barriers detected by Sunflower project partners</i>  <i>What are the common barriers that every new STP must overcome to be developed</i></p>
12:20 – 13:20	Lunch
13.20 – 14.20	<ul style="list-style-type: none"> <li>• <b>Science and Technology Park models - the case of:</b> <ul style="list-style-type: none"> <li>– <b>Environment Park</b> (Davide Damosso, Environmental Park SpA)</li> <li>– <b>Bilbao Technology Park</b> (Marian Ibarrondo, Bilbao Technology Park)</li> </ul> </li> </ul> <p><i>Two models of Science &amp; Technology Park - how they contribute to the progressive regional development</i></p>
14.20 – 14.40	<ul style="list-style-type: none"> <li>• <b>Development of a region through the Renewable Energies</b>  (Rafael Rodrigues, City of Moura)</li> </ul>
14:40 – 15:00	<ul style="list-style-type: none"> <li>• <b>Planning and founding of a Science and Technology Park in Jihlava, Vysočina Region</b>  (Martin Černý, Chief of Regional Development Section, Vysočina Region)  <i>Introduction of the aims of Vysočina Region by means of a STP creation; obstacles detected and goals achieved</i></li> <li>• <b>Experience with preparing and realization projects BC a STP in frames of programme "Prosperity I"</b>  (Petr Konečný, Technology Innovation Centre Zlín)</li> </ul>
15.00-16.00	<ul style="list-style-type: none"> <li>• <b>Science and Technology Park in Vysočina - Utopia or Reality? Roundtable discussion over the barriers to be overcome for the creation of a STP</b>  (Facilitator: Antonin Tym, Healthy Cities)</li> </ul>

## 2. SCIENCE AND TECHNOLOGY PARKS IN PIEMONTE, ITALY

### The role of STBP in boosting innovation in Renewable Energy Sector: The Regione Piemonte Experience

#### "UNIAMO LE ENERGIE "

#### A) Minute of the Stakeholders meeting in Environment park, Turin (Italy)

**DATE:** 9th October 2009

**PLACE:** Uniamo le energie Program, Torino, (Italy)

The Stakeholder meeting took place at "Uniamo Le Energie" (7-11 October 2009), a big event promoted by Regione Piemonte to inform stakeholders about environmental and energetic good practices, innovative technologies and local energy policies (<http://www.regione.piemonte.it/energia/uniamo-le-energie-2009.html>)



Project partners and stakeholders had the possibility to take part in different meeting and events with the participation of a varied number of politicians, entrepreneurs, scientific and research institutes presenting their experience and projects in the field of RES.

The stakeholder meeting, organized in the framework of the event, was open to public and focused on the presentation of experiences in the field of RES implemented by some of the main STBPs in Regione Piemonte.

The session was opened by a presentation of the Sunflower project by Antonio Martins (Moura Municipality) highlighting the objectives of the



Sunflower group, followed by the interventions of some S&TP management entities directly involved in RES:

- Tecnogranda
- Tecnoparco of Verbania
- Science and Technology Park of Tortona

Tecnogranda mainly targets agrifood, responding to a call from enterprises within the Piedmont region. Professor Alessandro Aioli from the University of Eastern Piedmont, scientific consultant of Tecnogranda SpA, described the role of agro-energies in a sustainable food, feed and energy integrated chain.

The presentation was specifically focused on some case studies about different technologies for the energetic valorization of biomasses through different stages, with the aim of improve the global efficiency of the entire chain.

Tecnoparco is located 130km from Turin and mainly operates on mini/micro hydro electric applications, bio-mass and energy efficiency in paper production and buildings.

Andrea Cappelletto, general manager of the Tecnoparco of Verbania, talked about the experience of the innovation cluster on "Process plant engineering, systems and components for renewable energies", managed and coordinated by the STBP itself.

The following projects were presented:

- Hydro power turbine engineering through CGD and model testing
- Integrated turbine system for water pipelines application
- Integrated renewable energy model for green houses heating
- Paper production plant coupled with solar plant to produce steam
- District teleheating by using a biomass pyrolysis plant
- Residential building consumption measurement and efficiency recovery model
- Innovative system to measure and reduce the energy waste in residential buildings
- Small electric car with high autonomy, energy recovery system, medium voltage powered and overcoming 25% slope gradient

Finally, Bruno Bellone took a speech on the project of developing a regional network of enterprises on innovative technologies in the field of biomass/biofuels (2<sup>nd</sup> generation

bioethanol derived from no-food biomasses) and 3<sup>rd</sup> generation photovoltaics (silicon nano-structured solar cells).

In particular, the following technological lines of development were presented:

In the field of biomasses/biofuels:

- Selection and management of agro-forestry biomasses for energy and biofuels production
- Biomass conversion processes for energy production
- Biomass conversion processes for liquid and gas biofuels production

In the field of photovoltaics:

- Development of new concept technologies
- Implementation of innovative check and monitoring systems
- Integration of different systems

The meeting represented the opportunity of creating contacts between the participating stakeholders, developed in the executive meeting, which led to the start of some collaboration activities.

## **B) Program of the Stakeholders meeting in Environment Park, Turin (Italy)**

### **The role of STBP in boosting innovation in Renewable Energy Sector: The Regione Piemonte Experience**

#### **Agenda**

**DATE:** 9th October 2009

**PLACE:** Uniamo le energie Program, Torino, (Italy)

9.30 – 9.45	Welcome speech
9.45 – 10.00	Presentation of SUNFLOWER project
10.00 – 10.30	Innovation on biomasses in Regione Piemonte
10.30 – 11.00	STBP TECNOGRANDA – R&D on Biogas
<i>11.00 – 11.15</i>	<i>Coffee Break</i>
11.15 – 11.45	STBP of Tortona – R&D on BIOFUELS
11.45 – 12.15	STBP Verbania – R&D on biomass combustion
12.15 – 13.00	Question Time/ Round table

### **3. SCIENCE AND TECHNOLOGY PARKS IN THE BASQUE COUNTRY, BILBAO TECHNOLOGY PARK**

#### **The role of Science and Technology Parks boosting innovation and RES: the Basque Country's case**

**Place:** Bilbao Technology Park, Basque Country

**Date:** 13<sup>TH</sup> May 2010

#### **A) Minute of the Stakeholders meeting**

The stakeholders meeting took place in Bilbao Technology Park on Thursday 13 Mai, from 9.30 to 13.30. In this meeting, were present 30 representatives of Technology Centres, Science and Technology Park, politicians, investors, among others.



The stakeholder's meeting started with the presentation of Bilbao technology Park. This presentation and welcome speech was made by Marian Ibarondo, the Innovation Department Manager of Bilbao Technology Park.

Pioneer in Spain, Bilbao Technology Park was set up in 1985 by the public institutions of the Basque Country with a mission to promote diversification in industry and the transfer and diffusion of technology and innovation.

It gathers together up to 7.330 highly qualified employees, more than 215 companies, and seven internationally recognised Technology Centres, which act as agents for technology transfer and collaborate closely with the nearby universities.

Being the first Park settled in Spain, and a model of success, it comprises 210 Hectares of privileged natural environment for the use of advanced technology companies, with avant-garde architecture in its buildings, together with excellent communications infrastructure and closeness to the university, favouring the technology transfer and the development of a real research area.

The Park consists of a great deal of **high added value Companies**, belonging to the following sectors: TICs, Biotechnology, Energy and Environment, R&D, Engineering, among others; outstanding Research Centers, as the European Software Institute, Tecnalía, Gaiker, Robotiker, Labein, etc., as well as significant Industrial Clusters.

Being very near policies, initiatives, agencies and companies related to energy, the Park has an interesting representation of companies and Research Centres related to Energy, namely Gamesa Eólica/Gamesa Energia, Guascor Foton, Guascor Solar, Tecnalía, amongst others.

Bilbao Technology Park is an active member of several **Technology Park Networks**: International Association of Science Parks, IASP. Association of University Research Parks, AURP. Spanish Association of Science and Technology Parks, APTE. Basque Network of Technology Parks, Cooperation agreements with International Technology Parks and regional Development entities.



Afterwards, the coordinator of the project, Antonio Martins, from the Municipality of Moura makes a brief description of the Sunflower project to the audience.

Next, the representative of the Basque Governments' Energy Agency, Gloria Etxebarria explains the current situation and prospect of the renewable energy in the Basque Country. This presentation focused on:

- Energy situation in the Basque Country (figures of 2008):

- 5.4% of total energy demand in the Basque Country was covered by energy from renewable sources.
- Electricity generated using renewable energy represented 5.6% of electricity consumption in the Basque Country.
- 2.4% of fuels derived from Biofuels.
- Targets for Renewable Energy in the EU 2010 and Basque Country. Overall Situation:
  - 12% of domestic energy consumption covered by energy from renewable sources
  - 22.1% of electricity demand covered by energy from renewable sources
  - 5.75% of used fuels derived from bio-sources.
- Targets for Renewable Energy in the EU 2020 and Basque Country. Overall Situation
  - 20% reduction in energy consumption
  - 20% of total energy demand covered by energy from renewable sources.
  - 20% reduction in greenhouse gas emissions.
- Current situation and Targets of Renewable Energy in the Basque Country.. The Basque Country forecast for 2020 includes the process of drawing up the new Energy Strategy of the Basque Country 2020.
- Regulation of Renewable Energy.
- Grants Programs for Renewable Energy.



It has to be pointed out, that this presentation raises a lot of interest in the audience, and lots of questions have been asked by participants.

Then, Iñaki Gorriño, the representative of the Energy Cluster, did a practical presentation about experiences in renewable Energies in the Basque Country. The mission of the Cluster, is to improve competitiveness through the inter-enterprise cooperation. To achieve this mission,

the strategic goals considered for 2012 are, to strengthen value chains in future energies; to develop leading industrial groups on a worldwide scale, and contribute to the evolution of a new energy model.

Subsequently, Arturo Cabello, of the Foundation of Hydrogen in Aragon explains the situation of the Renewable energies in Aragon through the Life Zero Hytechpark Project, another European Project of the Intelligent Energy Europe Program (LIFE08 ENV/E/000136), in which Bilbao Technology Park is also involved, and whose objective is to implement the capacity of full-sustainability in Technology Parks with an optimal management of energy by means of a green-hydrogen system based on renewable energies. All this actions are directed to reduce CO2 emissions.

The representative of Labein- Tecnalia, Eduardo Román Medina, decides to postpone the presentation until the afternoon, when the visit to the installations of Labein- Tecnalia, a Technology Center took place.

In the end, the Sunflower project partners performed a short presentation focused in the energy figures and renewable energy potential, in each of the countries represented in the project consortium: France, Czech Republic, Italy, Portugal, England and Bulgaria. The figures presented caused a great interest to the assistants of the meeting

After that, a round table, and question time was open, and several participants, asked for questions and clarifications for some of the issues rose in the meeting. Other participants took the advantage to show the conclusions reached in the meeting. In any case, all partners took the opportunity to deepen into these conclusions during the executive meetings, and the visits made to some successful examples related to energy inside Bilbao Technology Park.



## B) Agenda of the Meeting

**Place:** Gastatxu conference room, Bilbao Technology Park

**Date:** Thursday, 13th May 2010

**Time:** from 9.30 to 13.30

### Agenda

- 09.30 Welcome speech. *Marian Ibarondo. Bilbao Technology Park.*
- 10.00 Presentation of the Sunflower Project. *Antonio Martins. Moura Municipality*
- 10.20 Renewable energy situation in the Basque Country. *Gloria Etxebarria. EVE – Basque Government’s Energy Agency.*
- 
- 11.00 Coffee break
- 
- 11.30 Practical experiences in renewable energies in the Basque enterprises. *Iñaki Gorriño. Energy Cluster.*
- 12.00 Research and development in Renewable energies. *Eduardo Román. Tecnalia*
- 12.30 Renewable energies in Aragon. Project Life Zero. Hytechpark. *Arturo Cabello. Foundation of Hydrogen in Aragon.*
- 13.00 Renewable Energy potential. *Sunflower partners*
- 13.30 End of the meeting.

#### **4. MINUTE OF THE STAKEHOLDERS MEETING IN NORTH YORK MOORS**

### **“Sustainable Living in a Protected Landscape”**

**DATE: Tuesday 19<sup>th</sup> October 2010**

**PLACE: Raven Hall Hotel at Ravenscar in the North York Moors National Park**

#### **A) Minute of the Stakeholders meeting**

##### **1. Opening of the Conference**

The conference was opened by Michael Graham, Assistant Director of Recreation and Park Management at the North York Moors National Park Authority (NYMNP). Michael introduced himself as the Chair of the Conference. He went through general housekeeping before outlining the conference proceedings.

##### **2. “Welcome to the North York Moors National Park” by Andy Wilson, Chief Executive, North York Moors National Park Authority**

Andy Wilson welcomed delegates and made two points regarding the sustainable management of National Parks:

- National Parks are regarded as “pretty.” Although it is easy to dismiss aesthetics, there is a lot of value entrenched in quality of life, landscapes, and spiritual awareness which is central to our sustainable future. There needs to be a move away from consumption towards sustainability. The National Park Authority has approved 83% of renewable energy applications. Some were turned down as they were “ugly.” There needs to be a better appreciation of the local environment,
- The National Park Management Plan looks at production in the Park e.g. timber, renewable energy etc. Questions are asked including how much renewable energy production can there be without compromising the qualities of the National Park.

### **3. “Renewable Energy and Energy Conservation in a Protected Rural Area” by Rebecca Willis, the Vice-Chair of the UK Sustainable Development Commission**

Having worked in the Lake District National Park, Rebecca Willis opened her presentation talking about carbon footprints. Carbon footprint calculations have been produced for countries all around the World. The UK has a carbon footprint nine times the size of the Earth. An equitable share of global carbon would result in a 1.85 tonne allowance of carbon per person.

Rebecca outlined the Government Framework for tackling climate change. With carbon reduction targets of 80% carbon reduction by 2050 and 34% by 2020, a progress report has been produced which identifies issues affecting the achievement of the targets e.g. impact of the recession and policies.

In 2006, 695 million tonnes of carbon dioxide (CO<sub>2</sub>) were emitted. This needs to reduce to 159 million tonnes of CO<sub>2</sub> by 2050. The primary focus is carbon-free electricity generation (renewable energy, nuclear power, carbon capture and storage), followed by domestic transport.

David Cameron made a pledge to become “the greenest government ever.” This emphasises the high level of commitment towards achieving low carbon living.

Rebecca drew the audience’s attention to the publication “Prosperity without growth” by Tim Jackson, 2009.768g carbon/\$ spend is being produced now. The IPPC target is 6g carbon/\$ spend.

One criticism is that the approach misses out the local community angle and the sustainable energy community focus.

Rebecca switched her attention from the National picture to the community angle by discussing the ‘Low-carbon Lake District’ initiative. This project involves:

- Carbon budget for the National Park,
- Partnership working,
- Leadership group,
- Action on low carbon tourism, energy efficiency, renewable energy and transport,

- Changing the way people think about climate change.

The carbon budget is designed to mirror the national budget. It is a consumption-based approach and provides a carbon snapshot of visitor transport (including aviation), accommodation, food and drink etc.

Renewable energy developments in the National Park include:

- A focus on hydro power including pre-feasibility studies and a hydro scheme for Coniston,
- The availability of small-scale funding through the Sustainable Development Fund (SDF),
- The new Core Strategy for planning specifies that all new housing must be able to generate 10% of their own energy through low carbon energy generation,
- Advice is available before planning applications are submitted,
- Renewable energy outreach role including engagement and myth busting,
- Creation of the Cumbrian Renewables Panel.

There is also an emphasis on making personal connections to combat climate change. A central theme is green behavioural change. Triggers can be found in National Parks including starting a family, retirement etc.

Rebecca closed her presentation by saying that pure carbon savings from renewable energy is dwarfed by the carbon dioxide impact from aviation. However, community schemes, community-led schemes and changes in local behaviour play a key part in meeting National carbon reduction targets.

#### **4. “Sunflower Partner Projects Presentations” by various presenters**

Michael Graham introduced the Sunflower Project to the delegates. Michael introduced the three speakers:

##### **“Bilbao Technology Park” by Cristina Andres**

Bilbao Technology Park was established in 1985 and it was the first Technology Park in Spain, with a mission to promote the diversification of industry, and the transfer and dissemination of technology and innovation. Today the park covers the towns of Zamudio and Derio. In addition, the Technology Park of Bizkaia has addressed its extension to the proposed campus on the Left Bank, in the municipalities of Abanto and Ortuella, and the proposed Science Park at the UPV / EHU Leioa.

It comprises 213 hectares of privileged natural environment, in Zamudio and Derio, where advanced technology companies are based, together with excellent communications infrastructures.

The Technology Park Association is a public company attached to the Basque Government's Department of Industry, Commerce and Tourism. Its partners are the Association for the Promotion of Industry, SA SPRI, the Provincial Council of Bizkaia / Bizkailur and the Zamudio Town Council. SPRI - 66,89%. DFB/Bizkailur - 32,72%. Ayuntamiento de Zamudio - 0,39%

It is owned by the Basque Government, the Basque Regional and County Council and also has Town Council input. The Technology Park actively participates in networks within the Basque Country and on a State and International level.

Within the Park, companies include innovation and communication technologies, energy and environment, science, and research and development (R&D). In total, there are 225 companies. 25% of people working in the Park are researched focused.

The Technology Park offers:

- Space rental,
- Developed plots of land,
- Innovation promotion e.g. Zero Hytechpark, BTEK Technology Museum, Training and Diffusion seminars, advance support services,
- Sustainability and Environment Forum.

Bilbao Technology Park has an important environmental and sports and leisure value.

### **"Healthy Cities, Towns and Regions" by Antonin Tym, Czech Republic**

Within the Czech Republic, the focus on health has been the main driver of sustainable development issues including renewable energy and transport. The methodology for cities is to:

- Develop sustainable strategies and partnership working,
- Focus on energy and transport issues,
- Share information and good practice,
- Raise awareness and utilise media including radio and TV, and
- Organise study tours for young practitioners and students including European tours.

### **Research Group on Energy and Sustainable Development, IDMEC-IST” by Raquel Segurado**

The Research Group on Energy and Sustainable Development is part of IDMEC-IST and its activities are focused on energy planning, energy policy, climate change and dissemination and promotion of sustainable energy

The research group is involved in numerous European and National projects that were described briefly. Among them was:

- TV Energia is a web-based TV channel on energy and end-use efficiency. : [www.tvenergia.tv](http://www.tvenergia.tv)
- STORIES Project, related with barriers in energy storage technologies, [www.storiesproject.eu](http://www.storiesproject.eu),
- EDEN Project – a demonstration project to study the potential of hydrogen to store intermittent sources,
- ENNEREG Project – Region Paving the way for a Sustainable Energy Europe ([www.regions202020.eu](http://www.regions202020.eu)),

*The Chair introduced the Sustainable Development Fund (SDF) which began in the NYMNP in 2003. The SDF has a community and innovation focus resulting in funding awarded to projects including Bioflame, Econoplas, Anaerobic Digestion Feasibility Study and Ridgeblade. The latter two initiatives gave the following presentations at the conference:*

### **5. “Potential for Anaerobic Digestion Projects in the National Park” by Dr Graham Hiller, Directory of Strategy and Futures, Centre for Process Innovation, Middlesborough**

The Centre for Process Innovation (CPI) was established by One North East to support process industries. CPI is largely industry focussed and includes processes including printable electronics including organic PV and fuel cells. CPI's assets include testing labs. A number of spin out businesses have also developed.

Dr Graham Hiller emphasises the resource challenge facing the UK. As noted by the Bruntland Commission, sustainable efficient systems are needed. There needs to be a balance between economic, social and environmental factors. All are equal. We face many challenges including population growth, growing affluence and resource consumption. The carbon dioxide in the atmosphere rises with population.

The challenges facing rural communities are:

- Security of energy supply,
- Managing and disposing of waste,
- Energy pricing,
- Cost of supplying services is rising.

Anaerobic digestion (AD) turns waste into something of use:

- Organic waste is used as a feedstock,
- The waste is put in a pot without air where natural bacteria turn it into methane, nutrients and carbon dioxide. The remaining digestate can be used as a fertiliser (or soil conditioner).
- The loop is closed,
- No external energy is needed to make it work.

The UK agricultural waste stream comprises of 90 million tonnes of waste and 16 million tonnes of food waste. This waste could be utilised in 2,000 AD plants which could convert the waste into electricity, heat, gas and fertiliser. Graham used a flowchart to illustrate the application of AD.

Feasibility study available in November 2010.

For more information, visit [www.uk-cpl.com](http://www.uk-cpl.com)

## **6. “Ridgeblade: An Innovative New Wind Turbine” by Dean Gregory, The Power Collective Limited**

Dean Gregory began by giving an insight into the development of the Ridgeblade turbine. The main driver was to install a sustainable energy device on a house that would be cheap, effective and widely available to people. Dean introduced the technology which harnesses the flow of air on and over roofs. At Delf University in the Netherlands, R&D was carried out on air flow around a house. Air flow on the roof is 2.5-3 times faster than the ambient air speed in a small area on the roof. Therefore, they worked on developing a system that would get the maximum energy from air flows on the roof.

The unit is produced in any colour including slate grey and pantile red. It is a modular unit measuring 1.2 m long. The units connect together with a small generator at one end. The unit does not have a peak performance rating; rather it generates low levels of electricity. It harnesses 70% of the wind rose.

Prototypes have been developed which can be used on most buildings. A Ridgeblade system on a 3 bed semi with 6m roof is likely to cost £3,500-£4,000 and generate 15 kilowatt hours (kWh) per day. With FITs, this results in a 2 year payback. The units are fitted onto the roof using uniwrap (like solar). Scaffolding is not needed. They can be installed by solar installers and roofing experts.

What’s next? The company would like to manufacture the units locally to keep their carbon footprint as low as possible.

Half a million installation would reduce the need for a medium coal fired power station.

## **7. Sunflower Partner Projects Presentations” by various presenters**

### **“Sunflower Partner Project Presentation for Italy” by Luca Galeasso from Environment Park, Italy”**

The speaker introduced the concept of the Environment Park as a space for small and medium sized enterprises (SMEs), research bodies, start-up businesses focussing on renewable energy, reducing consumption and R&D.

The Park has a Green Building Criteria and comprises of low carbon buildings. Low carbon energy sources include:

- Wood chip for heating and cooling,
- Solar PV plant for hydrogen production,
- A 435 kW hydro electric plant.

When electricity production is higher than the electricity consumption of the Park, the electricity is sold to the National Grid.

The Park covers 30,000m<sup>2</sup> and contains 70 SMEs, 500 employees with an average age of 35 years old!

Real estate management and R&D have a number of Environment Park Open Labs:

- Hysy Lab specialises in hydrogen technologies for mobility and stationary applications,
- Bio-energy Lab
  - Second generation biomass including biogas production and reduction of nitrate content in livestock effluent,
  - Two pilot plants – one in feedstock testing and application, and the second is a biomass pre-treatment plant,
  - Gas Highway Project – CNG and biogas distribution network in Europe (not near the UK!)

A comprehensive network has been developed from Finland to Italy to share best practice.

Other projects include:

- SEBE project – biogas production and exploitation of the potential of organic waste, comprehensive experience,
- DENITREN project – sustainable system for developing, implementing and maintaining livestock effluent treatment by the growth of algae for use on the farm.

## **8. “Sunflower Partner Project Presentation for Italy: An Agroenergies Project” by Piero Mattiolo,**

In 2008, private farmers and industry came together to lobby the Government and develop joint initiatives in the area. Events and seminars were organised to bring technology to

farmers and local authorities (responsible for planning permissions). The project sought to develop R&D, sustainable development and jobs for young people in the community.

Milestones included seminars throughout Italy, development of the US market, active in research. Technologies in use in the area comprised of:

- On-farm: Biogas co-generation, Biomass, Hydro power,
- Long supply chain industries: Bio-diesel, Bio-ethanol, Wood pellets, Biomass combustion

With biomass gasification and co-generation, there is an incentive for power producers to develop intelligent heat production.

Key driver in Italy = FITs for business, biogas, vegetable oils for transport, and PV.

New incentives for 2011 = smaller plants.

Biogas plants have a flat FIT incentive up to 1MW which has increased the number of installations.

Lessons learnt:

- Concentrate on better usage of heat as 15% of energy content is lost,
- Up-grade biogas and micro-nets to make them more viable at a small-scale,
- Leading on a project for small-scale device based on membrane technology.

## **9. “North York Moors National Park Community Renewable Energy Project: Lessons Learned” by Peter Jones, CREP Officer**

Peter began by introducing the Sunflower Project to the delegates. The main aim of the project was to create conditions to attract investment in renewable energy projects. There are 8 project partners who meet to share information and experience. The project goals are:

- To trigger Local Authority investment in renewable energy plants,
- To ensure that energy resources are considered as a starting point rather than an add-on,
- To educate people and encourage young entrepreneurs into renewable energy generation,
- To develop a community renewable energy vision in line with European targets.

In the NYMNP, there are a limited number of practitioners working with local groups in the National Park.

Peter outlined the purposes of the National Park and duty of the NPA including the need to protect and conserve the character of the National Park and foster the well-being of local communities. The National Park comprises of 1,400 km<sup>2</sup>, a population of 25,000 and 34% moorland. Climate change means that things are happening to the environment and there is a growing need to have control over the impacts of climate change in the National Park.

The Community Renewable Energy Project (CREP) started in 2004. It was supported by Yorkshire Forward and the NPA. With European funding, the project has had a £778,000 project fund.

At the start of the CREP, the focus was on:

- Working with 4 communities to develop community-led renewable energy projects,
- Assist other groups and businesses,
- Education and awareness raising,
- Capacity building and community empowerment including identifying and supporting Energy Champions and starting Energy Groups,
- Developing tool for communities to lead projects.

From the CREP, the following projects have emerged:

- Esk Hydro Power,
- Appleton-le-Moors Grant Scheme and Wood Fuel Initiative,
- Bransdale Wood fuel Project.

The CREP outputs are:

- Finished at the end of June 2010,
- Dissemination through the Sunflower Project,
  - Assessing different methodologies and approaches,
  - Learning points,
  - Developing a package for others,
- Save 2,000 tonnes of carbon dioxide per year,
- Community companies,

- Energy champions,
- Training of champions.

The lessons learned from the project include:

- There is a large amount of untapped energy available,
- Community development takes time,
- Studies and assessments take time and money,
- Community champions are needed at the heart of any project – community focus and community-led is key,
- Community scale renewables are not always easy,
- Funding is limited and difficult to organise,
- Regulatory authorities must be engaged at the start,
- Energy efficiency is cheap and effective (Energy Saving Trust website),
- There are lots of things we can do and are doing!

## 10. “Sunflower Partner Projects Presentations” by various presenters

### **“Sunflower Partner Project Presentation for Moura Municipality, Portugal” by Peter Jones, NYMNPA**

Due to the absence of the Portuguese Partner due to illness, Peter gave a short presentation on the Portuguese element of the Sunflower Project. The focus of work in Portugal has been to secure private investment in solar PV, look for a site to develop a solar PV power station and address socio-economic problems in the area. A 49MW PV plant has been installed. The site is a rural location and animals graze around the solar trackers.

The outcomes of the Portuguese work include:

- Running training sessions for students including 8 students from the UK,
- Production of “A Guide to Create a Start-up Company in Renewable Energy Sources” which will be available on the Sunflower website,
- Development of useful tools, also available on the Sunflower website at [www.sunflowerproject.eu](http://www.sunflowerproject.eu)

### **“Sunflower Partner Project Presentation for Sliven in Bulgaria” by Zarina Yosifova**

Sliven is 300km east of Sofia (capital) and is near a port and the Greek and Turkish borders. It covers 1,366 km<sup>2</sup> and comprises of 49 settlements. With the region, the Local Authority employs 350 people. Sliven has a population of 120,000 in the city. The population is ethnically diverse including Bulgarian, Turkish, Romanian and Greek. The economy is based upon agriculture, industry and services. As Sliven is close to Greek and Turkish markets and the Black Sea resorts, it is rich in biodiversity, transport and industrial infrastructure and cultural heritage.

There are two main forms of sustainable energy generation in Sliven:

- Wind power - The wind is called "bora" and is used for electricity generation. There is a Bulgarian Association of Wind Energy,
- Water power is also used to generate electricity as there are three rivers in the city.

## **“Sunflower Partner Project Presentation for EIGS in La Rochelle, France” by André Martinez**

The focus of the School of Engineering (private ownership) is education, research and professional training.

EIGSI has 4 research themes and 2 application domains:

- Research themes
  - Energy storage
  - Logistics and organisation
  - Coastal protection including booms to minimise the effects of oil spills
  - Renewable energy
- Application domains
  - Transport
  - Environment

The Renewable Energy Team began in 2000 and focussed their activities on energy production, energy efficiency and small-scale wind and PV. The team have worked hard to improve the production of components. Other activities include the Sunflower Project, R&D in wave energy in Scotland and Tenerife, and the integration of small-scale wind turbines in urban areas.

### **11. “Electric Network Issues (grid connections)” by Ian Miller, CE Electric**

Ian Miller began by emphasizing the importance of energy efficiency. He gave a concise overview of the history of the existing electric network in the UK, in general, and the National Park, in particular. In essence, there are no technical problems connecting distributed generation. However, the solutions adopted now may cause problems later.

100-500 MW schemes need to work with NGET whereas the District Network Operator (DNO) deals with schemes less than 500MW.

Specific issues include electrical issues and contextual issues.

**12. “Low Carbon Living in a Protected Landscape: Renewable Lowna” by Ruth Wass who converted an old waterwheel into a hydro turbine in the heart of the National Park**

Ruth Wass began her talk by giving an insight into Ruth’s family history. Ruth’s family has lived in Lowna since 1790. Seventeen years ago, they converted a cottage (former calf house) into a holiday cottage. The conversion included energy efficiency improvements. They also tried to get planning permission for a second cottage. Around 10 years ago, the National Park policy changed to look at socio-economic benefits and the family applied to convert another cottage in 2002. Although the conversion is heated using oil-fired heating, it was renovated to high energy efficiency standards.

In 2006, Ruth and her husband had to decide whether or not to live in the farmhouse or let it. They decided to undertake a major renovation project and converted the farmhouse into their home. Again, significant energy efficiency improvements were made to the building. The building used to contain an old water wheel (milling and tannery) which had sunk in the 1950s and was removed in the 1960s. The wheel was recycled. The infrastructure including millrace and sluices remained in place.

It had long since been the dream of Ruth’s husband to restore the waterwheel. They looked into the benefit of restoration as electricity bills were increasing and they wished to convert the farmhouse into a holiday home or family home. When Ruth and her husband learned about the National Park’s SDF, they decided to apply for feasibility study funding in 2006. They were awarded £1,000 for 2 small feasibility studies by Manpower Consulting Ltd and Derwent Hydro Ltd. The second detailed feasibility study was carried out by Manpower Consulting Ltd and was also funded by the SDF.

Essential work was carried out to obtain planning permission, licences from the Environment Agency, flood defence consent, fisheries and details on how to re-instate the wheel. The project was awarded a 50% grant from the SDF for £16,515 in January 2008.

Local quotes were obtained and the wheel was made by TWS. The wheel was built in situ in 2009. It was running by May and commissioned in June 2009 (powering an electric generator). A meter was installed to measure how much electricity is generated, how much

electricity is exported to the grid, and how much electricity is being consumed on site. If connection to the National grid is broken, the electricity powers emergency heaters. In the first 3 months, 3,598 kW of electricity was generated.

In April 2009, the Good Energy Company paid the Wass household 15p/kWh. In April 2010, 10,800 kWh was generated resulting in a payment of £1,600. From April to October 2010, the hydro system generated 9,000 kWh. This resulted in a payment of £1,800 for the 6 month period from FITs. Summer 2010 was very dry and the river level dropped. At 0.2 kW/hour, the wheel stopped generating for 3-4 weeks. The capacity is 3.5 kW/hour.

Overall, the project wouldn't have happened without the SDF. The waterwheel is visited by local group tours and school children. Visitors to the farmhouse and holiday homes like to see the waterwheel. The Wass family continues to do their bit by spreading the word and recycling.

**13. "Two Local Community Initiatives in the National Park" by Colin Mather, Chairman of Esk Energy and Dave Rawlings, Chairman of Appleton and Spaunton Community Interest Company**

**"Appleton and Spaunton Community Energy Group" by Dave Rawlings**

Dave Rawlings began his presentation by locating Appleton-le-Moors and Spaunton on a map of the National Park. The village of Appleton-le-Moors is just within the National Park on the southern boundary.

The Energy Group formed in 2004. Nelly Trevelyan was their first Community Champion. At the beginning, the group focused on:

- Information gathering,
- Understanding and learning about renewable energy and energy efficiency,
- Working towards the goal of reducing their community's carbon footprint by investigating options including:
  - Wind power
  - Biomass heating
  - Energy efficiency

Energy efficiency training was provided by Ryedale District Council. Following the training, an assessment of each property was undertaken to identify opportunities for improvements. Open days were held to disseminate and share information and giveaways.

A number of key lessons have been learnt over the last few years:

- Community groups need accessible information and advice,
- It is important to built on what other people have done and seek advice on what you can do,
- Community engagement is critical,
- It takes longer than you expect!

### **“Esk Valley Community Energy Group” by Colin Mather**

Established in 2004, the group were called the “Upper Esk Community Energy Group,” then the “Esk Valley Community Energy Group,” and now “Esk Energy Industrial and Provident Society.”

The aim of the group is to reduce the carbon footprint of a population of 1.500 people in the Esk Valley. The group is very active and has had the continued support of the National Park.

The quality of dependable information at that time was poor. In response to this, the Energy Group organized the following activities within the community:

- Energy fairs to disseminate and share information,
- Energy conservation drop-in sessions,
- Published a monthly newsletter covering issues such as insulation and available grants,
- Presentation and films to audiences of 60-100 people,
- Developed a website at [www.eskvalleyenergy.org.uk](http://www.eskvalleyenergy.org.uk)

In 2005, an energy survey was conducted by the group which had a 50% return rate for questionnaires due to their personal touch (hand delivery and collection of questionnaires). The group also went on study tours to renewable energy projects and the Centre for Alternative Technology in Wales.

In 2009, follow up energy surveys were conducted. The group gave individual energy advice by telephone and found that 30% of people had already improved their homes. Following the telephone calls and guidance, more people acted on the advice.

The lessons learned by the Energy Group include:

- There is a need for good advice on the financial and legal side of renewable energy projects,
- You need to carefully consider the legal structure of the organisation (Esk Energy are now looking to become a charity),
- Plan finance in advance to avoid disappointment,
- Try and make sure that your group is full of enthusiastic people with useful/relevant expertise if possible,
- Remember your objectives and avoid getting diverted,
- Don't be just a talking shop (this is useful). Make meetings useful,
- Remember that the interests of people in the group may vary,
- Allocate responsibilities per project or task. If no-one will champion it, shelve it,
- Be ambitious but not too ambitious,
- Continued support from the National Park has been central to the group's success.

#### **14. Closing remarks by Richard Gunton, NYMNP**

Richard Gunton began by saying that it has been an interesting journey from approaching Yorkshire Forward at the start of the project to the conference today. Overall, the project has resulted in the National Park having a smaller carbon footprint than in 2004. Richard told delegates that we are all here because we have to do this and we want to do this. Although community-led energy initiatives can be a daunting task, there is hope. The Government is becoming greener although there is still the need for lobbying. Lessons have been learned. The real task is to change lifestyles and the way we live.

If £700,000 funding was obtained at the beginning of the project, we may not be here today. However, Richard recognized the important of community-led projects. At the beginning, Yorkshire Forward's aim was to get the entire project completed in a year. And here we are, six years later...

Richard thanked everyone for attending the conference and wished delegates a safe journey home.

B) Agenda of the meeting

**Sustainable Living in a Protected Landscape**

**9-30 Welcome to North York Moors National Park;**

**Richard Gunton, Director of Recreation and Park Management**

**9-35 'Renewable Energy and Energy Conservation in a Protected Rural Area';**

**Rebecca Willis, the Vice-Chair of the UK Sustainable Development Commission**

**10-15 Partner Updates x 3**

*10-45 Coffee Break*

**11-05 'Potential for Anaerobic Digestion Projects in the National Park'**

**Dr Graham Hillier CEng FRSA, Director of Strategy and Futures, Centre for Process Innovation, Middlesbrough**

**11-35 'Ridgeblade; an innovative new wind turbine;'****Dean Gregory from The Power Collective Ltd**

**12-05 Partner Updates x 4**

*12-45 Lunch*

**2-00 'North York Moors National Park Community Renewable Energy Project; Lessons Learned';** **Peter Jones CREP Officer**

**2-15 'Electric Network Issues (grid connections)';** **Ian Miller CE Electric**

**2-30 'Low Carbon Living in a Protected Landscape';** **Ruth Wass who converted an old waterwheel into a hydro turbine in the heart of the National Park**

**3-00 Two Local Community Initiatives explained by** **Colin Mather and Dave Rawlings, both chairmen of their local renewable energy groups**

*4-00 Tea*

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