Biomass energy register for sustainable site development for European regions

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BEn

Biomass energy register for sustainable site development for European region (BEn)
Intelligent Energy – Europe (IEE)

Horizontal action: Bio Business Initiative

Deliverable D5.3: Validated and improved technical, financing and management guides

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1. Introduction

Within the first periods of the projects the BEn project team has developed three bioenergy guides:

- **Technical guide** that collects information of bioenergy plants technologies for different kind of biomass; it will show also the possibilities of using different kinds of substrates and the general specifics of the most important kind of substrates (for example wood, agricultural substrates with high dry matter content, liquid substrates)
  
  For every type of substrates the basics of the different possibilities of treatment will be briefly described and if available reference projects will be named.

- **Financing guide** that collects information about funding support and biomass plants and biofuels costs; it is dealing with the question of investing in a bioenergy project and gives an overview of different financing models and explains what has to be done to find investors for the project.

- **Management guide** that collects information about bioenergy networks, biomass plants management, biomass suppliers in the region (contract models); it shows the principle ways for developing a bioenergy project.

The peculiarity of these guides is that they are a collection of specific information useful for the four model regions involved in the project. Each information is, for instance, a link to a local biomass plants producer or chips supplier, or shows what incentives could receive a specific bioenergy project.

During the following period, based on the experience gained from the bioenergy network meetings, these guides have been updated.

This deliverable shows two different topics analysed:

1) Guides validation trough the four regional bioenergy networks that collaborated to the guides development and are directly interested in the guides working.

During the last months we have performed targeted requests (by phone, by e-mail or personally). The targeted requests were:

- What is your satisfaction level about the guides in general?
- What is your satisfaction level about the technical guide?
- What is your satisfaction level about the financing guide?
- What is your satisfaction level about the management guide?
- Based on your specific knowledge, what are the lacks or missing parts or the topics to be improved?
- What is your satisfaction about the case studies?
- What other case study typology would you like to have in the guides?

Moreover, the guides have been published on a web page. The following document gives an overview of some statistics (numbers of access, duration, frequency of access, location of PC, etc.).
2) Guides improvement for each model region:

The document shows a report explaining what kind of modifications have been brought in by each partner to the national guides, what part have improved (links, contacts,...), what lacks have been supplied and if they have added some specific case studies to the guides.

2. Validation of the guides

2.1. Umbria Region Network

On the whole, the bioenergy guides have satisfied the local network members. All the members gave a positive feedback to the updated version of the guides. The following document summarizes the network members' opinion on the guides.

Technical guide

Referring to the technical guide, the most important needs required by the members were information about local biomass suppliers and the availability of some case studies for a specific feasibility study. One of the most important obstacles for the bioenergy development in Umbria, discussed since the first regional network meeting, is the lack of biomass suppliers. The Umbria Region, as confirmed by some register results, has a great potential mainly for solid biomass production from residues (forestal and agricultural residues), but it isn't utilised except for wood production for residential heating. The network meeting gave the possibility to meet biomass producers. The technical guide preparation gave the possibility to put in contact potential bioenergy plants investors with biomass producers.

Some members suggested to improve the guide with case studies specific for the region, focusing on technical feasibility adapted to local bioenergy resources.

Management guide

Referring to the management guide, network members appreciated the investment models proposed and the bioenergy supply contract models, asking for some models also for heat (from bioenergy plants) distribution and selling.

Some members suggested to complement the guide with a new paragraph, “how to work with citizens?”, in order to avoid frequent events where citizens confuse bioenergy plants with wastes incinerators plants and started a strong opposition to the plant building, sometimes obtaining the block of the construction.

Financing guide

Referring to the financing guide, several potential investors during the network meetings pointed out the necessity to have also financial partners of some credit institutes in the network supporting bioenergy sector. The work done in the guides allowed to select financial institutes that co-fund interesting bioenergy project with a debit percentage.
Some members suggested adding a business plan specific for several local case studies, such as CHP plants fed by chips, vegetable oil or biogas.

In conclusion, a common topic for the three guides stressed by the members, is the necessity to continuously update links and information in order to have data revised with the frequent sector modifications.

### 2.2. Emscher-Lippe Region Network

In summary, the Emscher-Lippe region has a low acceptance for an additional BEn-guide. This is caused by a variety of existing guides, which are issued by numerous professional agencies. This affects the technical, the financial and the management chapter. The results of surveys with actors and stakeholders can be described as follows:

**Technical guide**


**Financing Guide**

Just like in with the technical guides, it is possible to get all kind of information about financing from FNR and KTBL. Regarding opportunities of funding, it is recommended to consult the Energie.Agentur.NRW ([http://www.energieagentur.nrw.de](http://www.energieagentur.nrw.de)). This energy agency currently publishes funding programs and offers additional advice. The agency is operated by the state of North Rhine Westphalia.

**Management Guide**

The field manual “bio-energy” of FNR offers necessary information to develop conceptual bio-energy projects. This compendium is used by the actors and only needs to be adapted to each region in relevant parameters. These are for instance the regional supply structure, the demographic development, urban land management, the regional energy market, other stakeholders or actors and regional networks.
2.3. Gostynin Lake Region Network

From Polish perspective the aim of guides is to encourage and make local society and representatives of local administration interested in bio-energy. Guides are very general and don’t include specific information on the biomass use for energetic purposes. The main purpose is to serve as stimulation in undertaking of bio-energy actions. The can be used as hypertext brochure to be updated during the action proposed in the region – action 1 - the support scheme for biomass investments.

On the base on these guides it was created a short brochure 10 pages, which was edited by The Gostynin Lake District Touristic Communes Association (Stowgmin) on 2010 year to be disseminated within the local society.

The satisfaction level of the members of regional network as well as the The Gostynin Lake District Touristic Communes Association (Stowgmin) about the guides in general is good. Positive response to further updating of the guides by the network members was expressed.

From Polish point of view there is a need for:
- good management examples of cooperation between biomass producers and other schemes supporting long term contracts between public and private sector.
- reviews of technical solutions for small and medium installations,
- investment planning in the context of administrative requirements (permits)
- installation maintenance requirements in the context of air protection and energy efficiency.

The case studies lack the information on economical aspects and energy efficiencies.

The statement of The Gostynin Lake District Touristic Communes Association (Stowgmin) on the Polish guides is attached below

2.3.1. Statement on the BEn guides for biomass development in the project model regions

The Gostynin Lake District Touristic Communes Association (Stowgmin) expresses its positive opinion on following guides: technical guide, financing guide and management guide.

Reliable knowledge and information enclosed in these guides were partly used for the purposes of preparing the brochure edited and printed in 2010 year (1200 copies) by Stowgmin. We plan to edit and print 100 copies of the BEn guides to disseminate them in our region.

Information gathered in the guides will be useful for local governments, trade institutions, network’s members and inhabitants from the region, interested in the use of energy from biomass.

The guides will enable interested people to be more familiar with technical aspects of bio-energy investments. The aspects of managing the bio-energy investments and the possibilities of their financing are especially worth of studying.
Gostynin Lake District Touristic Communes Association, with the activity covering the area of 14 cities and villages, found out that there is a need of creation of preferential financing mechanism addressed to entrepreneurs and private persons, in order to support them in taking up bio-energy investments.

In opinion of the commune representatives associated in Stowgmin, in the future it would be good to broaden the "Catalogue of incentives for bio-energy development " and the "List of bio-energy supporting financial institutions".

Agnieszka Żukowska
Director
Gostynin Lake District
Touristic Communes Association (Stowgmin)

2.4. North East of England Region Network

2.4.1. Introduction

The BEn Guides are a deliverable of the BEn project and are a collection of up to date, regionally relevant guides to be distributed to network members for each of the partner regions. The BEn Guides were published as a Google Micro-site, and promoted via local networks and via biomass contacts within the Region.

The guides have been collated to signpost potential network members to where they may find relevant information and focussed on the following specific subject areas:

- **Technical** – covering definitions, regulations, sources, potentials, energy conversion systems, installations
- **Management** – planning biomass investments, planning phases, agreements and contracts, network guides
- **Financial** – biomass and bioenergy investments and financial support.

2.4.2. Methodology for the Validation of the BEn Guides

The BEn Guides have been introduced to network members on a number of occasions; during presentations (for example at the Biomass for Planners seminar), during the regular BEn Network Meetings and via established routes such as network e-mails. The BEn network steering group has also been included in the development and has contributed to the guides.

Before the latest BEn network meeting, all members of the network were asked to view and review the Guides in time for the meeting. Several direct responses were received with useful comments, and during the network meeting further comments were invited from the network. During the network meeting, levels of satisfaction were assessed.
2.4.3. Results for the Validation exercise of the BEn Guides

Overall, the level of satisfaction for each section was good / satisfactory – members of the network felt that the Guides provide a comprehensive technical and commercial overview of the biomass sector and provide the necessary level of detail, and provided some direct suggestions and feedback relating to additional information has subsequently been incorporated. In summary, the following collated comments sum up the Validation exercise from the BEn network meeting and subsequent e-mail responses:

What is your satisfaction level about the guides in general? (not suffic.-suffic.-good)

The guides are very comprehensive, covering, in a good level of detail, issues pertaining to biomass. I would say my satisfaction level is good.

What is your satisfaction level about the technical guide? (not suffic.-suffic.-good)

The technical guide is very detailed and covers all areas that are necessary for biomass project development.

I feel they are good, in terms of depth of coverage.

What is your satisfaction level about the financing guide? (not suffic.-suffic.-good)

I feel the financing guide presents a clear overview of the necessary considerations.

From a financial perspective, that pertains to a biomass installation.

I would rate it as good.

What is your satisfaction level about the management guide? (not suffic.-suffic.-good)

Satisfaction level for the management guide is sufficient.

On the base of your specific knowledge, what are the lacks or missing parts or the topics to be improved?

I feel there are no topics that are missing.

Very comprehensive

I feel the section on air quality is particularly welcome in such a guide.

What is your satisfaction about the case studies? (not sufficient-sufficient-good)

I feel the case studies are very informative, and I would rate them as good

What other case studies typology would you like to have in the guides?

There are no gaps in the provision of case studies

3. Internet visits monitoring

3.1. Introduction

This report has been put together to analyse the viewings over a given period following the publication of the BEn Guides. The guides were published on a Google micro-site which allowed the development of the guides to continue and also for the guides to be published to a much wider audience for initial review and consideration.
The holding page presented a brief introduction to the BEn Guides in English and allowed users to follow links through to the individual country pages for the specific guide to their region.

https://sites.google.com/a/ruraldevelopment.org.uk/ben-guides/

### 3.2. Overview of the Introduction BEn Guides Website page

The main reception page attracted a total 164 absolute unique users visiting the page during the two complete months from 15th December 2010 to the 13th February 2011. A total of 783 page views were recorded, with an average of nearly 3 pages visited per view.

The average time on the overall site was 04 minutes and 04 seconds, which demonstrates visitors are hitting the site and spending time reviewing the BEn Guides documents presented. The average time spent on the site during December was in excess of 13 minutes; this shows the popularity of the site during the ‘launch’ few days was extremely high. Not surprisingly, the figures dropped during the two weeks of the winter break.
3.3. BEn guides website page by country

The Analytics website allows for the viewings for by country to be analysed. Of the total site viewings, 97.86% were from within Europe. Northern European visitors to the site accounted for 143 visits, southern Europe accounted for 90 visits and Western Europe accounted for 40 visits whilst Eastern Europe accounted for 1 visit to the site.

When split by individual partner country, percentage ‘New Visits’ from the UK accounted for 59.71%, new visits from Italy 44.44%, Germany 47.37% and Poland 100% (accounting for the single unique Polish visit).

<table>
<thead>
<tr>
<th>Country/Territory</th>
<th>Visits</th>
<th>Pages/Visit</th>
<th>Avg. Time on Site</th>
<th>% New Visits</th>
<th>Bounce Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>139</td>
<td>3.35</td>
<td>00:06:54</td>
<td>59.71%</td>
<td>20.06%</td>
</tr>
<tr>
<td>Italy</td>
<td>90</td>
<td>2.19</td>
<td>00:06:54</td>
<td>44.44%</td>
<td>38.89%</td>
</tr>
<tr>
<td>Germany</td>
<td>38</td>
<td>2.99</td>
<td>00:02:32</td>
<td>47.37%</td>
<td>34.21%</td>
</tr>
<tr>
<td>Brazil</td>
<td>3</td>
<td>2.00</td>
<td>00:00:00</td>
<td>33.33%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Australia</td>
<td>2</td>
<td>2.00</td>
<td>00:00:25</td>
<td>100.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Finland</td>
<td>2</td>
<td>3.00</td>
<td>00:01:30</td>
<td>100.00%</td>
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</tr>
<tr>
<td>Denmark</td>
<td>2</td>
<td>2.00</td>
<td>00:00:17</td>
<td>100.00%</td>
<td>50.00%</td>
</tr>
<tr>
<td>France</td>
<td>1</td>
<td>1.00</td>
<td>00:00:00</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
<td>2.00</td>
<td>00:00:13</td>
<td>100.00%</td>
<td>0.00%</td>
</tr>
<tr>
<td>Austria</td>
<td>1</td>
<td>1.00</td>
<td>00:00:00</td>
<td>100.00%</td>
<td>100.00%</td>
</tr>
</tbody>
</table>

Localities of the UK Visits – within the UK, London appears to dominate the majority of the viewings. However, it should be noted that in the UK, company and business servers are often located in London or Edinburgh and therefore the footprint left of the visitors can skew the results and inaccurately show that visitors come from London when they could be from other parts of the UK.
Localities of the German Visits – analysis of the German Visits demonstrated the Oberhausen region dominated the viewings from the German contingent.

Localities of Visits to the Italian site – Perugia dominated the number of visits to the Italian Language site, followed by Rome and Palermo.

The Polish visit to the site is showing as being from Warsaw, however this could again be the case that the site records visits from the location of the server, not from the actual location of the origin of the visit.
3.4. Summary and Conclusions

Whilst the analysis using the Google Analytics tool to monitor the usage of the BEn Guides is one tool to monitor the distribution of the guides across Europe, and across European Partner regions, it is worth considering that other methods of BEn Guides distribution may also have been used in each country that cannot be captured on the Google Analytics website.

The methods of distributing the link to the website may also need to be refined for future promotional activity. For example, in all the model regions, the web link was distributed to local (regional) networks, in the UK also to national networks and some international networks (the link to the guides was uploaded on to the Northwoods and RDI websites, on to partner websites such as the news article on the Country and Landowner and Business association website).

The true test of the effectiveness of the Guides is not necessarily monitored through the analysis of the BEn Guides website, but via feedback with individuals who have used the information in during the development of sustainable project development in future years.
4. Improvement of the guides

4.1. Umbria Region guides improvement report

The Italian BEN GUIDEs have been improved mainly in the technical section. The changes relate to paragraph number one and its sub-paragraph.

The last update concerns:

1. National and regional regulations affecting biomass and bioenergy production and use
2. Biomass certification and standards

<table>
<thead>
<tr>
<th>Sottotema</th>
<th>Schema e standard di certificazione</th>
<th>Pertinenza</th>
<th>Anno</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biocombustibili solidi</td>
<td>UNI CEN/TS 14778-1:2006</td>
<td>Metodi di campionamento</td>
<td>2006</td>
</tr>
<tr>
<td>Biocombustibili solidi</td>
<td>UNI CEN/TS 14778-1:2005</td>
<td>Metodi di campionamento di materiale particolato trasportato su autotarri</td>
<td>2005</td>
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<td>Biocombustibili solidi-Metodi per la determinazione della distribuzione granulometrica</td>
<td>UNI CEN/TS 15149-1:2006</td>
<td>Metodo del vaglio oscillante con apertura maggiore o uguale a 3,5 mm</td>
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<td>UNI CEN/TS 15149-2:2006</td>
<td>Metodo del vaglio vibrante con apertura minore o uguale a 3,15 mm</td>
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<tr>
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<td>Metodo del vaglio rotativo</td>
<td>2006</td>
</tr>
<tr>
<td>Biocombustibili solidi</td>
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<td>Metodo per la determinazione della massa volumica delle singole particelle</td>
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<td>Metodi per la preparazione del campione</td>
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</tr>
<tr>
<td>Biocombustibili solidi</td>
<td>UNI CEN/TS 15104:2005</td>
<td>Determinazione del contenuto totale di carbonio, idrogeno e azoto-metodi strumentali</td>
<td>2005</td>
</tr>
<tr>
<td>Biocombustibili solidi</td>
<td>UNI CEN/TS 15234:2006</td>
<td>Assicurazione di qualità del combustibile</td>
<td>2006</td>
</tr>
</tbody>
</table>

3. Sourcing of biomass: biomass producers database, biomass suppliers database;
4. Logistics: providers of biomass logistics services;
5. Biomass & bioenergy installations. Case studies were added concerning:
   - Biogas plants
   - Wood chips boiler
   - Wood chip fired CHP plants
   - Biomass gasification.
There are also some specific case studies for Umbria Region that, after local network request, will be uploaded later in the Italian version.

These studies concern:

1. Boiler working with biomass residues from wineyards: Lungarotti Biomass Plant (400 kWt-wineyards pruning)
2. Vegetable oil engine for electricity production: Biomass Cogeneration Plant (1 MWe-rape and sunflower seed)
3. Vegetable oil engine for electricity production: Santa Apollinare Biomass Cogeneration Plant (200 kWe-rape and sunflower seed)
4. Biomass boiler for residential heating: Biomass Boiler (110 kWt-forestry residues)
5. Biomass boiler for company heating and cooling: Biomass Boiler (2 MWt-agricultural and forestry residues)
6. Biomass boiler for company heating: Biomass Boiler (100 kWt-agricultural and forestry residues)

Finally new contacts were added on the table "catalogue of support organization distributing grants & offering advice on funding" in the financial guide.

### 4.2. Emscher-Lippe Region guides improvement report

Due to the use of existing guides in all categories a link to the appropriate resources was established in the first place. To validate the financial and management guides a regional adaptation was necessary. This was accomplished in close collaboration with the local actors.

Regarding financing the existing guides miss the description of registered cooperatives. This should be prepared from existing sources or should be worked out individually. The federation of cooperatives in Münster is a helpful institution to realize such an intention.

Regarding asset and investment management the regional concerns should be considered. The regional legislation which is necessary to get an approval for the operation of bio-energy assets is already provided. The list of the regional stakeholders should appear only once (biomass energy register, guide) to facilitate data handling and to keep to list up-to-dates. The display of the GIS register is favored.

In the future the wood gas production should be described, too. But it should be noted that currently a fully operational technology doesn’t exist.
4.3. Gostynin Lake Region guides improvement report

Management guide

It was presented recommendations and guides supporting bio-energy investment in Poland. Requirements concerning public and privat investments with the legal and administrative requirements with examples of approaches were proposed.

Financial guide

There were identified and described Polish sources of financing of biomass investments including:

- Voivodeship Fund for Environmental Protection and Water Management in Warsaw
- Environmental Protection Bank (BOŚ)
- Voivodeship Fund for Environmental Protection and Water Management in Warsaw
- as well as:
- European Agricultural Fund for Rural Development (EAFRD)
- European Regional Development Fund (ERDF)

These instruments are addressed to different types of beneficiaries. Links to institutions’ website where the information on possibilities of support bio-energy actions is available were included:

- www.nfosigw.gov.pl
- www.bosbank.pl
- www.arimr.gov.pl
- www.arimr.gov.pl
- www.mrr.gov.pl
- www.ekooportal.gov.pl
- www.funduszeeuropejskie.gov.pl
- www.bgk.com.pl
- www.arp.com.pl
- www.parp.gov.pl
- www.efrwp.com.pl

The example of financial guide available at the address: http://ww.org.pl/data/OZE.pdf was also presented.

Technical guide

Full range of Polish guides, publications and studies and websites which offer information connected with bio-energy is included in the guides. Some examples were presented on Polish technical guide:

- Publications on biogas production

- Publications, reports and analysis on cultivations on energetic crops.
- Publications on the scenarios and possibilities of RES development in Poland
- The study: Zielona Energia. Rozpoznanie regionalnego potencjału i wytyczenie optymalnych kierunków rozwoju regionalnej energetyki opartej na biosamie (Green energy. The identification of regional potential and optimal directions of bioenergy
development in the region) (2007) with the model case studies in the region and the identification of the biomass potential in the region


- Brochures on RES, including biomass:
  - The solid part of the Polish guides was included in the brochure disseminated by Gostynin Lake District of Touristic Communes Association (Stowgmin).

- Detailed technical guides available on websites:
  - http://ekobudowanie.pl/poradnik?start=30

- Energie Cités (PNEC) network publications

- RES championship initiative with the reference cases and good examples on biomass investments

- Market analyses for biomass sources in Poland available at http://www.gramwzielone.pl/zielone/artykul/Rynek-biomasy-w-Polsce

- Biomass installation for individual houses:

4.4. North East of England Region guides improvement report

4.4.1. Introduction
The BEn Guides are a deliverable of the BEn project and are a collection of up to date, regionally relevant guides to be distributed to network members for each of the partner regions. The BEn Guides were published as a Google Micro-site, and promoted via local networks and via

The guides have been collated to signpost potential network members to where they may find relevant information and focused on the following specific subject areas:

- Technical – covering definitions, regulations, sources, potentials, energy conversion systems, installations
- Management – planning biomass investments, planning phases, agreements and contracts, network guides
- Financial – biomass and bioenergy investments and financial support.

The following report summarises the updates in the latest stages of the development phase of the BEn Guides:

4.4.2. Updated BEn guides information
The BEn Guides have been developed in open-source format to allow administrative and project officer users to continually update and improve the guides, whilst the guides themselves are visible online for stakeholders to use and for them to comment.

The North East has one of the largest sets of networks (142 members) to consult with, and therefore a sub-group representing the needs of the wider group is used to consult with on update issues. Network presentations and regular e-mail correspondence relating to the developments of the BEn project keep the wider network members up to date.

The open source document allows for revision histories to be recorded and a summary of the modifications noted. Please see the table below, summarising some of the modifications made to the BEn Guides for the North East below.

Table of Revision History – Google Docs – BEn Guides

<table>
<thead>
<tr>
<th>Revision</th>
<th>Last Edited</th>
<th>Changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revision 2397</td>
<td>Blue Local Authority has declared an Air Quality Management Area in a White Local Authority</td>
<td>Revisions 2395-2397</td>
</tr>
<tr>
<td>Revision 2395</td>
<td>The colours of the map above are explained below: Blue Local Authority has declared an Air Quality Management Area</td>
<td>Revisions 2393-2395</td>
</tr>
<tr>
<td>Revision 2393</td>
<td>a fresh and up to date. The correct technical solution to enable this function is currently being developed</td>
<td>Revisions 2385-2393</td>
</tr>
<tr>
<td>Revision 2390</td>
<td>Air Quality Management Areas Blue Local Authority has declared an Air Quality Management Area</td>
<td>Revisions 2397-2399</td>
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<td>(otherwise) Old Stables, Greys Yard, Morpeth, NE61 1QD. Contact person John Farquar</td>
<td>Revisions 2355-2385</td>
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<td>Biomass suppliers database Biomass supplier Contact details Description Abbey Tree Supplies Ltd</td>
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<td>Revision 2329</td>
<td>- D5.3 Validated and improved technical, financial and management guides</td>
<td>Revisions 2329-2333</td>
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<td>- D5.2 Improved technical, management and financial guides - project support</td>
<td>Revisions 2327-2329</td>
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<td>- D5.1 Intelligent Energy – European Projects</td>
<td>Revisions 2327-2329</td>
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<td>Revision 2323</td>
<td>- D5.1.1 BEn case studies from Emscher-Lippe Region (Germany) Biogas plants - Productive energy plants</td>
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4.4.3. Summary of the major revisions and amendments made to the BEn guides:
The following points summarise the main changes made to the BEn Guides for the North East:

- Updated contact details of network members
- Changes made to the English language and reduced technical terminology – plain English speak
- CPET – updates made with reference to the Certification Schemes
- Case studies added – UK case studies, Kielder District heating scheme
- Update fuel suppliers database
- NaREC additional information added – biomass to heat scheme
- Technical Assistance – Installers database updated, additional suppliers / installers inserted

Additional Environmental Impact information added to the website – Air Quality Management Areas, updated Clean Air Act Information.