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Benchmarking method to compare industrial practices regarding Energy Management in the sawmill industry

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List of ECOINFLOW partners:

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The Norwegian Sawmill Industries Association	Treindustrien	NO
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Fédération Nationale du Bois	FNB	FR
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Deliverable D.3.1**Benchmarking method to compare industrial practices regarding Energy Management in the sawmill industry**

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Abstract

This document presents the benchmarking methodology developed and implemented in the ECOINFLOW project to compare industrial practices regarding Energy Management in the European sawmill industry.

In compliance with the recommendation from EN 16321:2012 “Energy efficiency benchmarking methodology”, the collaborative work of the research partners defined a five steps methodology based on sound specifications and strengthened by a good understanding of European sawmill types. The search of volunteer sawmills resulted in a selection of a well-balanced panel of companies for collecting energy specific data. Practical tools were developed to ease the homogeneous implementation of the methodology by the partners in the different countries, namely Norway, Sweden, Germany, France, Italy, the Unites Kingdom and Latvia.

The scope of the benchmarked activities is defined as all processes done on a sawmill site from the log yard (reception of the raw material) to the finished product, including internal transport but excluding external logistics (transportation from the forest or shipment to the clients). he European sawmilling industry is quite diverse in terms of plant size, production equipment and level of sawn-timber added-value. Thus, in order to be able control the energy use and follow up the energy efficiency improvements at the sawmill, it is necessary to group the energy users into manageable sizes with good enough resolution (zones).

1 Introduction

The main objective of *ECOINFLOW* is to reduce the annual energy consumption of the European sawmilling industry (SMI) sector by 1 TWh, to contribute to the EU goal of 20 % reduction in fossil energy consumption by 2020 and increase biomass available for energy generation through international engagement, collaboration and knowledge transfer.

Generally, there are only a few measurements of energy consumption on a regular basis for companies in the sawmilling industry sector and the level of awareness on the energy topic is quite low. The project participants propose a benchmarking methodology to understand and document energy behaviours in the industry, hence raising awareness and steering motivation to change towards more efficient energy consumption.

Benchmarking is defined as follows in the European normative EN 16 231:2012 “Energy efficiency benchmarking methodology”

“Process of collecting, analysing and relating performance data of comparable activities with the purpose of evaluation and comparing performance between or within entities.”

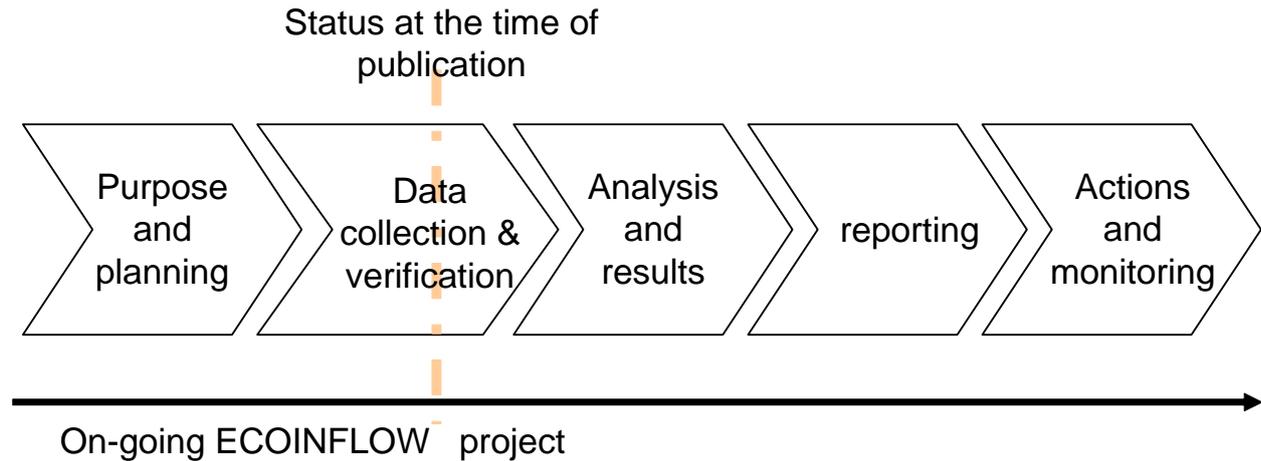
During the *ECOINFLOW* project, an external benchmarking is performed in the European sawmilling sector between companies from the following countries: Norway, Sweden, Germany, France, Italy, United Kingdom and Latvia. It serves two complementary objectives:

- Establish “best in industry” energy efficiency of the production, acknowledged as best practices;
- Publish energy consumption references for the key sawmills’ profiles in Europe.

The scope of the benchmarked activities is defined as all processes done on a sawmill site from the log yard (reception of the raw material) to the finished product, including internal transport but excluding external logistics (transportation from the forest or shipment to the clients). The European sawmilling industry is quite diverse in terms of plant size, production equipment and level of sawn-timber added-value. Thus, in order to be able control the energy use and follow up the energy efficiency improvements at the sawmill, it is necessary to group the energy users into manageable sizes with good enough resolution (zones).

This document presents the benchmarking methodology developed and implemented in the *ECOINFLOW* project to compare industrial practices regarding Energy Management in the sawmill industry, in compliance with the recommendation from EN 16.321.

The collaborative work of the research partners defined a five steps methodology (figure 1) based on sound specifications and strengthened by a good understanding of European sawmill types. The search of volunteer sawmills resulted in a selection of a well-balanced panel of companies for collecting energy specific data. Practical tools were developed to ease the homogeneous implementation of the methodology by the different partners in the different countries and local contexts.

Figure 1: Benchmarking methodology applied in ECOINFLOW in accordance to the EN 16231 model

2 Collaboration of the consortium

The ECOINFLOW consortium brings together research partners, sawmill-related federations and individual companies from eight European countries. All the partners are involved in the benchmarking but with different levels of contribution:

- Under the management of WP3 leader FCBA, research partners (Tretknisk, SP and TI) are designing the methodology and organising the data collection in the participating countries;
- The other partners are providing feedback on the proposed methodology.

Although several sawmills are directly involved as partners in the consortium their number and profiles are not representative enough to account for the entire European sawmilling sector. Therefore, extra volunteers had to be recruited to host the data collection from which the benchmarking would be made.

During the first twelve months of the project the consortium partners collaborated to coordinate and build the methodology and all its components:

- National suggestions were integrated to take into account variable conditions;
- A workshop was organised during the 2nd consortium meeting (November 2012), and a separate WP3 workshop was organized in May, 2013;
- Different ideas and suggestions were put together and prioritized;
- An iterative process enabled the research partners to adjust and improve the methodology along the project. In that sense, feedback was shared after the first visits and some of the tools were modified when data collectors realized some information was missing, e.g. outdoor conditions (which is important in the wood drying process)

The project partners considered the collaboration as one of the key factors for a successful and homogeneous implementation of the methodology.

3 Specification of the methodology

From the beginning, the partners knew there would be technical challenges in the creation of the methodology and its future application. It was also acknowledged there would not only be technical factors to be taken into account. For this reason, and in order to find a good balance between thorough energy-wise data collection and organisation-wise challenges, the first step of the work consisted in expressing the methodology's specifications.

Through this specifications phase, the leading idea was of course to adapt to real industrial conditions in the European sawmilling sector and its diversity.

Technical specifications were considered, among which the two leading ideas were to be able to:

- Collect energy-relevant information even in companies where, up to now, there are no energy meters or energy monitoring systems installed;
- Adjust to sawmill-specific activities and processes;

Non-technical specifications were specified, in the sense that the methodology should:

- Rely on tools which can be understood and handled without difficulty, both by the project participants and the sawmill personnel;
- Take into account time consumption. The data collection phase can not last too long in a sawmill (between half a day and a day, if project staff is present, or longer periods of time, if carried out by sawmill staff), and depends both strongly on interviewer's efficiency and willingness of the company to spend time in the process;
- Provide results both on the short term (quick feedback to the visited sawmill) and long term (true results of the benchmark);
- Secure confidentiality for companies who are willing to participate in the benchmarking but do not want their result to be recognizable for others;

4 Sawmill categories

Because the European sawmilling sector is very diverse, criterions were discussed to structure a sectoral category (see table 1).

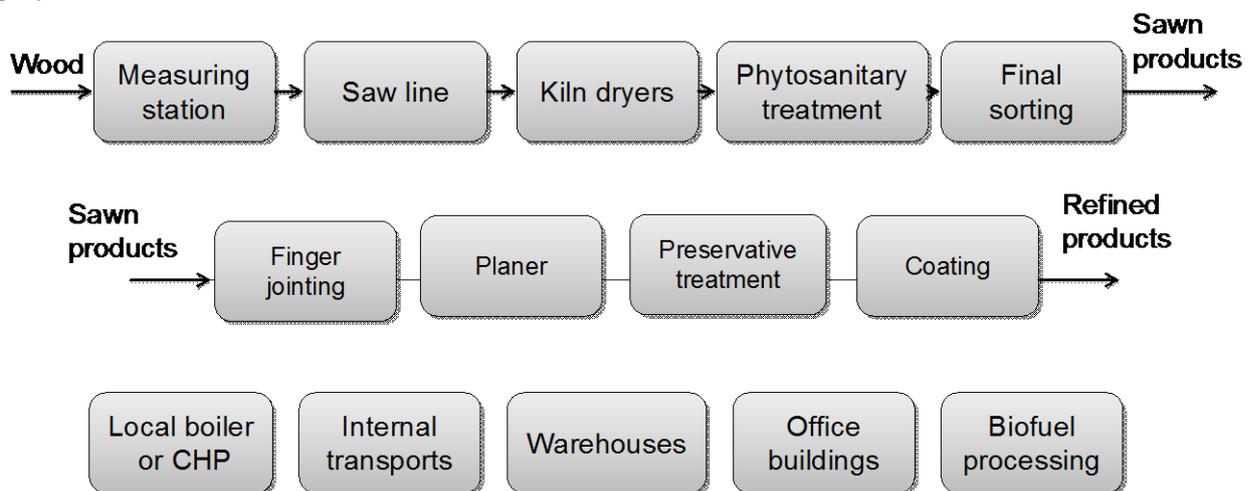
Table 1 : Criteria for a European sawmill category

General criteria	Different options in the criteria / thresholds	Comment on European diversity
Nature of the raw material Wood Species	<ul style="list-style-type: none"> • Hardwood • Softwood NB : can be sorted out by density	The raw material processed at the mill influences the energy consumption

General criteria	Different options in the criteria / thresholds	Comment on European diversity
Volume of production (sawn timber) In Cubic meter per year	<ul style="list-style-type: none"> • $P < 2\,000$ • $2\,000 < P < 10\,000$ • $10\,000 < P < 50\,000$ • $50\,000 < P < 100\,000$ • $100\,000 < P < 250\,000$ • $P > 250\,000$ 	Sawn timber volume is the most common output indicator in this sector and the companies are used to compare each other with it.
Product mix	<ul style="list-style-type: none"> • Standardized construction mix • Sawn timber for pallets • Customized product mix 	The product mix influence the nature of processing equipments
Added value to the green sawn timber	<ul style="list-style-type: none"> • Kiln drying • Specific treatment • Secondary processing 	Each option means a sub-process which requires energy
Energy supply	<ul style="list-style-type: none"> • Primary energy only • Local boiler • Power and Heat plant (CHP) 	

The various criterions were completed with discussions on the mapping of typical sawmilling activities and sub-processes (figure 2).

Figure 2 : General layout of sawmill and its sub-processes taken into account during the ECOINFLOW project



The idea behind this segmentation is to compare energy data collected at a given sawmill with energy data from comparable sites.

5 Recruiting companies to be benchmarked

Initially, sawmills were recruited for the group of companies to be benchmarked since most of them are not part of the ECOINFLOW consortium and were not identified at the beginning of the project. It was important to secure a proper balance in the group to ensure representative relevance but also to ease the future exploitation of the results for dissemination purposes.

The working tasks consisted in:

- Recruiting enough voluntary companies to reach at least 40 companies, as initially estimated in the project;
- Checking that a sufficient diversity was ensured in the panel in terms of type of enterprises, geographical distribution, representativeness and willingness to participate;
- Making sure that a few “key personalities” volunteered so they could later become flagships and ease the future adoption of the results.

Good cooperation between the research partners and the national federations proved crucial during this casting phase. Communication material was designed¹ and the word was passed through professional press, regional meetings and e-mails that ECOINFLOW was looking for volunteers. Companies who are members of the consortium also contributed in identification of volunteers by spreading the information through their sawmilling networks.

Currently 47 sawmills have declared their interest and now participate on the benchmarking (France: 18; Norway: 5; Sweden: 6; Germany: 13; Italy: 3; Latvia: 1; UK: 1).

6 Tools developed in the project

During the project and for the purpose of the benchmarking methodology, several practical tools were developed to ease the homogenous implementation of the methodology and the role of the partners meeting the industrial participants.

6.1 Tools for data collection and dialogue with the sawmillers

A two-folded quantitative questionnaire was designed for data collection and released as the deliverable D1.4 from ECOINFLOW project:

- The introductory questionnaire is purposed to collect general information about the company (e.g. size, volume of production, energy supply, etc.) in relation to the sawmill category (table 1);
- The coordinated questionnaire for visit to sawmills enables extensive energy data collection grouping the energy users into manageable sizes / zones (figure 2).

A qualitative questionnaire with national highlights:

From the project start, the partners knew that some European sawmills had been considering efforts to reduce their energy consumption in the past. For example they might have changed bits of equipment/machinery, changed behaviours of the staff, or reduced energy consumption due to another initiatives (e.g. Environmental certification, Product LCA, etc.). Those changes might have been small but they were a proof that some companies feel concerned by energy matters and went as far as act on those concerns.

¹ In cooperation with ECOINFLOW's work-package n°5 dedicated to Communication

During the first two consortium meetings, the project partners were shown examples of energy-aware behaviours (and choice of equipment/investment) at the Norwegian Bergene Holm Haslestad Sawmill, and the Swedish Bergkvist Insjön Sawmill. In Sweden, “night visits”² have also been proposed to local companies to trigger their willingness to change. In France, a couple of cases had been identified through internal initiatives like warm air transfer from air compressor for room heating purposes.

The idea behind the developed qualitative questionnaire was to uncover and understand the drivers behind those isolated cases, with at least two possible exploitation means in the next phase:

1. Find possible links to the results of the benchmarking ;
2. Gather a set of potential “success stories” that would later ease the dissemination and transfer of ECOINFLOW recommendation towards energy consumption.

The set of qualitative questions is available in English and French in Appendix 1.

Guide for the interviewers

In addition to the questionnaires, a guide for the interviewer was created to support the interviewers if necessary. For example in France, FCBA put together a French guide with tips and material for the person doing the data collection at sawmill, with content such as:

- Who to target and with which type of questions ;
- Where to find the information if the personnel doesn't know the answer by heart ;
- Which kind of attitude to adopt: accurate data collection, technical expertise; paying attention to the industrial's expectations regarding the visit and the project, etc.
- Instructions to take pictures to document good practices or less efficient ones ;
- How to structure the inquiry in order not to ask too complicated and too detailed questions

6.2 Collective data base

Once the panel of participating sawmills had been secured, the number of volunteers and the extensive characters of the questionnaires confirmed that a lot of data would have to be handled and later analysed. It was therefore regarded helpful to have a robust enough mean to store and handle the quantitative data. As a starting point, the architecture of the database-to-be was proposed, based on the coordinated questionnaires and the needs in benchmarking.

The developed database is for consortium use only. Its confidentiality was handled properly with confidentiality management through unique identifiers chosen and managed by the national representatives.

The structure works with five tables [Company; Process; Materials, Kiln, Boiler]. It is quite simple and the Database is possible to handle in EXCEL: a software everyone is familiar with. Instructions were created for the user (person who's typing in the data), both in English and French.

The following procedure was agreed on:

- FCBA (as WP Leader) delivers a template of the database “ready for use”;
- Each country (or responsible partner) collects its data and types it in its national DB;

² « Night visit »: a visit of the mill with the sawmiller and a third party to check on everything that's online although it shouldn't be. By relating this "inventory" of waste of energy to monetary values, it can be suggested that better awareness, supported by management & motivation, would lead to savings. Ideally, the “night owl” would come back some months later to check if new behaviours have obviously changed the situation.

- All national DB are collected, merged into a collective DB which is checked for errors/inconstancies;
- The collective DB (filled with data) is made available for the consortium.

7 Feedback on the methodology

Although the complete set of five steps of the benchmarking methodology have not been implemented yet, preliminary feedback was shared between the research partners. The interviewers confirmed that information is often scattered in the sawmills, turning data collection into a long investigation and therefore confirming the need for robust tools.

Informal feedback from sawmills of the panel was gathered by the research partners and could be summarized as such:

- The search for volunteers proved easier and more fruitful than the research partners had expected, hence confirming the interest for the energy topic and the acceptance of the proposed methodology prior to the visit (as explained through dissemination material);
- Open attitude and curiosity demonstrated during the data collection phase confirmed the active adoption of the methodology;
- Expectations were voiced out towards the results, hence expressing trust in the methodology and the coordinated ECOINFLOW efforts.

8 Next steps; data analysis

The data analysis will start as a follow up of the data collection, performed until April 2013. A preliminary benchmarking study based on data collected in the introductory questionnaire will be performed first, before a more thorough analysis at sub-process level can be done with more specific variables and statistical methods.

Figure 3 : Variables to be used for preliminary comparison of the participating sawmills

Inputs in production	Unit
<ul style="list-style-type: none"> • raw material (timber and sawn wood) 	Cubic meters
<ul style="list-style-type: none"> • energy (volume and prices for electricity, gas, gasoil, ...) 	MWh, ton, monetary value
<ul style="list-style-type: none"> • labor 	Hours per year
Output	
<ul style="list-style-type: none"> • primary products (structural timber, cladding, flooring, ...) 	Yes/no answers and volume
<ul style="list-style-type: none"> • secondary products (pallets, pellets, woodchips, ...) 	Yes/no answers and volume
<ul style="list-style-type: none"> • energy 	Volume, MWh, market/sales value

With those data, FCBA will be able to make the different analysis described below.

First of all, it is necessary to have a graph with the volumes (timber and sawn wood) received for the entire panel of sawmill in order to check the consistency and the scope of the data.

Another mandatory graph is the volume received at sawmill compared to the volume of primary products: curve must be linear.

Then it is possible to compare the volume received and the yearly consumption of electrical energy for each mill. As for the previous graph, the curve should be linear.

After this simple verification, the next task is to find possible indicators to sort the sawmills into comparable groups. A graph will show relation between electricity consumption per unit of received volume at each mill depending on wood species (softwood/hardwood) or depending on the average of dried wood (less than 30%, between 30 and 75%, more than 75%). For primary products, the electricity consumption per unit of primary product depending on the wood species and the average of dried wood will be analysed.

FCBA will also try to find a relationship with a notion of “wood productivity” (as an indication of the level of transformation of the product):

$$\text{Wood productivity} = \frac{\text{volume of primary products}}{\text{volume of timber+sawn wood received}}$$

A target should be to find a relation between wood productivity and electricity consumption:

- basic products with low transformations (and not dried) should have high productivity and low electricity consumption,
- highly processed products with many transformations should have low productivity and high electricity consumption.

Statistical analysis: a statistical analysis determines which variables are the most capable of explaining the energy consumption (per m³ of product). The methodology that will be used is a regression analysis with a stepwise method to select explicative variables. At each step, variables are added one by one to the model to determine if the variable is significant (significance level is set to 0.15). After a variable is added, the stepwise methodology analyses all variables already included in the model and delete those that are not significant anymore. The stepwise process ends when none of the variables outside the model can be considered as significant. The analysis is programmed using REG procedure of SAS® Software.

The tested variables will be:

- volume of round wood received at the mill (in cubic meters),
- volume of sawn-timber received at the mill (in cubic meters),
- total volume of wood (round wood and sawn-timber) received at the mill (in cubic meters),
- the share of the sawn-timber production which is kiln dried (in percentage),
- volume of primary product (in cubic meters),
- part of kiln-dried wood (in percentage),
- conversion factor, or yield, which is the ratio between two wood-based volumes: the end products and the round wood received at the mill.

Whenever a relevant variable is identified, the analysis is pushed further to determine a typology with groups of sawmills sharing similar characteristics. Within each type, the mean value is determined and boundaries (within the panel) are also described: the highest and the lowest value.

Figure 4: example of a decision tree to affect sawmill to a group

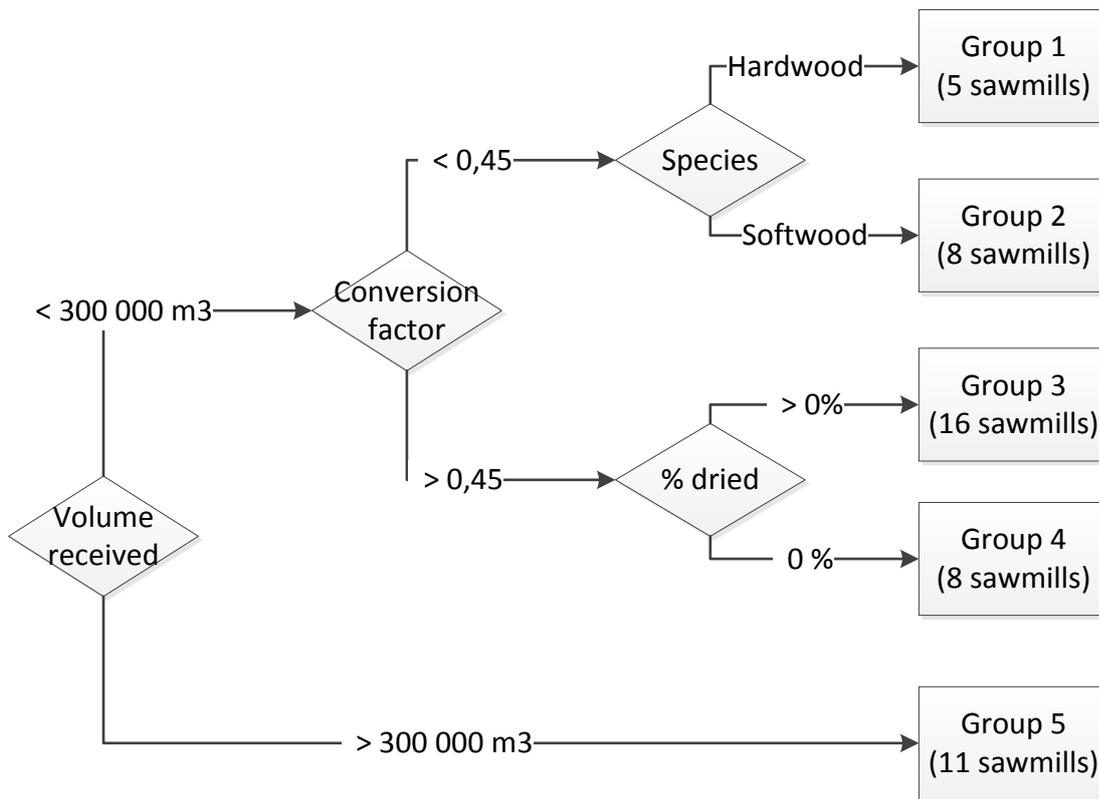
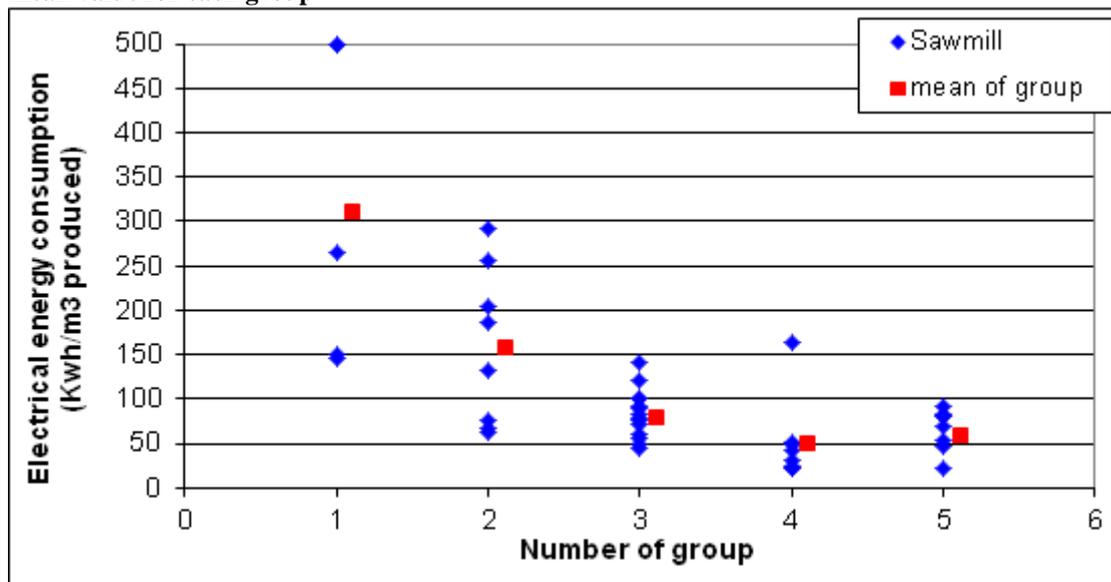


Figure 5 show a plot representing the different groups that will be determined.

Figure 5: electricity consumption per unit of product (Kwh/m3) for each mill in the different groups and mean value for each group



Reporting has partially begun in the sense that the companies always expect short term feedback when they agree to host data collection such as the one done here for the benchmarking. It started with direct dialogue during the visit of the company and could be formalized later on in a dedicated document, depending on the research partner's priority and agreement with the panellists.

For example, in France, FCBA promised the volunteers they would receive a report within a month after the visit. Such feedback was therefore provided, so that the companies would have material to consider between their visit and the result of the benchmark some months later (6 months can seem long from a sawmiller point of view). The individual reports summarize energy information collected on site, good energy-related behaviours noticed in sawmills, obvious improvement leads observed by the interviewer (e.g. insulation problem in a kiln, leakage of compressed-air, etc.) and general energy-related recommendations.

The impact of the reporting will be greater once the whole panel has been analysed and benchmarked. The reporting will also target the entire European sawmilling sector, not only the ECOINFLOW volunteers.

9 Conclusion

The collaborative work of the research partners enabled the design of a sawmill-dedicated energy efficiency benchmarking methodology. Feedback from the companies involved and project partners supports the implementation and continuous improvement.

The next steps are known and properly anticipated, hence meeting the objectives of the ECOINFLOW project. Results will be presented in up-coming deliverables.

List of Appendixes

1. Qualitative questionnaire used for the visits at the sawmills
2. Instructions for the database

References

NF EN 16231 Energy efficiency benchmarking methodology – November 2012

BESS & Expanding BESS projects : www.bess-project.info

FOUNDRYBENCH : Foundry Energy Efficiency Benchmarking : www.foundrybench.fi

Appendix n° 1: Qualitative questionnaire

<p>1. Management de l'énergie dans l'entreprise : cadre général General questions about energy management in the sawmill</p> <p>Etes-vous familier avec la notion d'EMS : système de management énergétique ? Have you ever heard about EMS (Energy Management System)?</p> <p>Avez-vous un EMS pour la scierie ? Ou songez vous à en mettre un en place ? If yes: Do you have one for the sawmill ? Or do you plan on creating an EMS for the sawmill ?</p> <p>Si oui, votre EMS est-il certifié ? Où envisagez-vous de le faire reconnaître en le certifiant ? If you do : is your EMS certificated ? Or do you plan on certifying it ?</p> <p>Votre entreprise a-t-elle une certification de type ISO 14 001 ou ISO 50 001 ? Avez-vous fait faire un bilan carbone ? Où est-ce en cours ? Is your company involved in a certification scheme (ISO 14.001 or 50.001), a product LCA/EPD or any such approach ?</p> <p>Et si oui, avez-vous mené une réflexion sur l'énergie à cette occasion et comment ? If yes, how did you include Energy in the approach ?</p> <p>Si non, pouvez-vous nous dire pourquoi (manque de temps ou de ressource, pas d'incitation réglementaire, pas d'aide financière....) ? If Energy was left out of the discussion, could you explain what prevented you from including it (lack of time, economic, lack of incentive...)?</p> <p>Quels pourraient être les freins à la mise en place d'un système de management énergétique dans votre entreprise ? What could prevent your sawmill from setting up an EMS or acting towards a reduced energy consumption ?</p>
<p>2. Vous avez mis en place une ou plusieurs actions pour réduire la consommation énergétique de l'entreprise Questions for sawmills who HAVE TRIED to reduce their energy consumption through specific actions/changes</p> <p>Vous nous avez dit faire attention à votre consommation énergétique. Comment vous y prenez-vous pour gérer ce facteur ? Constatez-vous des résultats depuis que vous avez accru votre niveau de vigilance ? Do you monitor your own energy consumption? How do you manage it? What results do you have since you've started paying more attention ?</p> <p>Une action (même déclenchée initialement pour un autre motif) vous a-t-elle permis de constater une réduction de la consommation d'énergie sur une machine, un poste de manutention ou autre ? Si oui, Pouvez-vous nous présenter cette action et nous indiquer l'équilibre coûts/bénéfices qu'elle a représenté pour la scierie ? Have you implemented any action (even very simple) which altered the energy consumption of an equipment or a process ? If so, you explain what choice you made and how the benefits balanced the costs ?</p> <p>Ligne de production : sciage, moteurs, air comprimé, séchage, valeur ajoutée... 'Production : Sawing line, planing, drying, air compressor...</p> <p>Manutention (engins, convoyage...) 'Material handling (truck, crane, conveyor)</p> <p>Environnement de travail : chauffage, air conditionné, éclairage, aspiration des poussières... 'Ambiant condition (air conditioning, heating, ventilation, dust extraction, light)?</p> <p>Qu'est-ce qui vous a incité au départ à mener cette action ? (raisons économiques, gain matière, productivité, qualité, demande clients...) What were your incentives to perform this action, at the first place ? (economy, quality, internal or external requests, ...)</p> <p>Avant votre projet d'investissement, avez-vous réalisé une étude de faisabilité ? A posteriori, les objectifs ont-ils été atteints ? Did you perform a full feasibility study before launching the action? If yes, did you achieve your objectives?</p> <p>Comment cette action, cette nouvelle organisation a-t-elle impacté votre entreprise, en termes de ... production, organisation, sécurité en plus de votre consommation énergétique ? How did this action impact your production, organization, regulation, security, apart from your energy bill?</p>
<p>3. A priori, vous n'avez pas (encore) mis en place d'actions pour réduire votre consommation d'énergie Questions to the sawmill who HAVE NOT YET taken any specific action in regard to Energy</p> <p>Avez-vous déjà mené une réflexion autour de l'énergie dans la scierie ? Do plans for actions or plant revisions exist?</p> <p>Si oui, quels ont été les freins à la mise en place d'une action visant à réduire la consommation d'énergie de l'entreprise ? If yes, what prevented the sawmill from acting on it ?</p> <p>Quels seraient les leviers qui vous aideraient à mettre en place de telles actions ? What kind of incentive could help your sawmill to set up an EMS or act towards a reduced energy consumption ?</p>
<p>4. Vous avez des projets pour réduire la consommation énergétique de l'entreprise Plans for the future ?</p> <p>Avez-vous des projets de modernisation de la scierie ? Are there any investment planned in the future ?</p> <p>Si oui, prévoyez-vous un changement au niveau de la consommation énergétique ? and if so, may it change the energy consumption of the sawmill ? And how do you plan to take that into account</p> <p>Rencontrez-vous des freins à cette mise en place ? Are you facing any difficulties in that perspective (economy, regulation or organisation) ?</p>

Appendix n° 2: Instructions for the database

"Read me" folder.

Please read the basic instructions on HOW TO USE THIS DATABASE

GENERAL PRINCIPLES

- * Every entry in the Database should be associated with the company Identifier [Company_ID]
- * Each company has its own Identifier which is determined by the Institute responsible for the data collection in the Company
- * You can fill in as many comments as you wish in the "Comment" cells. Those comments should at least be written in English but national languages can be used in complement if needed

IN THE DIFFERENT FOLDERS

Folder "COMPANY" :

- * this part of the DataBase corresponds to the questions asked in the "Introductory questions to sawmills" questionnaire
- * there should be 1 company per column

Folder "PROCESS" :

- * this part of the DataBase corresponds to the different Inputs and Outputs identified in each process
 - * for a given company there should be as many rows as there are processes and inputs and outputs for each process
 - * Inputs or Outputs should be identified even if they could not be quantified during the visit
- NB : Inputs and Outputs can be : Measured, Estimated, Not quantified or Confidential

Folder "MATERIAL" :

- * this part of the DataBase corresponds to the different machineries & material present onsite - excluding Kiln and Boiler
 - * for a given company there should be as many rows as there are materials
 - * Each material should be given a number [Mat_Num]
- NB : Consumptions can be : Measured, Estimated, Not quantified or Confidential

Folder "KILN" :

- * this part of the DataBase corresponds to data collected on KILNS during the visit of the company
- * for a given company there should be as many columns as there are kilns. Even if several kilns are identical you should create as many columns
- * Each kiln should be given a number [kiln_num]
- * Don't fill in information if none was collected during the visit BUT you can enter "Unknown" if necessary

Folder "BOILER" :

- * this part of the DataBase corresponds to data collected on BOILERS during the visit of the company
- * for a given company there should be as many columns as there are boilers. Even if several boilers are identical you should create as many columns
- * Each boiler should be given a number [Boil_num]
- * Don't fill in information if none was collected during the visit BUT you can enter "Unknown" if necessary