



Co-funded by the Intelligent Energy Europe
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Deliverable 5.5

**Communication material about the EnMS
full scaled technical paper for the professionals**

EMSPI: Energy Management Standardization in Printing Industry



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COMMUNICATION MATERIALS ABOUT THE ENMS (EXTRA D5.5)

The main topic of the EMSPI project is and always will be the creation of a tailor made energy management system for the creative industries. This can be seen as one of the main goals. Therefore, all partners will put most of their efforts into this field (the yellow balloon: EnMS). But as we know that every person is driven by different motivators, we also believe that it will strengthen our project when we focus on topics that are related in some way to the EnMS. In this project we will therefore focus also on 'Quality control issues', 'Cost monitoring' and 'Environmental indicators'.

EMSPI will create an EnMS, which makes a direct connection with other management topics to motivate the managers enough that they empower the project even more.

In this chapter one can find all the relevant communication materials about the **EnMS itself**, following the logical step-by-step approach mentioned in the introduction of this document.

The leading role for creating this part of the project is: KVGDC (1.1 + 1.2 + 1.3) and FACTOR CO2 (1.4)

The full scaled technical paper for the professionals: 4 till 10 A4

Title: **Energy Management or how to face competitiveness in today's market**

These days, there are still too many business owners that do not consider energy costs to be 'real' company costs. This is even more remarkable when the current difficult financial position of many SME's is taken into account. What self-respecting entrepreneur would not be interested in reducing cost? Consider the increasing price of energy and regulatory pressure from Brussels and national governments. Entrepreneurs with an active cost reduction policy will not be eager to say that they have no money available for energy saving measures. By approaching the 'energy use' problem with financial pragmatism it is quite possible to achieve 10% energy reduction with simple technical adjustments. We'll go even further: based on practical experience in the sector we know that the saving potential for those SME's that yet have taken little action is up to 30%! A keen eye for energy savings means tight cost control. Be honest: which part of your company do you think can achieve such an increase? Our advice: make haste with energy management.

Along last years, the management systems have been worldwide implemented mainly in quality and environmental issues through the families of standards ISO 9001 and ISO 14000.

When an organization wishes to improve its energy performance in a systematic approach, a nice way to achieve it is implementing an Energy Management System (EnMS).

It is not, at all, a new concept. The organizations that are more sensible about energy issues – on account of its high energy consumption, the lack of energy in its location or conscious about climate change – have been managing for decades their energy consumption in order to increase their energy performance. The novelty is that now is available an international standard known as ISO 50001 that ease the implementation of an EnMS in any organization.

To enhance the performance of our sector, a custom energy management system (ISO 50001) has been developed that is practical for any company, including SMEs. For those that are

starting with this topic a BASIC version has been created, for more advanced companies a FULL version can be used.

The aim of this article is to provide an overview of the EnMS structure based on ISO 50001, as an introduction text to encourage the reader to go in deep about this methodology.

Working on energy management is not for the soft – it's today's business.

This custom energy management system has been developed for several objectives:

- Support companies with setting up energy efficiency projects, making feasibility studies, financial analyses, applying for financial resources
- Support technical experts with specific tools on energy auditing, checklists for energy management, guidelines for energy management systems, monitoring and targeting, measurement and verification of energy efficiency projects
- Support for energy managers, company management into getting to know the basics of energy management
- Inform company management that energy management should be an integral part of company management. Energy management should become a priority for everyone within the company.
- Implement ISO energy management standards into all sections of company management.

There are a number of reasons to develop an energy management system:

- Reducing energy costs, as there is a potential of reducing them in almost every company. It also allows firms to be prepared for rising energy costs.
- Fulfil legal obligations in the field of energy efficiency and environmental safety.
- Improving working and production conditions
- Increasing market value of building in which the firm is located
- Improve company image, especially if implementation of energy management system is properly certified
- Increasing product quality
- Improving competitiveness by decreasing production costs
- Increasing safety

Companies' clients are increasingly asking about quality and sustainability. These subjects are an integral part of being an entrepreneur.

Quality management is something that is a little easier for the sector. It is a topic that every entrepreneur should have embedded in their genes. How else can a product or service be delivered and meet customer's requirements? Minimal costs and proper selling price are the other parts of the equation that determine the *Profit* of the organization.

Sustainability however is a much broader concept and involves many parts of entrepreneurship. The best known aspect is Environmental Management (*Planet*). Sustainable entrepreneurship also includes aspects such as safety and human resource management (*People*). People make the difference because people perform better when they are motivated.

Does this mean we've now covered all our bases concerning sustainability? It turns out that proper care for energy use is a neglected topic.

Energy management is an aspect of sustainable entrepreneurship (or sustainable production) that still receives too little attention. Most companies think that energy is a part of environmental management – and many textbooks agree. Energy - like soil, water and air – is a relevant environmental topic for companies. It turns out that ‘energy’ is the topic that receives the least attention. Of course you now want to know why this is so.

The reason is a fairly simple one: all the other environmental topics deal with immediately visible substances. Energy is much less visible and therefore not perceived by many of its users. This is also why many boards and management teams are not concerned with energy management. They cannot see it, and as a result it does not become part of strategic company policy. From a business economist’s point of view this is an error as forgetting to reduce cost in this area means failing to maximize company result (= profit).

Profit can only be improved in two ways: higher sales (price) or lower costs. Strategic Marketing addresses the first issue; ISO management systems and lean (six sigma) are all about the second approach. Every manager should do their utmost to improve both aspects. Is this too much to ask?

Renowned institutes such as MIT/Sloan, The Boston Consultancy Group and McKinsey have repeatedly stressed that world class companies no longer regard ‘environment and energy’ as fashionable but as serious management topics. Companies are being led based on the elimination of potential business risk. Every entrepreneur wishes to know the risks the company is exposed to. This is common sense, as no sensible corporate strategy can be devised without this knowledge.

Energy and reduction of its use are seen as serious risks by the top companies due to the global issues of resource depletion and increasing energy costs. This is why more directors are increasing their focus on energy consumption, energy price and total energy costs. Companies cannot afford cost leaks. Through systematic attention to energy reduction and energy suppliers (and their pricing) it is quite possible to achieve costs reductions.

From this perspective it is incredible that many companies do not consider energy use as a cost. A change is coming however: earlier national and EU research projects (1996-2009) showed that SMEs can achieve 10% to 20% reduction fairly easily, increasing up to 30%. Just by taking energy management as a part of daily company policy.

The EU energy reduction project called EMSPI has a positive outlook when it considers the results of these earlier projects. But in order to achieve this increased efficiency one will have to start working with energy systematically. This is why a custom system is made for the graphic media industry that will allow SMEs this systematic approach towards energy reduction. This project is made possible by funds from the Intelligent Energy Europe Programme (IEE).

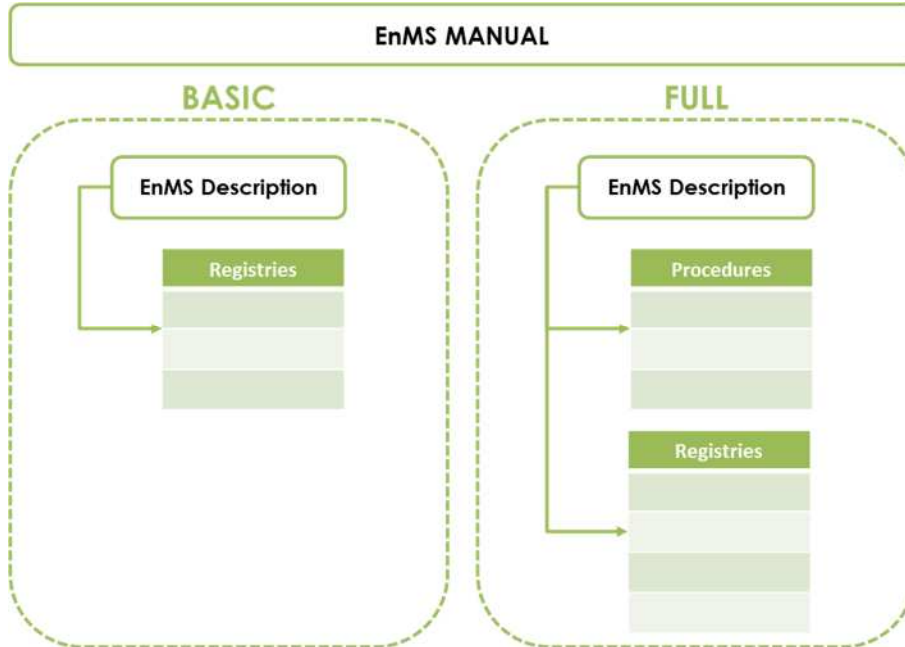
With clearly set business goals every employee can effectively adjust their behavior and save energy. This is the only way that a company can achieve the best result. Introducing an energy management system will help greatly. The results can be amazing: up to 30% energy reduction within 5 years!

As stated before, for the companies that yet have to make a start with energy management we offer a BASIC version. Companies that have already made steps and that may also have a quality or environmental management system can benefit from our FULL version.

In the end, the result will be energy reduction, CO₂ emissions reduction, a decrease in the greenhouse effect and maximal profit. The environment and company results go hand-in-hand. It does not get any better – and it does get easier.

The main characteristics of the custom EnMS are presented below:

Structure



6. Options

The organizations interested in Energy Management Systems can choose one of these two options:

- **“Basic”:**
Designed as a first step in EnMS. For organizations that cannot develop all the requirements of the standard.
- **“Full”:**
Leading to a complete implementation of the EnMS, assuming all the requirements of the ISO 50001 standard. For highly committed organizations.

7. Procedures & Registries list

The scope of each EnMS option is defined considering the selection of elements listed below.

EnMS element	Basic	Full	Description
4.1	X	X	System description of EnMS / handbook (shared with 4.5.4.1.)
4.3 g	X	X	How to determine Energy policy
4.3 h		X	The current Energy policy
4.4.1	Check yearly a measure list	X	How to do the Energy planning process

EnMS element	Basic	Full	Description
4.4.2	Add it to the measure list	X	Inventory of Legal and other requirements (last line)
4.4.3 a	X	X	Criteria and methodology for performing Energy review (4.4.3). 4.4.3a – Analyse energy use and consumption
4.4.3 b	X	X	Results of the Energy review and updates thereof (4.4.3).
4.4.3 c	X	X	Discovered opportunities for improving energy performance
4.4.4		X	Established Energy baselines for the own organization
4.4.5		X	Methodology for determining and updating Energy Performance Indicators (EnPIs) for the own organization
4.4.5		X	EnPIs reviewed and compared with energy baseline
4.4.6	X	X	Energy management action plan and keeping it updated
4.4.6		X	Current Energy objectives and targets
4.4.6		X	Detailed energy objectives and targets at relevant functions
4.5.2		X	List of competence, education, training, skills and experience
4.5.2		X	Trainings provided and other actions taken to meet the needs of competence
4.5.3	Simplified	X	The formal decision to communicate externally about an organization's energy policy, EnMS, energy performance
4.5.3		X	The standard methodology for external communication
4.5.4.1	X	X	System description of EnMS / handbook (shared with 4.1.)
4.5.4.2		X	Document controls of the EnMS documents
4.5.4.2		X	EnMS Documents with correct versions
4.5.5		X	Operational control
4.5.6		X	Results of the design activities
4.5.7		X	Document with internal energy purchasing specifications
4.6.1		X	Energy monitoring plan
4.6.1	Only purchase level	X	Results from monitoring and measurements of key characteristics

EnMS element	Basic	Full	Description
4.6.1		X	Records of calibration (and other means of establishing accuracy and repeatability) of equipment used for monitoring, and measuring key characteristics of its operation
4.6.1	X	X	Records of activities carried out when “significant deviations in energy performance” are encountered.
4.6.1		X	Review detailed measurements needs to achieve control
4.6.2		X	Results of the evaluations of compliance with, and changes in, legal and other requirements
4.6.3		X	Audit plans and schedules for Internal audits
4.6.3	Checklist with annual saving possibilities	X	Internal audit results
4.6.4		X	List of corrective and preventive actions
4.6.4		X	Reviewing the effectiveness of corrective and preventive action
4.7	Checking yearly consumption and measure list	X	Organization’s EnMS (management review)

8. EnMS description

“Basic” version:

The document is an editable template, therefore the company details can be added.

Is a brief document (10-15 pages) containing all the information needed to handle the EnMS, except the registry forms, which are linked in the text.

“Full” version:

The document is an editable template, therefore the company details can be added.

Is a brief document (10-15 pages) containing most of the information needed to handle the EnMS. The text links to the procedures (to add detailed description when it is needed) and to the registry forms.

In both sections, there is a list of energy performance indicators for printing companies. The suitability of the recommended indicators are all rated according to a scale such as de one presented below:

High
Good
Acceptable

In the documents, the methods for defining the energy baseline and advanced indicator analysis is described.

9. Procedures

Only available for the “Full” version. A procedure is used to describe in detail a specific and advanced task.

10. EnMS Manual

The manual is a reference document, easy to read and easy to understand. The content of the manual covers all the subjects of the EnMS. The manual includes examples, comments, figures, links and references.

In the end, the ISO 50001 standard is based on the concept of continuous improvement. It is not sufficient to just implement energy management once. Constant improvement, renewal and checks form the indispensable basis.

The procedure is based in a model called PDCA. PDCA stands for: Plan – Do – Check – Act. A tentative structure of this model is presented in the following graph.



- a. **PLAN** – including the following steps:
- i. Defining resources, roles and responsibilities
 - ii. Review the current status of consumption, costs and production figures of energy
 - iii. Processing and documenting the collected data

- iv. Making an overview of legal obligations
 - v. Defining energy objectives and targets
 - vi. Formulating an energy (management) programme and action plan
- b. **DO** – the implementation of an energy programme
- i. Securing the necessary resources for implementing the Energy Management System (EnMS) and establishing an action plan
 - ii. Raising and building awareness within the company
 - iii. Training the employees
 - iv. Communication of the EnMS (internal communication necessary, probably also external communication, e.g. to clients)
 - v. Documentation of the EnMS and maintaining an energy savings register
 - vi. Operational control of all the relevant processes influencing energy consumption, including acquisition, purchase and maintenance
- c. **CHECK & ACT** – check if all energy objectives and targets have been achieved and if necessary, undertake corrective actions
- i. Monitoring and measurement of the results
 - ii. Reviewing compliance with legal obligations
 - iii. In case of nonconformity undertake corrective and preventive action
 - iv. Planning and structuring records
 - v. Internal audits
 - vi. Review by top management

Summarizing, an EnMS is a powerful tool available for the organizations interested in improving the energy performance.

- The structure of the EnMS based on ISO 50001 leads to continuous improvement according to the *Plan – Do – Check – Act* scheme.
- The EnMS implementation provides a commitment about energy issues, deep knowledge of the energy performance and a strategy to improve it.
- A correct implementation of the EnMS according to ISO 50001 ensures its proper operation through the checking procedures and the management review.

Once the EnMS based on ISO 50001 has been introduced, all the organizations interested in this kind of energy performance improvement can acquire deeper information through the EMSPI project.

More information

EMSPI

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