



## Promotion of Energy Management Practices in the Textile Industries of Greece, Portugal, Spain and Bulgaria – EMS Textile SIGMA Consultants Ltd - Greece

### Summary

The EMS-TEXTILE project aims to promote energy management practices mainly to the textile industries of Greece, Portugal, Spain and Bulgaria. The proposed energy management practices are based on previous experience from successful environmental and energy management applications throughout the world. Through collaborative processes between project partners and potential end users, energy audit and benchmarking tools and energy management supportive publications are developed and disseminated. Supportive activities of the project include the creation of a multinational experience exchange network, the institution of Help-Line desks, the elaboration of training seminars and pilot implementations. Dissemination activities include the organisation of informative workshops, the publication of articles, the distribution of leaflets and the presentation of the project results at national and EU events. In general EMS-Textile provides the necessary tools and elaborates combined actions for their implementation. All deliverables, activities, contact details and news of the project are available at [www.ems-textile.net](http://www.ems-textile.net).

The project's total budget was 600.000 € and was co-financed (50%) by the Intelligent Energy Europe Programme (Contract number: EIE/04/113/S07.38648).

#### End-user area

- New buildings
- Refurbishment of buildings
- Transport and mobility
- Financial instruments
- Industry
- Legal initiatives (regulations, directives, etc)
- Planning issues
- Sustainable communities
- User behaviour
- Education
- Other

#### Target Audience

- Citizens
- Households
- Property owners
- Schools and universities
- Decision makers
- Local and regional authorities
- Transport companies
- Utilities
- ESCOs
- Architects and engineers
- Financial institutions
- Other

#### Technical

- Energy efficiency
- Heating
- Cooling
- Appliances
- Lighting
- CHP
- District Heating
- Solar energy
- Biomass
- Wind
- Geothermal
- Hydro power
- Other

### Context

The ultimate scope of the project is the improvement of energy efficiency in the textile industries of Greece, Portugal and Spain. This goal is to be achieved by the elaboration of concerted actions for the development and introduction of energy management practices to the industrial units. It is well known that a sophisticated energy management system can reduce energy consumption by 10 to 15 %. The broad adoption of energy management practices: contributes to the common effort towards sustainable development, improves energy efficiency in industrial production and helps in meeting the Kyoto objectives. The reasons for the implementation of the EMS-Textile project could be summarised as follows:

- Lack of information of textile industries key actors about Energy Management Systems and the Energy Efficiency Practices.
- Small number of enterprises that adopt Energy Management Systems, energy monitoring and targeting procedures.
- Implementation of Good Practices developed in the project.
- Contribution to energy conservation on both national and EU level.
- Strengthening of the competitiveness of the textile industries of the Northern Mediterranean Territory.



## Objectives

The main objective of the EMS-Textile project is the promotion of energy management practices to the textile industries of Greece, Portugal, Spain and Bulgaria. The energy management system that was developed was based on the accumulated know how and experience from environmental and energy management applications and was tailored for the specific needs and characteristics of typical Small Medium size Enterprises (SMEs). The proposed energy management practices were implemented in the energy field of the textile companies aiming though to be adopted from companies of other sectors as well, via the motivation of the enhancement of efficiency and competitiveness. An appropriate energy audit methodology for the textile sector was developed and a supportive Energy Audit Tool was prepared. Special energy consumption data from various countries from all around the world were collected for the creation of a Benchmarking Report and the respective Benchmarking Tool both of which can be used for the energy performance evaluation of the textile companies. Pilot energy audits were conducted, three in each participating country, according to the EMS-Textile audit methodology. Energy conservation and efficiency measures were recommended for the energy intensive textile operations, exploiting all the accumulated know how on EU and global level. In general every action and output of the EMS-Textile project was designed and elaborated or produced considering the respective state of the art and success stories on global level.

## Process

The project was elaborated in the following Work Packages:

### Work Package 1 – Project Management Actions

The actions of the project management Work package are divided in to two categories. The first one is about the project preparation activities whereas the second one is about the continuous communication and co-ordination activities among the partners and the reporting to the Intelligent Energy Executive Agency.

### Work Package 2 – Energy Management Practices

The objective of the current phase was the determination of good energy management practices based on state of the art know-how and experience. The study of the energy management systems through the review process outlined the methodology and purpose of the **Energy Management Standard** proposed by the EMS – Textile project. After the completion of the recommended standard the development of the **Energy Management Guidelines** began in order to facilitate its implementation. The recommended practices were selected from other relative guides and tailored to the needs and characteristics of typical industrial SME's of the participating countries.

### Work Package 3 – Energy Management Tools

An **Energy Audit Tool** for the collection and analysis of existing energy consumption data from accounts and meters was developed. The tool provides a general indicative approach and can be modified easily according to the site's special requirements. It was developed in excel format in order to facilitate modifications and calculations. Further more an **Energy Efficiency Practices Issue** was compiled, including energy conservation measures for the textile processes.

### Work Package 4 – Supportive Structures

The objective of the fourth work package was the support of the promotion of the **Energy Management Practices and Tools**, recommended by the project. Within this framework four **Textile Energy Offices (TEO) - Help Desks** were established during January 2006. In the beginning of 2006 the **Energy Efficiency Network (EEN)** was formed consisting of 200 stakeholders, 50 from each participating country.

**Informative Leaflets** in all languages plus English were produced and distributed. **Informative Workshops** were conducted in the four participating countries.

### Work Package 5 – Energy Management Training

The objective of work package 5 was the provision of energy management and energy efficiency training to technical professionals that are associated with the textile sector of all participating countries.



### Work Package 6 – Pilot Implementations

The objective of this phase was the realization of **Pilot implementations** of the proposed energy management practices in all participating countries, in order to review the proposed methods and demonstrate their benefits to stakeholders.

### Work Package 7 – Project Results Exploitation

Work package 7 was elaborated for the exploitation of the project's results. The conclusions from the experience exchange between project partners and the members of the Energy Efficiency Network (EEN) were gathered in the respective **Experience Exchange Conclusions Report**. An **Action Plan** for the future operation and sustainability of the Textile Energy Offices (TEOs) was prepared as well. More over a **Project Evaluation Report** was prepared in order to review and evaluate the project's implementation success.

### Work Package 8 – Dissemination Actions

The wide promotion of the objectives and outcomes of the current project was ensured via the realization of Work Package 8, which included Press publications, presentations in energy/environmental conferences and textile exhibitions, distribution of informative material, Creation of relative website, dissemination of results to other European states.

The main difficulty encountered was the initial reluctance of the industrial companies to implement integrated energy management practices. It was confronted via detailed presentation of implemented systems and documented presentation of the advantages of such systems.

### Financial resources and partners

The EMS-Textile project was organized and elaborated via the cooperation of the following participating organizations:

1. **SIGMA Consultants Ltd (SIGMA):** Beneficiary (Greece)
2. **HELLENIC FASHION INDUSTRY ASSOCIATION (SEPEE):** Associated Beneficiary (Greece)
3. **CENTRO TECHNOLOGICO DES INDUSTRIAS TEXTILE E DO VESTUARIO (CITEVE):** Associated Beneficiary (Portugal)
4. **ASOCIACION DE LA INVESTIGACION DE LA INDUSTRIA TEXTIL (AITEX):** Associated Beneficiary (Spain)
5. **BULGARIAN ASSOCIATION OF APPAREL AND TEXTILE PRODUCERS AND EXPORTERS (AATEB):** Associated Beneficiary (Bulgaria)
6. **BLACK SEA REGIONAL ENERGY CENTRE (BSREC):** Associated Beneficiary (Bulgaria)

The project's overall cost was 600.000 € whereas the contribution of the Intelligent Energy Program was nearly 300.000 €

### Results

- Development of an energy audit methodology and relevant tools, customized on the textile sector.
- Operation of Textile Energy Efficiency Offices at four participating countries that will continue providing technical consulting support to the textile enterprises even after the project's completion.
- Promotion of the concept of energy saving and management at a wide range of textile industries and interested parties.
- Development of Energy Management Standard, based on internationally accepted Standards i.e. ISO 14001:2004 – EMAS Regulation, applicable to all enterprises.
- Implementation of Energy management systems at textile companies, one at each participating country, adopting the methodologies, techniques and measures proposed – developed within the current project.



- Information of key executives of industrial enterprises about the practices and benefits of good energy management. Many of them gained extensive knowledge on the issue aiming to implement an important part of the recommended practices to their companies.

## Lessons learned and repeatability

After the completion of the EMS-Textile project, the conclusions that derive from its realization can be summarized as follows:

- Many industries in European Union have already undertaken energy efficiency investments, but the improvement of energy management is not among their priorities in many cases because they are not aware of its benefits and practices.
- The benchmarking research conducted at the participating countries of the EMS-Textile project showed that energy performance was similar in Greek, Spanish and Portuguese enterprises, while Bulgarian companies presented lower performance due to the use of older equipment and production techniques.
- Real management commitment is the key for the successful implementation of energy management. It is expressed via the allocation of adequate financial and human resources and not just by written policies.
- Many textile companies are reluctant to implement energy management because their financial situation has worsened view of competition from low cost Asian rivals.
- In countries where some minimum energy management practices were enforced by law (Portugal) results were positive, but this option should be used wisely in order not to create unnecessary burdens on companies. A lot of companies are willing to elaborate energy conservation or renewable energy investments when respective grants exist. Financial incentives and Third Party Financing are additional options that can be used in combination with other supportive measures. Experience from the funding of energy efficiency and RES investments is very positive.
- It seems that legislation can contribute to the achievement of energy efficiency. Approaches like the SEVESO directive, which forces companies above certain thresholds to implement safety management practices, or other laws that force certain chemical companies to implement environmental management, can be a solution. In our case companies above certain annual energy consumption could be forced to implement energy management.
- The application of energy management in a company has additional indirect benefits, such as improvement of management and regulatory compliance, increased internal communication and greater staff involvement, application of good practices in everyday life, together with an improved corporate social profile and relations with public authorities and other stakeholders
- Various energy management schemes have been implemented in Europe for decades. Some of them focus on energy audits, others on monitoring and targeting, and others on personnel training and sensitization. More integrated approaches follow the Plan – Do – Check – Act cycle and are quite similar to ISO 14001. Currently the most popular and promising trend is energy performance benchmarking, which presents difficulties due to the lack of precise, analytical and valid data.
- Although the average 1.5% of annual energy conservation, due to good energy management, may appear small, nevertheless it can climb up to an accumulative conservation of about 15%, after 10 years of continuous implementation. Furthermore clear task assignment, good internal communication, personnel involvement and close energy use monitoring, improve significantly the whole management of a company. These issues have already been outlined during the EMS-Textile project and in its informative activities.
- The fluctuating high fuel prices and global warming are problems that indicate the significance of Energy Conservation and Management. However, the intensive economic competition and the lack of financial and human resources in many companies, make it more difficult. In this controversial environment, all key actors and stakeholders should try to contribute as much as they can in energy efficiency. Now the need of cooperation between EU and state officials, energy specialized companies and industrial enterprises, appears more important than ever.



**Contact for more information:**

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