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Applying Energy Efficient measures for metal and metalworking SMEs and industry (EE-METAL)

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Abstract	This deliverable is the report gathering the most important topics and conclusions presented during the final conference of the program.

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Country	Name of meeting	Number of participants	Organisers	Date
Spain	Proyecto EE-METAL: logros obtenidos. Aplicación de medidas de eficiencia energética en la industria del metal	32	AECIM and AIN	30.01.2019 Madrid
Italy	Metodologie e strumenti per l'efficienza energetica delle industrie nel settore della lavorazione dei metalli. Il progetto europeo EE-Metal: risultati e prospettive	75	CSMT, AIB in cooperation with the Order of Engineers of Brescia	18.01.2019 Brescia
Poland	Zastosowanie energooszczędnych rozwiązań w MŚP przemysłu metalowo-maszynowego – konferencja podsumowująca	53	Agencja Użytkowania i Poszanowania Energii Sp. z o.o. and MP Polskie Kłustry Sp. z o.o. – METALIKA Metal Cluster Coordinator Patronage: Lodz Chamber of Industry and Commerce	17.01.2019 Łódź
France	Les technologies au service de la maîtrise énergétique dans l'industrie	74	MR in collaboration with CETIM and institut des ressources industrielles	18.12.2018 Lyon



In Spain, during the final event of EE-METAL project, AECIM and AIN presented to the 32 attendees (professionals and representatives of SMEs and large companies) the activities carried out during the three years of the project and the results achieved. By the other hand, ANESE (National Association of Energy Services Companies) and ENERGY EFFICIENCY CONTROLS (Energy Service Company) spoke about the **role of ESCOs** in the adoption of energy saving measures in SMEs.

As key points of the conference, the **results of the energy audits** carried out in the four European countries that participated in the project, the identification of the most relevant potential energy efficiency measures to the sector, and the types of contracts of energy services and financial products that enable their implementation.

During the event, it was presented also the successful cases of the activities carried out during the project:

The practical experience of the CROMADOS OREJA company, on the implementation of an energy management system **ISO 50001**, showing the methodology followed and focusing on the contributions of the implementation to the company.

And finally the implementation experience of an **Energy Monitoring System** in the INREGAL company, highlighting the potential benefits of its implementation and the possibilities of the system.

In Italy, CSMT and AIB presented to the 75 attendees (professionals and representative of SMEs and Large Companies) the activities carried out during the three years of the project and the results achieved.

Particular attention was paid to the results obtained from the 80 **energy audits**, to highlight the most necessary energy efficiency interventions in the SMEs of the metalworking sector.

A large part of the event was dedicated to the presentation of successful cases of the activities carried out during the project:

- One of the SMEs (Nord Zinc) where the energy audit was done shared its experience. The company, which has been engaged in energy efficiency actions for about 10 years, described how the audit conducted within the EE-METAL framework has allowed to highlight the possibilities of further improvements, linked to interventions often with low cost and short pay-back.
- One of the SMEs (Mori2A) which obtained the **ISO 50001** certification within the EE-METAL project explained how the implementation of an energy management system has had as main effect the increase of awareness of all the company staff, who has learned to manage and evaluate their daily work also in the perspective of energy efficiency.
- The provider of the **SCADA system** installed thanks to the EE-METAL project in a SME of the metal working (SBM-IRFI) sector illustrated in detail the functioning of a monitoring system of energy consumption, highlighting the potential benefits and the possible modes of operation.

The final part of the event was dedicated to a technical visit of the foundry which host the event, operating in developing, production and selling of brake discs and drums, castings and machined parts for the Automotive Market. During the visit the main **energy efficiency measures** made by the company in the last years were illustrated:



- Installation of an O.R.C plant for the recovery of the thermal waste from the exhaust furnace gas
- optimization of the combustion chamber burners of the cupola furnace
- introduction of domotics for thermoregulation
- replacement of the lighting system with LED technology
- installation of VSD technology and softstart on air extraction systems
- construction of a new compressed air production unit

In Poland, in the first part of conference, AUIPE presented the results of the project activities: the Common audit methodology for determining potential energy saving measures in SMEs of the MMA sector applicable at EU level, the Adaptation of the ISO 50001 standard in companies of the metalworking sector applicable at EU level and the Database of Best Available Techniques (BATs) applicable in the MMA sector.

Furthermore, the role of **energy audits** and results obtained from energy audits (AUIPE) were discussed and the Report on the potential energy saving measures in SMEs of the metalworking sector of Poland was showed. Also the most important energy efficiency measures were presented. One of the companies participating in the project (KUCA sp. z o.o.) shared its opinion on the implementation process of energy audits as well as possibilities and scope of using the audit results. They presented also the role of the identification and potential of reducing energy costs and their ways to reduce energy consumption.

During the conference, **energy-saving technologies** were presented. Luxon sp. z o.o. a pioneer and leader of the Polish LED market presented how the use of LED lighting can generate savings in energy consumption. Four case studies illustrating the cooperation process were discussed: from the analysis of needs to the modernization process, financing and obtained effects. The company Green Genius sp. z o.o. specializing in photovoltaics presented this technology, as well as an example of financing and achieved results. Then, the company Polska Efektywność Energetyczna sp. z o.o. presented energy-saving solutions on production. In the first place low-input activities were presented, e.g. appropriate selection of power or energy tariff, verification of the terms of the contract signed with the energy supplier, redesign of the production process, so as not to trigger another change of production workers. Next, energy-saving solutions related to expenditure were discussed, including automation of production processes, construction of a transformer station.

The results of research carried out under D5.1 "Overcoming technical and financial barriers" and main recommendations were presented by MPPK. In this context, the **suppliers of energy-saving solutions** and **SCADA** presented the methods of financing measures to reduce energy consumption. There is a large variety of financial tools here from the total takeover of investment costs by the supplier (Green Genius sp. z o.o.) to the full financial commitment of SMEs by offering only leasing (Luxon sp. z o.o.).

The experiences of companies participating in the implementation of **ISO 50001** (Elmot sp. z o.o.) and in the implementation of **EMS SCADA** (Meprozet Stare Kurowo sp. z o.o.) were presented.

It was presented how implementation of Energy Monitoring System (**EMS/SCADA**) helps Meprozet Stare Kurowo Sp. z o.o. to conduct current recognition and control of areas of significant energy use. The company showed how thanks to the EnMS, is able to follow the process of energy and heat consumption with all technical parameters in real time and how it allows them to effectively control the costs generated



in the area of acquiring and spending energy and heat in individual production segments. Both economic and environmental benefits of the energy monitoring system implementation were presented.

The economic and environmental benefits for Elmot Sp. z o.o. from the implementation of the energy management system were also presented. They described how involvement in the implementation of ISO helped them in achievement of strategic energy goals, how they are able to monitor the level of their achievement. Also motivating of the team and their engagement in the process of energy saving were described.

In addition, practical examples of the application of energy consumption monitoring were shown (FreeEn Sp. z o.o.) and the principles and benefits of the implementation of the energy management system ISO 50001 were explained (PCC-Cert Sp. z o.o Sp. k.).

In France, in the first part, it was presented the results of the EE-METAL program, with a focus on audit results, consumption items and energy saving sources, SCADA benefits, but also the role of ESCO's in financing the energy efficiency measures.

First of all, we underlined the **results of the audits** in France: in the 20 companies studied, the manufacturing process accounted for 52% of energy consumption, heating 25%, followed by lighting and compressed air at 8% each. These data clearly highlight the areas of progress that companies can have, as the production process and utilities are clearly the key levers for the metallurgy's energy performance. Following the audits, 110 recommendations have been established, from the implementation of LED lighting to the heat recovery of thermal processes or the setting up of variable speeds on the extractors, pumps, engines. And this, with a return on investment estimated at 2 years for 80% of the proposed improvements. The companies have been able to achieve in 4 to 50% savings on their bill in a few months, an average of 15%.

One of the most important **barrier** in implementing energy efficiency measures, the financial one, is due to fact that companies prefer to mobilize their investment capacity in their core business and not make an additional debt, by restricting their demand for credit, so as not to deteriorate their financial ratios (debt / equity ratio).

Furthermore, it was recalled how to measure and control consumption thanks to **SCADA systems** (energy monitoring). The provider invited to underline the benefits of these systems was Gulplug, who developed a solution that has a big advantage: simplicity and speed of the installation and use. The technology proposed is a kit with sensors that can be installed without any wiring or machine shutdown in less than 5 minutes. The participant agreed that SCADA systems are nowadays essential for all the energy efficiency measures.

An important focus was put on the lighting renovation projects by **LED technology**. The provider invited was Signify, who underlined the fact that the LED technology combined with sensors reduce energy costs by 70% instantly. The economic model "light as a service" proposed by this company is completely different by the classical models: the renovation projects are financed by energy savings, with an imediat cash flow, without any investment.

Other topics were related to the renewable energy or to the new technologies allowing energy savings:

- Solar energy
- Compressed air
- Ambience conditioning
- Energy recovery



The conference ended with BtoB meetings between industrialists and providers of technological or services solutions, in order to create opportunities for collaboration. For the preparation of these meetings, a catalog of solution providers was sent by email the day before the conference and also given to the participants the day of the conference. This brochure was a tool very appreciated by the SMEs. They have learned a lot about this new offer thanks to EE-METAL project.

The ESCOs play an important role in energy efficiency field, but the SMEs awareness on this role seems to be little for the moment. The big industrial companies in France have been collaborating with ESCO's since only one or two years. They are testing economic models and technical measures. The SMEs will be more targeted by ESCOs after the implementation of measures in the big companies. The economic models will be more mature and the solutions viability will be improved. EE-METAL project showed to the SMEs that different solutions exist and that these solutions are economically interesting. This is also why in France we have insisted in creating links between the SMEs and the ESCOs.