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Energy Management and Sustainable Manufacturing (EMSM) Project in factories of industrial organizations - A Methodology - Requirements

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Energy Management and Sustainable Manufacturing (EMSM) Project in factories of industrial organizations - A Methodology - Requirements

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Foreword

This CEN Workshop Agreement (CWA 18188:2025) has been developed in accordance with the CEN-CENELEC Guide 29 "CEN/CENELEC Workshop Agreements – A rapid way to standardization" and with the relevant provisions of CEN/CENELEC Internal Regulations – Part 2. It was approved by the CEN Workshop “A Methodology for the implementation of an Energy Management and Sustainable Manufacturing (EMSM) Project in factories”, the secretariat of which is held by Asociación Española de Normalización, UNE, consisting of representatives of interested parties on 2024-05-27, the constitution of which was supported by CEN following the public call for participation made on 2024-02-07. However, this CEN Workshop Agreement does not necessarily include all relevant stakeholders.

The final text of this CEN Workshop Agreement was provided to CEN for publication on 2025-03-31.

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The following organizations and individuals developed and approved this CEN Workshop Agreement:

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Introduction

Efficient management and the use of limited resources have always been one of society's goals.

Supplying resources in a safe, reliable, economical and environmentally friendly manner requires using them efficiently. This efficient use drive increase efficiency of industrial process and in turn can increase the sectorial competitiveness.

Current energy and environmental policy pursue three main objectives: to ensure security of supply (through energy savings and diversification of sources), to increase the competitiveness of economies, to promote sustainability and to fight climate change.

This CEN Workshop Agreement pretends to contribute to these objectives. It takes as a basis the work done in ECOFACT Project, which is a project through the European Horizon 2020 Research and Innovation Programme under Grant Agreement Nº 958373.

ECOFACT aims at enabling manufacturing industries to optimize the energy performance (3.10) of their production systems in line with their relevant production constraints (time and resources), while at the same time introducing a novel green marketing approach through the concept of energy and environmental signature of the manufactured products from a life-cycle perspective.

Within the Project a range of Key Performance Indicators (KPI) have been identified and will be used as a tool. A Key Performance Indicator is a parameter or a value derived from parameters, which provides information about performance. As such, indicators are essential for measuring and monitoring sustainable performance in manufacturing to improving Europe's competitiveness on world markets with better use of raw materials, natural resources and renewable energies.

Therefore, a selection of indicators has been made to lay the foundations for an evaluation of the fulfilment of the objectives.

These indicators have been selected from different sources of information ranging from academic and industry reports or sectoral analysis to standards that include the energy, environmental, and resource management. The most important and most widely applicable ones have been chosen from the work done in ECOFACT Project. Some others have been taken form the work done in E2COMATION Project and the contributions from the WS participants.

The chosen Key Performance Indicators (KPIs) comply with the SMARTER principle; that is, they are specific, measurable, achievable, realistic, and time-bound. They are:

— Specific: representative of the operations.

— Measurable: through using adequate variables.

— Achievable: the measurement defined in the KPI can be implemented. In addition, collecting data for the KPI is not complicated or expensive.

— Realistic: give more information about the organization's performance to achieve its strategy.

— Time-bound: measure performance within a specific time frame.

— Effective: capable to represent main drivers in sustainability impact of industrial operations.

— Reproducible: able to be significant in other context.

In this document, the following verbal forms are used:

— “shall” indicates a requirement;

— “should” indicates a recommendation;

— “may” indicates permission;

— “can” indicates a possibility or a capability.

Information marked as “NOTE” or included in informative annexes is for guidance in understanding or clarifying the associated requirements.

1 Scope

This document specifies the requirements for a methodology (3.19) for the implementation of an Energy Management and Sustainable Manufacturing (EMSM) Project (3.22) in factories of industrial organizations.

NOTE It could be useful to benefit from the outcome of an energy/environmental/industrial auditor technological audit that might have previously been conducted in the factory organization, the baselines generated in the audit could be used as a reference for the Project.

This document is applicable to any EMSM Project implemented by any industrial organization, regardless its activity.

2 Normative references

There are no normative references in this document.