



Best Practice	FOLLOW-UP AND MONITORING OF ENERGY CONSUMPTION	ENMA-02
Application	Energy management	
SME sector	All	
SME Sub-sector	All	
Technical description	<p>In industry it is essential to know the energy consumption of each of the production processes, to optimize it and be able to control any deviation that may occur.</p> <p>The automation of reading processes greatly simplifies operations and generates significant cost savings.</p>	
Recommendation for optimisation	<p>To reduce energy consumption (through measurements) it is important to first know and understand the energy consumption. Some good reasons to carry out energy monitoring are:</p> <ul style="list-style-type: none"> • being aware of consumption (per year, by type of energy, depending on the place) • identifying an operational or management anomaly: • measuring results after improvements • identifying possible optimisation measures • anticipating energy price increases • optimisation recommendations • monitoring of consumption on the basis of invoices or meter readings • monitoring and analysing load curves • defining and monitoring Energy Performance Indicators (EnPI) • creating and use a reference consumption 	
Economics	Several factors affect investment costs, and a case-by-case assessment is necessary.	
Energy savings	5-15%	
Economic savings	5% savings in energy supply	
Average Payback Time	Less than 3 years	
Emissions	The measure does not involve any emission.	
Environmental benefits	Reduction in CO ₂ emissions and other substances such as SO ₂ and NO _x emitted	



Main NEBs (Multiple benefits)	<input checked="" type="checkbox"/> Environmental benefits <input type="checkbox"/> Increased productivity <input type="checkbox"/> Work environment/ Health/Safety <input type="checkbox"/> Increased competitiveness <input type="checkbox"/> Maintenance
Replicability	High
Related measures	<ul style="list-style-type: none"> • ENMA-01: Human resources • ENMA-03: Implementation of an energy management system according to ISO 50 001 standard • ENMA-04: Contribution of an independent expert for energy management • ENMA-05: Energy purchase: energy market, offers, invoices, green energy • ENMA-06: Regulatory obligations • ENMA-07: Financial support for energy management
Case study	<p>Introduction of monitoring system at food industry (Spain, 2017)</p> <ul style="list-style-type: none"> • Initial Situation: the industry is active in the food sector and has a production capacity of about 1,200 tons/year. Annual energy consumption is currently about 8,500,000 kWh/year. • Description of the optimisation: this industry incorporated a new system to integrate all the measurement equipment. The monitoring system has allowed the middle and high-level directors to better know the energy consumption in the process areas, incorporate and follow up KPIs for their processes and obtain a better picture of the industry energy consumption, detecting energy efficiency measures. The use of a monitoring system allowed the plant to: <ul style="list-style-type: none"> - <i>Monitor:</i> telemetry cloud service allows real-time monitoring of any energy source (electricity, gas, water, heat, etc.). Easily track your consumption or energy variables that have relevance to the costs. - <i>Analyse:</i> due to its powerful algorithms, the telemetry service analyses energy data, generates indicators, calculates baselines, detects deviations and predicts future consumption. - <i>Share:</i> information flows in real time throughout your organization generating events and alarms, delivering reports to measure, benchmarking, etc. Your user policy will allow you to adjust access privileges by workplace, facility, or country. - <i>Optimize:</i> the telemetry service not only saves you energy, it also saves time and resources. Eliminate your needs infrastructure hardware and software, maintenance contracts, backups, etc. It gives you the possibility of receiving the information in a timely manner that you need without the need for complex procedures of information processing, verification, and validation of results.



	<p>To use monitoring system to improve the overall energy management of the industry, detecting high consumptions, benchmarking and using the information to propose energy efficiency measures. The result in this industry was an energy efficiency improvement of +2% due to the detection by the monitoring system, thus the food industry reduced its energy consumption by approximately 430,000 kWh/y. The annual economic saving is about 46,000 EUR/y.</p> <ul style="list-style-type: none">• Implementation costs: 40,000 EUR• Payback Time: 0.8 years
References	<p>Dexma, Energy Management for SMES. 2016.</p> <p>https://get.dexmatech.com/hubfs/Whitepapers/SMEs_EN.pdf</p> <p>JRC (EU), Best Environmental Management Practice for the Food and Beverage Manufacturing Sector. 2018.</p>

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