# Assessment of energy management and energy efficiency measures

This format is used to gather information about a specific location of the pilot company. The assessment consists of the following topics:

* **General information about the pilot**. This information should already have been gathered using the Technical Sheet provided by FIAB for D6.10. Before starting the energy assessment, please check if this information is complete or additional information needs to be gathered during the energy assessment.
* **Energy management & KPIs.**

**Energy efficiency measures.** This section is used to gather information on the measures that have been implemented or are under consideration for implementation. The measures taken should fit the three categories provided in the table (supply, buildings and food technologies). Open questions are listed at the end of the table to make sure no energy efficiency measures have been missed.

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| **General information** | | |
| Company name |  | |
| Address |  | |
| Sector |  | |
| Annual Turnover (€) |  | |
| Types of products |  | |
| Information about production process |  | |
| Number of employees (approximately, fte) |  | |
| **Contact information** |  | |
| Name |  | |
| Phone |  | |
| Email |  | |
| Function |  | |
| **Production** |  | |
| Select which ISO standard you have: |  | |
|  | |
|  | |
|  | |
|  | |
| Description of main products |  | |
| Total Production in 2017 (ton)\*\* |  | |
| **Water consumption in 2017** | | |
| Consumption (m3)\*\* |  | |
| Cost (€) |  | |
|  | | |
| Consumption (kWh) |  | |
| Cost (€) |  | |
| **Thermal consumption in 2017 (kWh)\*\*** |  | |
| Gasoil | (kWh) | (€) |
| Fuel oil nº1 | (kWh) | (€) |
| Natural gas | (kWh) | (€) |
| Propane gas | (kWh) | (€) |
| Butane | (kWh) | (€) |
| Other (please specify) | (kWh) | (€) |

\*\* Only approximate information is required.

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| **Energy Management & KPIs** | |
| Does your location use key performance indicators (KPIs) for energy management?  If yes, what are these KPIs? |  |
| What has been the progress on these KPIs for the past years? |  |
| Are there specific targets for reducing energy consumption or for improving energy efficiency (e.g. % / per unit produced)? |  |
| To which extent has your energy efficiency in the past years improved or deteriorated? |  |

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| **General assessment energy management** | | | | |
| How did you integrate energy management into a certified management system (e.g. ISO 9001/ISO 14001/ISO 50001)? | |  | | |
| If energy management is not integrated in certified management system, please specify how this is administrated. | | - | | |
| **Basic check energy management** | | | | |
| Energy management entails that an organization takes structural measures to minimalize the use of energy and resources. It entails continuous reviewing of the plan-do-check-act-cycle to increase energy efficiency: drafting policy, scheduling actions, executing measures, checking results and drafting new policy based on these activities. The quality of the energy management system can be evaluated by the questions that are displayed below. | | | | |
| **P** | **Policy** | | **Yes/No** | **Comments** |
| 1 | Has the Board of Directors appointed a representative among the Board who is responsible for the implementation of energy management obligations, assembling an energy team, reporting to the Board and promoting the awareness of energy policy? | |  |  |
| 2 | Has the energy policy declaration, striving for continuous improvement, been determined and implemented by the highest (operational) management level? | |  |  |
| 3 | Has it been recorded (in writing or electronically) to which buildings and/or processes energy management obligations apply? | |  |  |
| 4 | Is energy efficiency a decision criterion for purchasing new machines or systems (e.g. in the specification sheet)? | |  |  |
| 5 | Are investment criteria based on risk (e.g. payback time < 3 years) and / or internal rate of return? | |  |  |
| **P** | **Plan** | | **Yes/No** | **Comments** |
| 6 | Is the energy use known and available (e.g. in an Energy Savings Plan, Energy efficiency plan, or from your monitoring information)? | |  |  |
| 7 | Has the organization determined the main energy aspects based on energy use?  Is this information up-to-date? | |  |  |
| 8 | On which level(s) is data on energy consumption collected?  On the level....   * of the entire production site (X) * of a single building * Individual production areas or production lines (X) * individual machines or plants (X) * no data collection on energy consumption | |  |  |
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| 9 | If energy consumption indicators are used; on which levels are they used?  On the level....   * of the entire production site (X) * of a single building * Individual production areas or production lines (X) * individual machines or plants (X) | |  |  |
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| 10 | Do you monitor your energy consumption?  And if so, how? | |  |  |  |
| 11 | According to the requirements of the energy management policy obligations of energy efficiency, is there a ‘plan of execution’, to improve energy performance, in accordance with the policy? | |  |  |
| **D** | **Do** | | **Yes/No** | **Comments** |
| 12 | Have tasks, responsibilities and authorizations been determined for employees who are involved in energy management obligations (e.g. energy aspects, energy use, goals, correction measures, etc.)? | |  |  |
| 13 | Is the necessary knowledge and information in the field of efficient energy use known and have the employees who are able to influence energy use been instructed or educated? | |  |  |
|  | Are there regularly promotion awareness of the energy efficiency at all levels of the organization? | |  |  |
| 14 | Are there regular internal information exchanges about the energy performance and energy management obligations at executive and board level?  And is there agreement on in what way and to whom the energy performance are communicated? | |  |  |
| 15 | Are sufficient financial means made available for managing and improving the energy performance (use and efficiency)? | |  |  |
| 16 | Has it been agreed that the energy use of company activities is monitored?  By using monitoring information and evaluating the potential consequences for the energy use, when purchasing and designing goods and services where design results are registered? | |  |  |
| **C** | **Check** | | **Yes/No** | **Comments** |
| 17 | Do you monitor areas of Significant Energy Use (SEUs)? | |  |  |
| 18 | Do you normalize the relevant variables that influence energy use? | |  |  |
| 19 | In case of deviating energy use, is the cause investigated and are measures taken to prevent repetition? | |  |  |
| 20 | Do you perform an annual (or more frequent) internal evaluation of the energy management obligations system?  Do you report on the functioning to the board, as input for a management review? | |  |  |
| **A** | **Act** | | **Yes/No** | **Comments** |
| 21 | The operation of the energy management obligations system is evaluated by the board at least once a year (board evaluation) and the results are documented | |  |  |

**Energy Efficiency Measures**

|  |  |  |  |  |  |  |  |  |  |
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|  | | Is the technology used in the production facility? | Have RE measures been considered or implemented in the last 2 years? | | What kind of measures have been considered (e) or implemented (u) in the last 2 years? | Is the technology used in the production facility? | | | Have RE measures been considered or implemented in the last 2 years? |
| (only mark with a cross and continue if yes) | No | Yes | Low | Medium | High |
| ***Measures in supply engineering*** | Measures in the area of **electric drives**  (*e.g. high efficiency IE motors, speed control, efficient transmissions)* |  |  |  |  |  |  |  |  |
| Measures in the area of **compressed air systems**  *(e.g. leakage removal, substitution of compressed air, pressure reduction)* |  |  |  |  |  |  |  |  |
| Measures in the area of **pump systems**  (e.g. hydraulic balancing, highly efficienct pumps) |  |  |  |  |  |  |  |  |
| Measures in the area of **process cooling**  *(e.g. adjustment of temperature levels, demand-dependent controls)* |  |  |  |  |  |  |  |  |
| Measures in the area of **process heating**  *(e.g. insulation of heat pipes, highly efficient steam generators)* |  |  |  |  |  |  |  |  |
| Measures in the area of **logistics**  *(e. g. electric fork-lifting trucks, shortening of routes)* |  |  |  |  |  |  |  |  |
| ***Measures in building services engineering*** | Measures in the field of **building heating**  *(e.g. mini-CHP, highly efficienct heat pumps, nightime lowering of the heating)* |  |  |  |  |  |  |  |  |
| Measures in the area of the **building envelope**  *(e.g. thermal insulation, new windows, removal of thermal bridges)* |  |  |  |  |  |  |  |  |
| Measures in the **area of lighting**  *(e.g. use of motion and brightness sensors, LED bulbs)* |  |  |  |  |  |  |  |  |
| Measures in **information and communication technologies**  *(e.g. energy efficient PCs and servers, energy management of PCs)* |  |  |  |  |  |  |  |  |
| Measures in **air supply and climatisation**  *(e.g. high efficient fans, free cooling)* |  |  |  |  |  |  |  |  |

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| **Measures in the life-cycle**  **medium Process technology** | (Please complete the relevant measures ) |  | |  |  |  |  |  |  |  |
| Inverter at the A centrifuges |  | |  |  |  |  |  |  |  |
| CIP of plants |  | |  |  |  |  |  |  |  |
| Cooling of the VKK |  | |  |  |  |  |  |  |  |
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| What other energy efficiency measures have been implemented during the last two years? | | |  | | | | | | | |
| In which other areas can energy efficiency be improved further in the next two years? | | |  | | | | | | | |
| What other energy efficiency measures are planned to be implemented in the next two years? | | |  | | | | | | | |