INOVENERGY – A PROJECT FOR ENERGY EFFICIENCY IN THE AGRO-FOOD INDUSTRY SECTOR

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ABSTRACT

The Inovenergy Project - Energy Efficiency in the Agro-Food Industrial Sector aims at surveying the energy use profiles of six industry subsectors: meat, fish, dairy, wine, fruit & vegetables and food conservation & distribution. This project is particularly focused on accounting the energy use in the freezing and refrigerating chambers, since these energy intensive equipments are responsible for a major fraction of the energy demands in this industrial sector.

The Portuguese agro-food industry is mainly developed by small to medium industrial units where typically, the annual values of energy consumption are below the threshold limit stipulated by the Portuguese regulation for mandatory energy audits. Therefore, a good potential for energy savings in this sector is expected in this sector, as reported by IDAE – Instituto para la Diversificaciun y Ahorro de la Energía, for the same kind of industry in Spain. To date, there are no studies in Portugal that characterize this fundamental sector, hence the importance of conducting a nationwide energy survey to establish fundamental energy and environmental Key Performance Indicators (KPIs) that would also serve for benchmarking.

The presentation and preliminary findings of this project will be presented including the characteristics and operating features of the refrigeration chambers and equipment’s which will be cross-referenced with the annual energy bills and production volumes.

SCOPE OF THE PROJECT

Project Inovenergy – Energy Efficiency in the Agroindustry Sector (Financed by COMPETE-IAAC/IAAC/2011-Project 18642) was classified as a project of exceptional relevance and intends to have an in-depth understanding of not only the energy use in this sector, but also to survey the cold producing equipment, as this is, in most cases, the primary factor in increased energy consumptions, a value estimated to be of about 30% of a company’s cost structure. This project involves a partnership between eight institutions among superior education teaching institutions, state laboratories and producers associations, namely IPCB – Instituto Politécnico de Castelo Branco as the project’s coordinator, IPV – Instituto Politécnico de Viana do Castelo, IPB - Instituto Politécnico de Bragança, Aninadafar – Agroindustry from Ribatejo, LC – Universidade de Coimbra through ADAI-LAETA, ISQ – Instituto de Soldadura e Qualidade, IPP – Instituto Politécnico de Portalegre and UBI – Universidade da Beira Interior in order to collect the required data throughout all of the Continental Portugal. The fundamental idea behind the project is to address the lack of comprehensive information regarding energy use in cold production so that one can advocate proper energy efficiency measures to maximize company’s competitiveness and ultimately, to reduce the Portuguese energy import debt and greenhouse gas emissions (GHG).

INTENDED OUTPUTS

To summarize the business’s annual production, turnover and process features.

To collect annual energy requirements and technical features of the main cold producing equipment’s.

To assess building features of acclimatized areas (insulation type and state, doors sealing’s, dimension, etc.)

RESULTS FOR THE PRELIMINARY ASSESSMENTS

<table>
<thead>
<tr>
<th>NUMBER OF COMPANIES INCLUDED SO FAR</th>
<th>AVERAGE ANNUAL PRODUCTION AND TURNOVER BY RANK</th>
<th>AVERAGE ANNUAL ENERGY INPUTS AND SUM OF COSTS</th>
<th>AVERAGE ANNUAL COST BY ENERGY INPUT</th>
<th>AVERAGE PAYBACKS OF INDUSTRY-WIDE ENERGY EFFICIENCY MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat, Fish, Fruit &amp; Veg, Dairy, Distribution, Wine</td>
<td></td>
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<tr>
<td>Average production per company</td>
<td>Average turnover per company</td>
<td>Average annual energy consumption</td>
<td>Average annual cost per energy unit</td>
<td>Average energy efficiency measures</td>
</tr>
</tbody>
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