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| A focus on chilled water and HVAC in the diagnostics product sector  Summary | **279**  **16**  **€**  **325k**  **1.6m kg** |

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| Company name: | Abbott Ireland Diagnostics Division, Sligo |
| Sector: | Health |
| Project actions: | Efficiency improvements to the chilled water and air conditioning systems |
| Dates of project: | June 2012 to November 2012 |
| |  |  | | --- | --- | | Financial support: | €36,715 (35%) grant from SEAI | | €239,090 (28% grant from SEAI) |
| Project cost: | €846,337 |
| Simple payback time: | 2.6 years ( or 1.9 years with grant) |
| Savings verification: | Through the site energy management system | Abbott Ireland Diagnostics Division, Sligo |

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|  | Annual Energy (kWh) | Annual Costs (€) | Annual CO2 (kg) |
| Before project | 16,747,365 | €1,440,583 | 5,866,000 |
| After project | 11,165,958 | €1,115,872 | 4,271,000 |
| Savings (% in parentheses) | 5,581,407 (33% saving) | €324,711 (22.5% saving) | 1,595,000 (27% saving) |

*“The involvement of the energy supply company as a partner enhanced the analysis of data from our energy management system, and leveraged advantages in these projects and ongoing energy management.” Peter De Bie, Environmental Engineer, Abbott*

Background

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| Abbott Diagnostics is a global leader of in vitro diagnostics, with approximately 70,000 institutional customers in more than 100 countries. Abbott established its first Irish diagnostics production facility in 1994 to manufacture blood-screening products and reagents at Finisklin Business Park, Sligo. Since its inception, this site has expanded eight times, and it now spans almost 15,794 sq-m over nine acres. Today, it is the second largest diagnostic products manufacturing facility in the world.  Abbott Ireland Diagnostics Division (AIDD), Sligo, signed up to SEAI’s Energy Agreements programme in 2010. At the same time, a comprehensive strategy was developed to improve the energy efficiency of the site and reduce carbon emissions. A detailed energy audit, focused mainly on the larger energy users within the plant, highlighted the potential for significant energy savings, and senior management approved the implementation of the proposed energy-saving projects on a phased basis. |  |
| AIDD Energy Plan |

\*Annual energy savings of 5,582,407 kWh have been achieved in this project, the equivalent to the annual energy use in 279 average-sized houses in Ireland. The project saved 1,595,000 kg of energy related CO2. Cost savings were calculated to be €324,711 per annum. The project supported 16 full-time equivalent jobs per year.

Project Description

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| The project, which comprised16 sub-projects, was managed by Agility Knowledge Management Services Ltd – a project management company with experience managing efficiency projects for large-scale energy users. Industrial Utilities Ltd was additionally used as a specialist energy consultancy. In addition, the project brought on board Bord na Mona, the energy supply company as a partner to perform independent verification of the savings achieved using data from the site’s energy management system.   Energy performance was contractually integrated in a number of ways to ensure that the projected savings were achieved. All equipment purchases included a performance clause. Agility Knowledge Management Service also linked part of its management fee delivering projected savings. In addition, the project management service was assessed on the quality and on‐time delivery of the project.   One focus was on a chilled water system, served by a pair of duty/standby air-cooled chillers with a best coefficient of performance (COP) of 3.0. These were supplemented by a Trane RTHD 950 water cooled base load chiller with a Watermiser 1,600kW GRP cooling tower. The COP of the new unit is over 6.0, while the remaining older chiller has been designated a standby unit. In addition, a new Sabroe Heatpac Rotatune 28 heat pump was installed to recycle the waste heat from the water cooled chiller into the low-pressure hot water (LPHW) system.   A second focus was on rolling out a free cooling solution for the heat, ventilation and air conditioning (HVAC) systems at both plants and installing control systems so that their loads vary in response to the building’s occupancy and demand. This was achieved by using carbon dioxide sensors in the canteen and passive infrared sensors in the meeting rooms, as well as implementing smarter scheduling and free cooling control.  Finally, the sites’ existing Schneider Triple E-rated building management systems (BMSs) and Episensor‐eSight Triple E-rated energy management systems (EMS) were expanded to include additional meters, so that the project savings could be verified. |

Benefits

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|  | This project has resulted in annual energy savings of 5.58 million kWh, equating to annual financial savings of €325k and carbon dioxide emission savings of 1.6 million kg per year. In addition, the project has brought about maintenance and operating efficiencies.   The integration of the site’s BMS and EMS data allows improved key performance indicators to be developed for future energy management initiatives, and there is significant potential for replication of these projects within the Abbott group. Moreover, the project to control the chiller water from the return temperature has potential to become an industry standard for HVAC cooling.  The relationship with Bord na Mona continues in supporting an active Energy Management Programme (EMP). This is being run by Agility and IUL under the EM3 brand. |
| EMP Agreement Signing:  John Hensey (EM3), Adrian O’Connor (Abbott) and Tom Egan (BnM) |

*“The key to achieving and sustaining superior equipment efficiencies is in the selection of the right parameter to be used as the control. For instance with the LPHW system, we use the return water temperature,” John Hensey, Consultant, AKMS*

Client recommends…

**Client Project Manager Energy Consultant Partner**

Peter DeBie John Hensey Donall O’Brien Tom Quinn

Environmental Engineer Agility Knowledge Industrial Utilities Ltd Bord na Mona

Abbott Ireland Management Services

Diagnostic Division [www.akms.ie](http://www.akms.ie/) [www.iul.ie](http://www.iul.ie) www.bordnamona.ie