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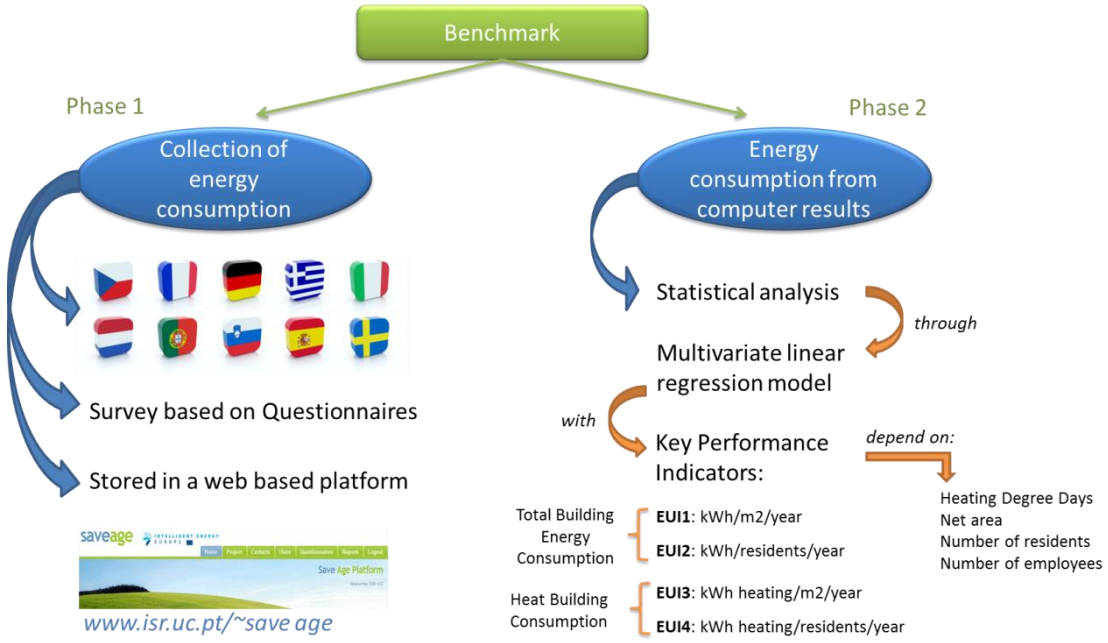
SAVE AGE – Benchmark Tool

In the first phase of the Save Age project, an analysis of the total energy consumption in 100 residential care homes for elderly people (RCHEP) was carried out. In order to obtain results that would allow comparing performances of different RCHEPs, across different countries, a simple benchmark tool was developed. This benchmark tool can be used to evaluate the energy performance of RCHEPs. Benchmarking energy efficiency is an important tool to promote the efficient use of energy in RCHEP.

Benchmarking is very important because only by understanding how one´s performance compares to others, efforts can be made to improve RCHEP´s energy efficiency and at the same time provide the same or even better comfort conditions to its residents. However, as far as it was possible to investigate, no energy benchmarks have been studied specifically for care homes.

Benchmarking is still greatly misunderstood. Many organizations think that they are benchmarking when, in reality, they are simply assessing performance. Benchmarking is action, and it describes the process of improving performance through continuous identification of specific practices responsible for high performance, understanding how these practices work, and adapting and applying them to the organization.[4] Hence, the assessment part of benchmarking dealt with two separate phases.



The benchmark tool is very simple. One just has to introduce the specific information for his RCHEP, such as total energy consumption per year, heating degree days, number of residents, etc. and then, the model will determine the expected value for the given performance indicator (EUI1 to EUI4). The tool outputs a graphical comparison between the model and the real value. This way, the user can see in a simple form, how far is his RCHEP away from other RCHEPs that were used to establish the benchmark level. An example is shown below:

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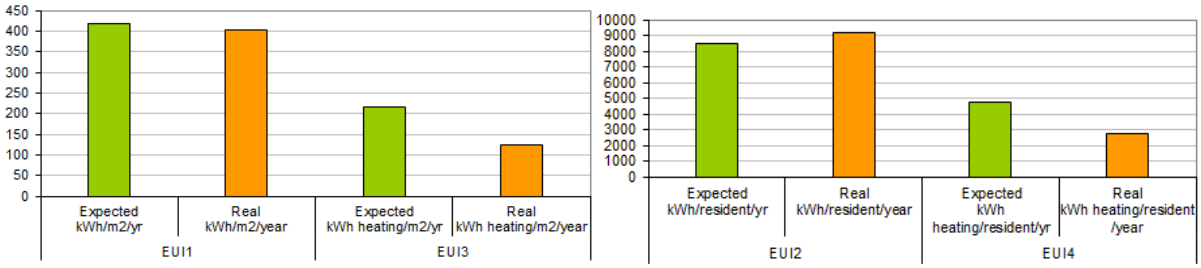
Please fill in blue cells with data for your institution:	
Total energy consumption per year in kWh	
Total heating energy consumption per year in kWh	
Heating Degree Days	
Heated area in m^2	
Year of construction	
Number of residents	
Number of employees	
Expected	
Real	



Based on this benchmark tool it was possible to get the following results for the 10 European countries participating in the SAVE AGE project, each with 10 audited RCHEPs.

Indicator	Best	Worst	Worse than the Benchmark
EUI 1 ($kWh/m^2/year$)			
EUI 2 (kWh/residents/year)			
EUI 3 (kWh heating/m^2/year)			
EUI 4 (kWh heating/residents/year)			

We can observe that the real average values for Italian RCHEPs is above the estimated consumption based on the benchmark for all energy efficiency indicators under evaluation. In Sweden (worst EUI2 and EUI4) and Czech Republic (worst EUI1 and EUI3) there are more RCHEPs that are using more energy than the model estimated for the indicators EUI1, EUI2 and EUI4 indicators. Greece, Spain and The Netherlands seem to have a better performance, since the real consumption is below the estimated value. This does not mean that all RCHPs have good performance level, but that the average value is lower than the benchmark level. Germany and Portugal present the best EUI1 and EUI3 indicators respectively, but the performance indicator EUI4 and EUI2 are above the model, respectively.

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The benchmark gives a good indication about the energy performance of the RCHEP within the sample. Once the benchmark level is established, it is time to compare energy performance levels, identify the reasons for low efficiency and decide about the most appropriate action initiatives. Then, one must implement the necessary energy efficiency measures, in order to improve RCHEP´s performance and decrease the energy bill. For instance, if a care home has a good EUI3, but a bad EUI1, then perhaps measures towards heating technologies, such as heating systems and building insulation are not a necessity, but other electronic appliances, lighting systems, inefficient refrigerators, washing machines, etc., may need to be improved and energy behaviour may need to change as well. However it could be the case that this house does not deliver as much heat as the others.

The project made an assessment about the Best and Worst Practices within RCHEP and similar institutions, and about the Best Available Techniques for several end uses, which will help evaluating what to do to be more energy efficient and how to become a care home with a high performance level.

References:

[1] *Paula Fonseca, Pedro Esteves, Lino Marques, Aníbal de Almeida; Analysis of total energy consumption in 100 health care homes; 2011; SAVE AGE Project, IEE/09/676/SI2.558233.*

[2] *Pedro Esteves, Paula Fonseca, Aníbal de Almeida, Urbano Nunes, Miren Iturburu; EU comprehensive document on energy efficiency in Residential Care Homes for the Elderly; 2011; SAVE AGE Project, IEE/09/676/SI2.558233.*

[3] *Ledyard and Vitasek, "To Benchmark, Or Not, Is Not Really a Question", CTSI Logistics Forum, Volume 5, Nº 1, pp. 1-3.*

[4] *http://www.allbusiness.com/management/1058349-1.html#ixzz1flsOjUix*