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Project Title:

ORganizational Behaviour improvement for Energy Efficient administrative public offices

OrbEEt

Grant Agreement No: 649753

Collaborative Project

OrbEEt Pilot Site in Spain: Final Results

1.1 OrbEEt pilot site in Spain

Demonstration of OrbEEt framework performed from **01/04/2017 (M26) – 28/02/2018 (M36),** considering the different periods for trials:

- **1st Trial: M23 - M28 (baseline: M21-M25 with OrbEEt trials starting in M26)**
- **2nd Trial: M29 - M34**

Total energy savings (Annual)

Load Type	Actual (KWh)	Baseline (KWh)	Savings
Heating	5400	6600	18.18%
Lighting	1998	2743	27.16%
Other	850	936	9.19%
Total	**8248**	**10279**	**19.76%**

Table 1 Total Energy Savings - Asparrena

Peak Demand Reduction: For peak demand analysis, we take into account the week-days hour-period: 09:00 -13:00; following the analysis of a typical load curve in Spain. The impact of OrbEEt framework during peak hours is depicted in the following table (analysis during peak hours):

Load Type	Actual (KWh)	Baseline (KWh)	Savings
Heating	2038.4	2637.44	22.71 %
Lighting	863.2	1234.35	30.06 %
Other	577.98	608.4	5.01 %
Total	**3479.58**	**4480.19**	**22.33 %**

Table 2 Peak Demand Savings - Asparrena

CO2 Emissions Reduction: For CO2 emission analysis, we take into account the typical generation mix of each country (source: ENTSOE). In Spain, by taking also into account the CO2 ratio for gas consumption (heating load), we estimate the total impact in CO2 emission:

Load Type	Actual (Kg)	Baseline (Kg)	Savings (working hours)
Total	**1779.16**	**2256**	**22.33 %**

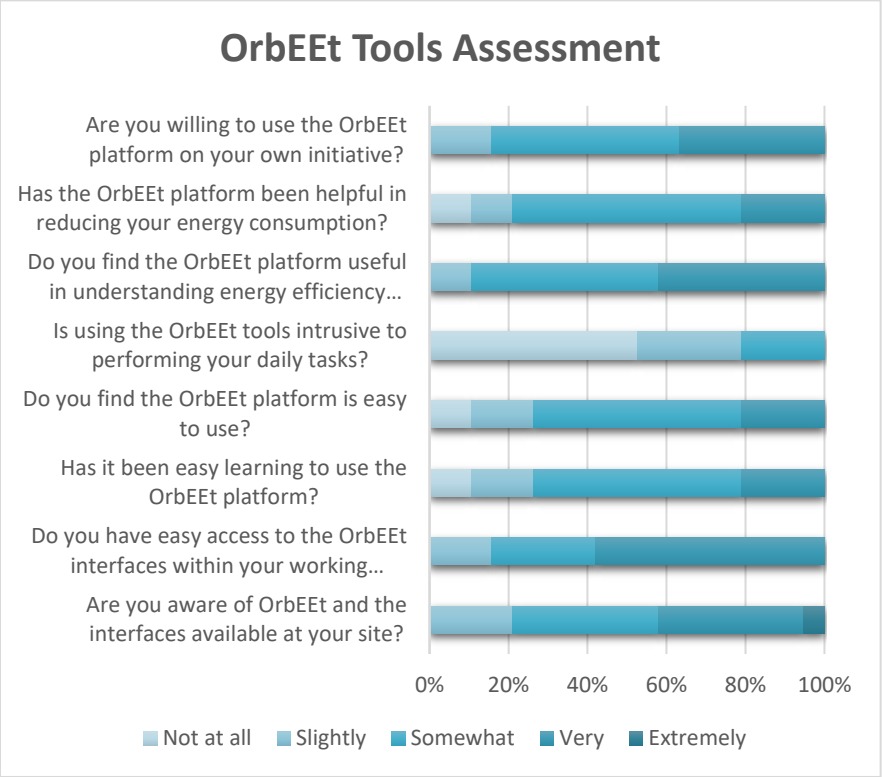
Table 3 Total CO2 Emissions Savings - Asparrena

Some remarks about the demonstration of OrbEEt in Asparrena pilot site:

- Active engagement of end users in applications (in office display, intranet portal and game app) leading to significant savings; (near) real time notifications as the preferred means of users interaction with the platform- availability of in office displays in all zones.
- Lights consumption reduction was high; a consequence of the impact of (near) real time notifications and provision of personalised savings
- End users self-reported willingness to reduce also heat consumption; the main boundary was the lack of individual thermostats (individual control) per building zone
- The limited size of the pilot in comparison to other sites affected the level of engagement of end users in the project – a consequence of a lack of social critical mass.

- End users at Asparrena also engaged with the serious game, though in some cases struggled to understand the link to energy performance.

The end users engagement is further evaluated as a main objective of the project.



The level of end users engagement is over 80%, showing that way the commitment to the OrbEEt demonstration activities.