

Optimisation of the electricity tariffs

AMESEIXAL - Portugal

Summary

This project was applied in the City Council of Seixal and carried out by AMESEIXAL. The main objective was the optimisation of electricity tariffs. In result of this project the City Council of Seixal reduced its electricity bill in 21,300 EUROS. AMESEIXAL is currently extending this project to other local sectors of activity.

End-user area	Target Audience	Technical
<input type="checkbox"/> New buildings	<input type="checkbox"/> Citizens	<input type="checkbox"/> Energy efficiency
<input type="checkbox"/> Refurbishment of buildings	<input type="checkbox"/> Households	<input type="checkbox"/> Heating
<input type="checkbox"/> Transport and mobility	<input checked="" type="checkbox"/> Property owners	<input type="checkbox"/> Cooling
<input type="checkbox"/> Financial instruments	<input type="checkbox"/> Schools and universities	<input type="checkbox"/> Appliances
<input type="checkbox"/> Industry	<input type="checkbox"/> Decision makers	<input type="checkbox"/> Lighting
<input type="checkbox"/> Legal initiatives (municipal regulations, directives, etc)	<input checked="" type="checkbox"/> Local and regional authorities	<input type="checkbox"/> CHP
<input type="checkbox"/> Planning issues	<input type="checkbox"/> Transport companies	<input type="checkbox"/> District Heating
<input type="checkbox"/> Sustainable communities	<input type="checkbox"/> Utilities	<input type="checkbox"/> Solar energy
<input type="checkbox"/> User behaviour	<input type="checkbox"/> ESCOs	<input type="checkbox"/> Biomass
<input type="checkbox"/> Education	<input type="checkbox"/> Architects and engineers	<input type="checkbox"/> Wind
<input type="checkbox"/> Other	<input type="checkbox"/> Financial institutions	<input type="checkbox"/> Geothermal
	<input type="checkbox"/> Other	<input checked="" type="checkbox"/> Other

Context

The city council of Seixal is in charge of many different sectors, each of them having a specific energy consumption (public lighting, social housing, offices, primary schools, tap water pumping and distribution, sewage, etc.). Every month more than 200 electricity bills arrive directly at the city council accountancy services for payment. Before AMESEIXAL undertook this project the several city council departments and services knew very little about their specific energy consumption and about the tariff structure. AMESEIXAL understood that there was a great potential of economy in analysing the electricity consumption and optimising the tariff.

Objectives

Our main objectives were:

- To organize data collection on electricity consumption to allow its follow-up;
- To identify situations of energy waste (consumption of reactive energy, great differences between contracted capacity and energy consumption);
- To optimize electricity tariff;
- To reduce in a significant way the electricity bill paid by the city council of Seixal.

Process

To select the most appropriate electricity tariff is not as simple as it seems. On one hand, before 2002, the electricity bills in BTE – Baixa Tensão Especial, did not mention the tariff in vigour. On the other hand there are many different tariffs available and it is quite complex to tell the difference between them. These are real obstacles when it comes to choose the more adequate tariffs. Therefore AMESEIXAL had to develop a software that identified the tariff and simulated different tariff options to see what was the most interesting from an economical point of view. This software applies for any consumer in BT (contracted power < 41.4 kVA) or BTE (contracted power > 41.4 kVA). The software was designed by an external expert, in close collaboration with AMESEIXAL. Many tests had to be done before the software became fully reliable. Then an important work of treatment of the invoices (separation by consumer and by sector) had to be carried out to prepare their analysis thanks to the software.

Financial resources and partners

This project was carried out by AMESEIXAL, within its programme of activities. A budget of 3,990 EUROS was spent to pay the external expert.

Results

The total savings reached amounted 21,300 EUROS. The initial objectives were fully met. Some of the results obtained are shown here below:

- Schools, offices of the City Council: the software did not identify better tariffs. This is mainly due to the fact that schools usual time schedules are not compatible with other tariffs than the ones used;
- Water Distribution Department: no potential savings were identified;
- BTE contracts (> 41,4 kVa): the software proved all its effectiveness in this sector: it detected many possible savings thanks to tariff changes and reduction of the contracted power. The potential money savings reached 21,300 EUROS, which represents around 5% of the total amount paid by the city Council for BTE contracts.

Lessons learned and repeatability

The potential “market” for this project is virtually unlimited and concerns any electricity consumer interested in reducing his energy bill. The major problem encountered concerned the software development and testing. The software only became fully reliable after a long period of tests. Therefore, as some power utilities provide free access to tariff optimization software, it is our opinion that developing a software is not a recommendable effort. It is now the case in Portugal where a software can be downloaded from the Website of ERSE - Entidade Reguladora do Sistema Eléctrico. There is no doubt that this project can be replicated throughout the EU, provided that the software in use is adapted to the existing tariff. Our experience shows that checking electricity invoices can reveal many surprises and be a great source of financial savings.

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