

EL-EFF REGION

WP 3: Stakeholder survey

prepared by: ESCAN

Background

Madrid Region is located in the Center part of Spain, and with a population of 6 Mio inhabitants, consumes over 28.000 GWh/year of electricity. The main city of the Region is also named Madrid, with almost 4 Mio inhabitants, hosts the Regional and National Spanish Administrations. Services (including commerce, trade and Public sector), and Household Sectors are the two main electricity consumers, followed far behind by the Industry Sector.

Besides being the capital and the main city in Spain, Madrid and its region are becoming an important spot in Europe in constant development and growth. The great economic activity that characterizes Madrid Region, the high population's density and the scarce generation capacity (Madrid only produces 5% of its electric demand), make the Region a great energy drain, presenting a final consumption of energy of 10,2 million tep and maintaining a very accentuated growth in the last years.

Regarding the Energy Policies, the Government of Madrid Region has set a specific target about Energy Efficiency in the Energy Plan of Madrid Region 2004-2012 to decrease energy consumption tendency by 10% in 2012, carrying out saving and efficient policies.

The market liberalization allows all consumers since 1st January 2007 to choose their energy suppliers. Constant changes in fuels prices, particularly the increase of Natural Gas, increasing the electricity prices, has changed the initial opinion of changing to the liberated tariff to bigger consumers.

The structure of the typical electricity prices existing for different consumers is:

| | Price per kWh in Euro | Year | Remark |
|---|-----------------------|-------------|--------|
| Typical electricity price household including all taxes (<u>not</u> "special" tariffs for domestic hot water/heat pumps/electric heating etc.) | 0,145 | 2006 | |
| This price consists of: | | | |
| Energy costs | 0,104 | | |
| Grid charges | 0,011 | | |
| Charges/levies for green electricity/CHP etc | 0,000 | | |
| VAT | 0,023 | | |
| Other taxes (CO2 etc.) | 0,005 | | |

| | | | |
|---|--------------|-------------|--|
| Others :..... | 0,002 | | |
| | | | |
| Typical electricity price household | 0,138 | 2005 | |
| Typical electricity price household | 0,132 | 2004 | |
| Typical electricity price household | 0,125 | 2003 | |
| | | | |
| Typical electricity price <u>service sector</u> (price range for commerce & public sector), including all taxes | 0,090-0,140 | 2006 | |
| Typical electricity price <u>industry</u> (price range), including all taxes | 0,070 -0,085 | 2006 | |
| Relevant special tariffs (e.g. heat pumps, electric heating) - please specify:.... | | 2006 | |

Methodology

The stakeholder survey developed in the Region of Madrid has been based on a common questionnaire, carried out by experts from ESCAN to the selected professionals. The stakeholders were selected in order to obtain a representative knowledge about what are the interests and degree of involvement of the main organisations in the Region. The stakeholders came from different public and private bodies and their associations, all related to the electric regional market.

The interviews were done by personal interviews and phone interviews, sometimes supported by extra email information.

The questions asked are presented in Annex II.

Analysis of the interviews

The differences in the positions and profession of the stakeholders interviewed have presented a wide number of ideas on where could be focused the effort to increase the electricity efficiency in the Region. A substantial input to the potential measures to be developed in the region has been given, and the integration of the points of view have presented some of the main aspects that will be considered in future tasks of the EL-EFF-REGIONS project.

The main results of the interviews to stakeholders have been summarized in the following paragraphs.

A) The main existing actions described by stakeholders for electric energy saving are:

- The use of efficient indoor lighting and public lighting, including efficient bulbs, luminaires and controls systems (including automatic switches and domotic).
- The design of better designed and oriented buildings, considering also insulation aspects that reduce energy consumption.
- The use of more efficient motors and pumps, and the use of frequency variators
- The use of the primary energy without transformation or distribution.
- The production of electricity by means of renewables or the use of residual heating to substitute electricity consumptions (e.g. electric heating or electric hot water accumulation).
- The preventive maintenance
- The $\cos\phi$ improvement
- Adequate setpoints for temperatures: e.g. in winter, heating systems increase temperature up to 20°C; in summer, refrigeration systems reduce to 25°C.

B) The main obstacles mentioned for efficiency implantation are:

- The low price of the electricity (c€/kWh) makes end user not to do efforts for energy saving.
- There is not clear, reliable, unified information, and programmes don't reach easily people. Need of more local actions (e.g. neighbourhoods), with specific measurements, actions, etc.
- Common behaviour is often against efficiency: people don't switch off the stand-by, lights, computers, etc.
- The consumer society equals high consumption with well-being and success
- There is lack of solidarity, ethical education, and awareness on the scarce energy sources is still low. There is still lack of general awareness.
- Use of old equipments or machinery

C) The most favourable areas to increase the electric energy efficiency are:

- Architecture and building regulation and legislation, buildings energy labelling
- Energy rates modification
- Training and education
- Efficiency measurements (kWh/person and day) - Benchmarking, information and intervention when necessary
- General awareness on better use of electricity
- Indoor and Public Lighting
- Energy Management improvement in Municipalities, public buildings and facilities, private buildings and industries.

D) The actions known to get a better electric efficiency are:

- Tax rebates and subventions for thermal and photovoltaic solar energy installation in residential sector.
- Save programmes launched by the electric energy producer companies.
- Energy audits
- Information; dissemination

- Training and education
- Pilot projects development and dissemination
- Rebates due to high correct factor
- Similar system to assurance companies: reduce the quantity to pay for next year in case of smaller electric consumption
- Old appliances renovation plan. Subventions in efficient appliances purchases (Class A, A+ or A++).

E) The investment needed for the actions focused on the electric energy efficiency (compared with the conventional ones) and the financial resources and subsidies known:

- It depends, but around 5.000 € per flat to increase the electric energy efficiency 10% and 60.000 € per flat to increase it 25%.
- Low cost and high savings
- It is possible to get savings up to 50%
- It is around 20% more expensive in the initial investment, but return time on 7-10 years
- The regional subsidies plan for energy efficiency and the funding provided by the National Energy Agency

Results & conclusions

The results from the survey present the following main specific results and conclusions that will be considered in the future project tasks.

Measures should be directed to the following areas:

- Energy price and energy rates modification has been selected as one of the areas that should be tackled when approaching the improvement on the electric energy efficiency.
- The technical areas selected as most promising for improvement have been those related to better design and oriented buildings and buildings labelling, indoor and public lighting, motors and pumps, the $\cos\phi$ improvement, facilities maintenance and information of adequate setpoint for equipments (e.g. setpoints for air conditioning).
- Management of Municipalities, Public buildings and industries is also a relevant measure to achieve the desired results.
- Training and education to professionals, as well as information and dissemination to general public (general awareness) should be performed. Also should be tackled the financial and funding lines issues, not widely known yet.
- The production of energy by solar thermal and PV, the use of residual heats, and the use of primary energy without transformation or distribution are also considered as relevant.
- Save programmes launched by electric energy producer companies could support the Regional Government funding programmes
- Pilot projects on electric energy efficiency and their dissemination would help
- Old appliances renovation plan should be maintained. Subventions in efficient appliances purchases (Class A, A+ or A++).

And the main obstacles to be handled are:

- The low price of the electricity (c€/kWh) makes end user not to do efforts for energy saving. Considering there will be higher increases in energy price in the close future, this aspect should be taken into account.
- There is not clear, reliable, unified information, and programmes don't reach easily people. Need of more local actions (e.g. neighbourhoods), with specific measurements, actions, etc.
- Common behaviour is often against efficiency: people don't switch off the stand-by, lights, computers, etc.
- The consumer society equals high consumption with well-being and success
- There is lack of solidarity, ethical education, and awareness on the scarce energy sources is still low. There is still lack of general awareness.
- Use of old equipments or machinery is common, and these equipments are not efficient and difficult to transform in efficient.

Annex 2

List of questions asked

- 1. Which actions with regard to electric energy saving do you know?
(including past, present and future actions)**
- 2. Which ones are the main barriers to the electric energy efficiency implantation?**
- 3. Which areas are the most favourable to increase the energy efficiency?**
- 4. Which actions do you know to get a higher electric efficiency?**
- 5. What is, in your opinion, the investment needed for the actions focused on the electric energy efficiency (compared with the conventional ones) and which financial resources and subventions do you know?**