

ENHANCING STAKEHOLDERS INVOLVEMENT BY SMART METERS DEPLOYMENT CAMPAIGN

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ABSTRACT

InovGrid is EDP's global project for smart grids, which are key components of the European and national energy/climate policy towards a low-carbon energy future. During the year of 2015 over 145,000 smart meters were installed, reaching a cumulative total of 250,000 low voltage customers.

Government bodies, local political stakeholders and civil society organizations are increasingly found to be partners in smart energy projects, because they seem better able to connect with the everyday social practices of end users. Particularly on the local or regional level, this can contribute to fostering a sense of place and a sense of community among participating end users. In this context, municipalities are a very relevant stakeholder in EDPD strategy, taking into account not only dual role as a customer and local license granted authority, but also as legitimate representatives of communities with power to influence, positively or negatively, the perception of the company.

To provide customers with a positive experience, we propose to build an integrated, staged messaging strategy that delivers appropriate information to the operational city officials as they move through the several stages of a communication process: build awareness, inform, educate, engage and advocate.

This paper aims to find and explore tangible effects, concerning the operation efficiency and effectiveness in the smart grid rollout, and also the intangible benefits, such as gaining image positioning, by turning to advantage the massive installation of smart meters. The analysis will be support in the EDPD use case, using the smart meter campaign, integrated in the InovGrid concept.

INTRODUCTION

EDPD currently serves more than 6 million customers in Portugal (except Azores and Madeira islands) in high, medium and low voltage networks (HV/MV/LV), operating under regulated market concessions. For HV and MV, the concession is national, provided by the Portuguese State, and for LV by each municipality in over 270 concessions.

This paper aims to describe the benefits of integrating the municipality in the project at an operational level, by creating a dynamic that can generate better acceptance with local consumers and facilitate the smart grid roll-out

deployment, thus improving leverage with a very important stakeholder to the overall business of EDPD as concessioner.

Smart metering deployment is far more than an asset replacement and IT program and the change approach must reflect this. Operating the change management program in a manner that emphasizes the new capability requirements and ways of working would support benefit realization. Talent management is critical to providing the new skills and behaviours required. Managing the coordination of new capability development while balancing operational priorities is a key challenge and requires detailed scheduling to verify that the business maintains high service levels. Throughout the transition to smart metering, effective change management would be required to manage the changeover effectively, both within the business and with consumers.

Building on years of service, EDPD is leveraging smart grid improvements — which will provide more reliable service and give customers greater control over their electricity use — to improve customer engagement. Using its own research, EDPD found many smart meter projects did not provide enough advanced information to customers, which resulted in a communication gap.

In some cases, an absence of customer awareness and knowledge led to issues that resulted in some setbacks and moratoriums on the smart meter program.

To avoid similar cases and provide customers with a positive experience, an experimentation was carried in a municipality with an integrated and staged messaging strategy that provided appropriate information to all customers focused on the touch point moment during smart meter installation.

INTEGRATING MUNICIPALITY IN THE PROJECT

"Herd Mentality" is the psychological theory that humans adjust behaviours based on what others around them are doing a conformity that arises from a subconscious fear of standing out and being different. In terms of sustainability we are therefore more likely to adopt green behaviours and reduce our carbon emissions because our friend's co-workers, and neighbours have done the same. This fear of being the first or last to do something often prevents us from changing behaviours even if we feel it is morally right or beneficial to do so. Several studies discovered that the fear of non-conformity is a more effective driver than motivation through empathy, or even economic incentives. Another important part of the formula for successful behaviours change is described in Malcolm Gladwell's "Tipping Point", Gladwell discovered that certain people are more willing to change their behaviours than others due

to a psychological need to be the first to experience something new, known as "mavens" and expose it to the rest of society. These ideas, products, messages and behaviours then spread like viruses through the population. If used correctly, the notion of the tipping point can help to spread the message of the importance of reducing carbon emissions. In a world where it is becoming easier to reach out connect with others and gather information, the opportunity to change behaviour and help people accept certain concepts of sustainability that may be currently unpopular or undesirable (in this case, perceive the smart meters' benefits) is certainly possible.

Recognizing the significant impact of smart meters on customers, a strategy of information dissemination and education was developed to assess the evolution of levels of satisfaction of Municipalities and consumers, trying to create a first-rate experience. This experiment aimed to highlight a practice that mitigates barriers in the projects of massive installation of smart meters by providing advanced information in partnership with relevant stakeholders.

In order to offer consumers a positive experience, an integrated and staged messaging strategy had been developed to provide consumers with adequate information and to register the movements at various stages of the communication process: to raise awareness, to inform, to educate, to engage and to defend the project.

Stage 1 - Build Awareness

In this phase were held meetings with EDPD technicians and municipality officials, presenting the 30-day plan to be carried out in the field. Also presented was the InovGrid project and relevant information about the operation to be carry on of smart meters and their potentialities.

In those moments, pulse surveys were collected in order to evaluate evolutions, namely the evolution of the Net Promoter Score. It also explained the role of municipals officials in moments of contact with consumers, challenging them to take the lead role in exposing the benefits of smart meters.

At these meetings were agreed dates and built a Gantt chart with alignment of agendas between the three parties, Municipality, EDPD and partners.

Stage 2 – Inform, Educate and Engage

During the roll-out city officials will be invited to witness the facilities, to better understand the customer experience and receive additional education on smart meter benefits.

This development will be experimented on the field, during smart meter installation, and will involve EDPD's internal teams and operational municipal officials, creating moments of contact that evidence gains through better energy consumptions and better information to city citizens, thus creating an InovGrid awareness to municipalities.

In this contact, consumers were first asked to fill out a type 1 survey (pre-installation), and then given an explanation of smart grids and smart meters' benefits and potentiality. We prepared a communication plan to answer consumer doubts through the simple messages:

- Smart meter is a device that replaces the existing meter and allows tasks to be performed remotely, such as defining maximum outlet, time cycle and tariff.
- In the future, if consumer request a contract modification such as in capacity or tariff scheme, it will be fulfilled with no need for an EDPD team to be called out and without the need of the consumer presence at the premises.
- From that point on, there is no need to continue providing monthly consumption readings, as they will be done remotely. But if you do, your reading is accepted and may be used for billing purposes as backup information in case of communication failure from the smart meter.
- As standard, the bill will be issued based on actual consumption. Estimates will be used in exceptional cases; wen actual reading cannot be obtained.
- Several information are easily displayed on the meter screen such as consumption readings, maximum outlet, tariff type, time cycle and instant consumption. There's also the possibility to receive messages and alerts.
- With access to more information, the consumer will be able to adjust its consumption more effectively and manage the installed capacity according to his needs.
- It will be able to obtain load diagrams and data on consumption and capacity – valuable tools to enable you to adjust your installation to meet your requirements.
- In case of assistance needed, you can call the InovGrid open line (808 505 705), which costs the same as a local call. Additional information is available on our website at www.edpdistribuiacao.pt.
- All the costs will be covered by the company. EDPD pays for the installation and operating costs of this new device, as it was with the old meters.

In the field the teams were organized with municipality officials, EDPD technicians and its partners. The municipal officials during the explanation were encouraged to take an active role in order to take the position of project ambassadors.



Figure 1. Smart meter.

The use of a simulator of consumptions in an application for tablet or smartphone was a crucial tool to better demonstrate the feasibility of consumption that the smart meter will allow.

The second moment of contact was made after consumer's perception of benefits. They were invited to respond to the same online survey (type 2) in a post-installation phase. This methodology was followed in a similar way with the municipality technicians, differentiating the two moments between the beginning and the end of the project (30 days apart).

Stage 3 – Avocate

The final phase is to create smart meter advocates for EDPD consumers and local officials through ongoing collaboration in township parish boards. As of 30 days after the installation of smart meters, staff of local structures in the municipality should receive training directly from EDPD technicians or municipal ambassadors trained in the field experience.

During this post-installation follow up, municipal officials who were previously educated about these tools and programs will be encouraged to become advocates for InovGrid communication as a way to help consumers to manage their electricity usage. Thus local officials also previously educated about energy efficiency are encouraged to become advocates for enrolment in such programs (e.g. PPEC) as a way to help citizens manage the use of their electricity.

With this involvement EDPD will foster a much closer relationship, availability and commitment, with municipalities and consumers, supported in a foundation of trust.

KEY FINDINGS - POTENTIAL BENEFITS OF SMART METERS

The improvements in energy efficiency that smart meters might lead could be significant, in addition there are less tangible benefits. For example, there has often been a tension between energy retailers and consumers, resulting from a lack of understanding in terms of what exactly the consumer is paying for. From installation to operation, smart metering has the potential to change the relationship between energy suppliers and customers, enabling much easier and more frequent two-way interaction between the two parties. By being given access to accurate, up-to-date information on their energy use, consumers will have a larger degree of understanding and control in monitoring and reducing their energy consumption and costs. Retailers will also benefit from the accurate information a smart meter provides, allowing them to improve the standard of service they offer through personalized communication and a better understanding of their customers' energy use. However, it would be a mistake to assume that the tangible and intangible benefits will follow on automatically from the rollout of smart meters. Our research pretends to show that a structured approach is necessary, moving from the provision of raw data, through turning this into information that enables insights and finally to long term behaviour change resulting from new habits.

Once people's values, barriers to change, and motivations are understood, an effective campaign can be built which is likely to have a real and lasting impact. It's more than awareness raising or an information campaign - it's a process with multiple steps and activities that identifies the root obstacles to change and then nudges, motivates, or enables people to behave in a different way. Having a big

push for a day, or even a week, can have a huge short-term impact, but behaviours have to be designed and supported in a way that ensures they will last beyond the life of the smart meter rollout campaign.

Throughout the experimental project we were able to capture several situations that after analysis we became to the following key findings:

- It is important to clarify the functionalities a benefits of smart meters and their impact on people's lives, transmitting a positive image and tackling insecurity about the unknown of intelligent networks.
- The message of energy efficiency passed by municipal officials has more impact on citizen's awareness.
- Consumers are highly concerned about energy cost savings and about how to make their limited incomes stretch.
- Seniors are concerned about an energy crisis that future generations will have to endure.
- Messages about energy efficiency and tips for saving have penetrated this market, facilitate by presence of the municipal technicians.
- Most of the consumers did not want to absorb the costs of the new technology, but believe it will happen anyway.
- Municipal officials have showed great interest and motivation to participate in the project, even taking charge of surveys and interaction with customers.
- Municipal officials suggested that a similar initiative be undertaken to involve parish councils with greater proximity to consumers.
- To increase the population engagement, the key is to promote proximity, with clear messages and good examples. In this particular, the municipality local structures can make a very positive impact while also reinforcing the ties with EDP D.
- Smart Grid technology changes the customer-utility relationship; it is a cultural shift in the utility business.
- Smart Grid is a community effort not just a utility effort.
- Utility customers do not all have the same needs and preferences.
- Media coverage—particularly social media—can change community perceptions quickly, especially if customers have not been informed and educated upfront.

Smart meters not only deliver consumer benefits, they also benefit energy retailers and the energy market as a whole. It is inaccurate to say that retailers only want to maximise consumption and so do not support smart meter technology and products. Retailers have moved well beyond such a characterisation, with several retailers selling solar systems (thus reducing consumption from the grid), and

many more actively engaged in energy efficiency initiatives with their consumers. It should be recognised that there is value to a retailer in offering these products that can offset the lost value from lower consumption. Further, the financial gains to a retailer are more around how it manages its trading and contracts in the wholesale market than in the absolute units of energy sold.



Figure 2. Smart meter load diagram.

One of the key lessons that has emerged is that deployment success is dependent on developing and communicating a compelling consumer value proposition. Consumers need to feel the solution has been designed for their benefit if it is to achieve behavioural change. During smart meter rollouts, consumers want to be engaged and educated and, once in place, they expect EDPD to leverage the technology to offer a new energy experience—one that is more personalized and proactive, particularly when it comes to saving money.

Regarding the energy retailers, they are enthusiastic about the new ways the market can meet consumers' needs via smart meters, particularly in the current environment of rising energy costs. Smart meters will enable a long term digital evolution of consumer choice in the energy sector. Smart meters and associated communications technology provide a foundation for a new suite of retail energy products and services which enable real demand side participation in the energy market. This allows consumers to choose different pricing packages to suit their lifestyles, become better informed about their consumption and drive further innovation in energy service lines. As energy consumers learn more about managing their energy use, they will change their expectations of the energy market and will be proactive in demanding more from their energy retailers. Cost of living pressures, awareness of carbon costs, and increased use of digital technology will provide impetus for consumers to investigate and take up new products that help them understand and control their energy use.

In this project we make reference to this potentiality during the interactions in the field with the customer, one of the most commercialized products is the 'Re:dy', a very intuitive and friendly user app that offers users several functionalities including appliances energy monitoring in euros.



Figure 3. Re:dy app print.

CONSUMERS SURVEY RESULTS - SMART GRID AND SMART METERS

Initial awareness of smart grid and smart meters was low. Most consumers have never been confronted with the terms "smart grid" or "smart meters". However, their general assumptions about what the terms mean were fairly accurate. After being provided additional information about the smart grid and smart meter concepts the predominant customer response about both concepts was positive.

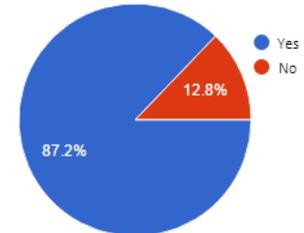


Figure 4. Smart grid awareness.

Most of consumers recognized a need to modernize the current infrastructure to preserve and improve reliability, as well as to provide a platform to add renewable sources of energy. They also confirmed the value of having access to new technology that will provide information to help them manage energy usage more efficiently. They did identify some smart grid/meter drawbacks, as well as the cost of implementation and how the investment will be paid back.

The benefits from smart meters and associated technology are not solely related to retail energy services, they will have a positive impact across the whole energy value chain. This includes allowing for better network planning, where distributors can work with retailers to develop energy products that reduce the burden on the network at peak times.

From the results of the survey related to consumer expectations to the smart grid, most of the responses were focused on energy efficiency, confirming the retailers' strategies.

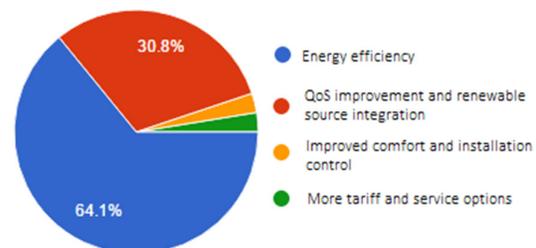


Figure 5. Smart grid expectations.

Regarding the results obtained from the surveys we concluded a leverage of the Net Promote Score (NPS) on the installation of smart meters and also the NPS improvement of EDP in the role of DSO.



Figure 6. NPS analysis index.

Regarding to the EDPD recommendation as DSO and the surveys carried out to the municipal technicians, of about 40 surveys, a NPS of 8 was registered. It should be noted that the visibility of these technicians to EDPD as they interact on a regular basis, public lighting that is guaranteed in the municipality by EDPD. About the survey's results of the period after the installation of smart meters, a new NPS of 25 was obtained, thus an evolution of 17 points was verified. Clearly, municipality technicians were positively impacted by the project, in special the fact that they were often key actors in demonstrating benefits, particularly in the area of energy efficiency among citizens.

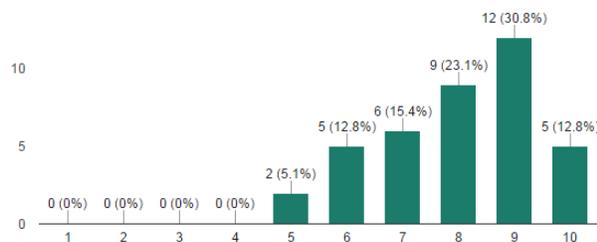


Figure 7. EDPD NPS as DSO.

In the smart meter recommendation question, the municipality technician's answers reflect a starting NPS of 17, that fired up to a NPS of 56 at the end of the project (after 30 days).

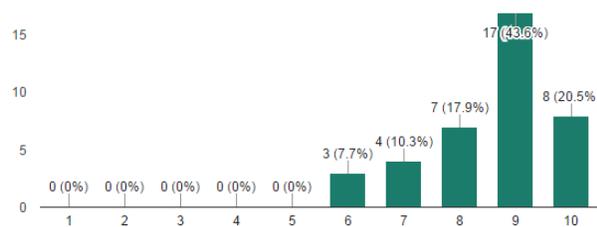


Figure 8. Smart meter NPS.

CONCLUSIONS

EDPD as a DSO operates as a market facilitator with direct access to consumers. During the smart meter deployment there's an enormous potential in promoting customer engagement by making the most out of the interactions with customers. This early engagement of consumers with grid technologies opens doors for adoption of new energy efficiency products and services offered by retailers and other market actors in the value chain. In this area of energy efficiency, the role of municipalities has an

interesting position because it facilitates effective communication with the consumer, in particular the issue that is often asked, why a utility promote energy efficiency when making money to sell energy? The answer to this question, from the DSO's point of view, is mainly answered by the sustainability of the electrical system, with relevance for solutions of demand side management. The role of municipality in the project has proved crucial in responding effectively to the issue of consumption reduction, playing as a facilitator actor in the rollout of the smart meters' installation.

Smart meters may be a revolutionary technology, but the process of achieving ongoing value is more likely to be evolutionary in nature. Building in business and technical flexibility will be critical for seizing opportunities as the uses of smart metering evolve.

The success of this project, which takes advantage of the smart meters' rollout, was fundamentally due to the partnership with the municipality and managing to maximize the value with all stakeholders.

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