Energy Measurement in the Spanish Electrical Deregulated Market

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Abstract.
The spanish electrical sector is, since 1997, becoming opened to a free deregulated market, in a progressive way, step by step, finishing the process the next 2007. One of the keys of this deregulation has been the reform of the Spanish regulation for the electrical metering points, necessary for adapt the energy meter fleet to the new needs of the market. This changes in the regulation have arrived later than the transition date for the different steps. Despite this, the different steps have been accelerated, and, since 1st of January of 2003, any electrical consumer can compete for being in the deregulated market

In this article it is tried to give a practical point of view and summarize, the different types of energy meters, depending of the level of consumer.

1. Introduction

Since it first publication, in 1997, exist nowadays 3 alterations of the Spanish regulation for the electricity metering points (RPM), and as energy meter manufacturer, we know that it also need some changes and to full some incomplete parts, due to we are working now using, in parallel two electrical markets: the regulated and the deregulated. Since this transition process continue (free and regulated market) it will be difficult to have a clear regulation. We can say now that, the rules are clear, since the high regulatorial activity of the Economy Department during 2002, but some customers that bought the energy meter in these days have been affected to this changing process and in som cases needed to update it 2 or 3 times. In the Spanish market, the responsibility of the correct way of installation and working for the energy meter is from the electrical consumer, and he has two options, have all the energy metering equipment of his property, or rent it from the electrical distributor.

Table I: Spanish electrical metering park classified

Market	Condition	Qty	Type of consume
Industrial	> 5GWh per year	500	1
Industrial	>750MWh per year or contracted power (Pc)>450KW	2000	2
Industrial	Other consumers connected at network > 1000 V	95000	3
Commerce	LV consumers with Pc >15KW	400000	4
Domestic	Pc <=15KW	21000000	5

Depending on the type of consumer, it exist a minimum requirement for the accuracy of the energy meter, and also other minimum requirements, like: time-of use of the energy in three different contracts, 1 hour load profile recording, IEC 60870-5-102 protocol for reading and programming completely each energy meter, 1 serial and one optical port, second quarterhour load profile, 24h summary, and more. In the next table we summarize the most relevant minimum requirements.

Table II. Steps of the deregulation process of the electrical market and basic minimum requirements for the energy metering equipment:

Customer Type	Year of deregulati step	Accuracy minimum requirements	AMR
1	1997	Active 0.2 S Reactive 0.5	Mandatory (modem)
2	1998	Active 0.5 S Reactive 1	Mandatory (modem)
3	2000	Active 1 Reactive 2	Optional
4	2003	Active 1 Reactive 2	Optional
5	2003	Active 2 Reactive 3	Optional

4. Conclusion

CIRCUTOR, as a manufacturer of energy meters, as an alternative, has developed a full range of energy meters taking account of these questions for the consumer: Why I want to buy an energy meter if I don't know if the RPM will change again or not? Why don´t rent it to the electrical distributor? The CIRWATT family of energy meters is specially designed to accept also setups for being in the regulated or deregulated market, it has enough memory to record all the data required, and it is easily updatable, to adapt it for the current regulations.

References

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