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How to use smart metering to improve the efficiency of electric system operation

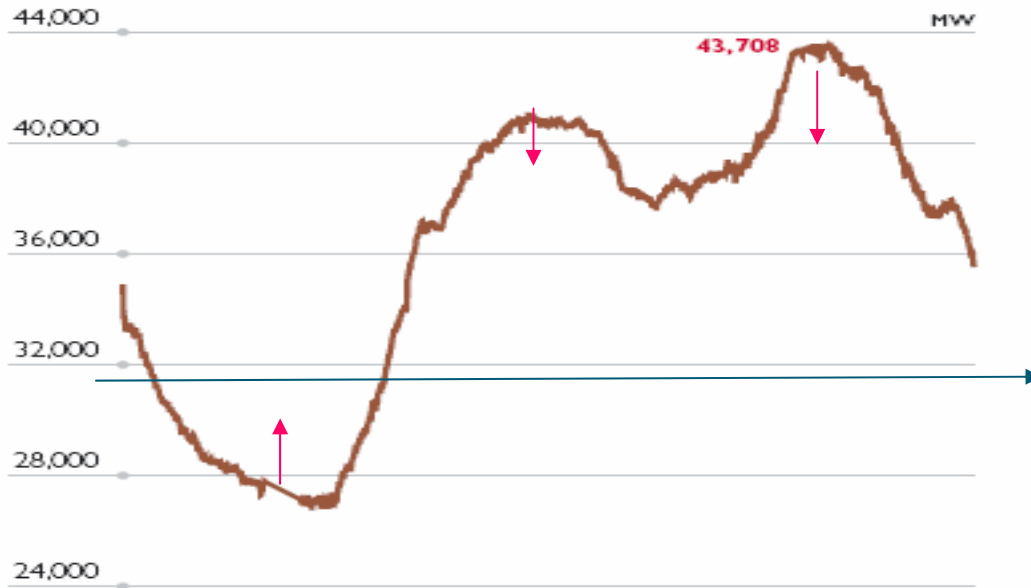
**International workshop
smart metering
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The value of load control for the electric system efficiency

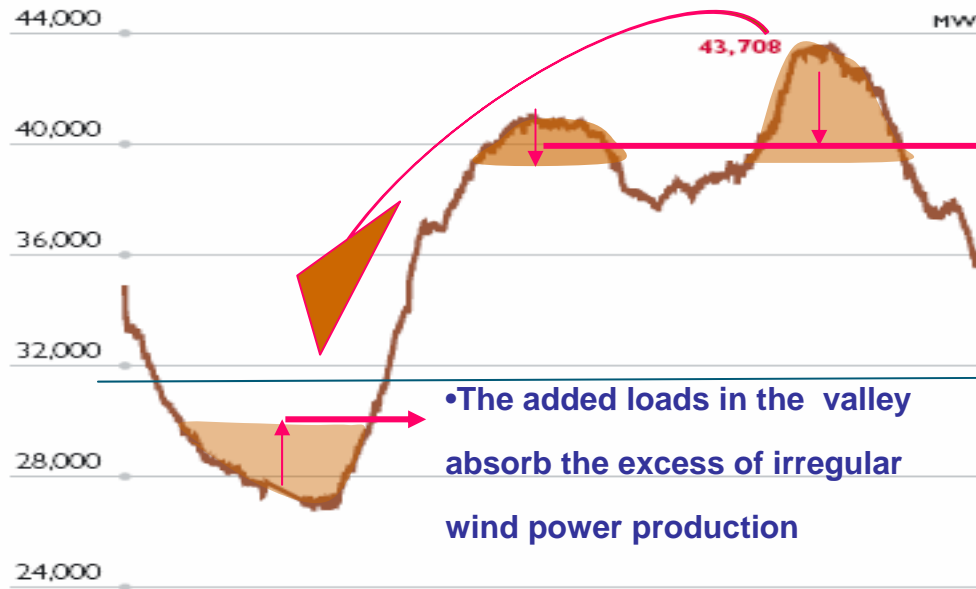


Maximum demand day, hourly load curve

Source: [Red Eléctrica de España. The Spanish Electricity System 2005](#)



The value of load control for the electric system efficiency



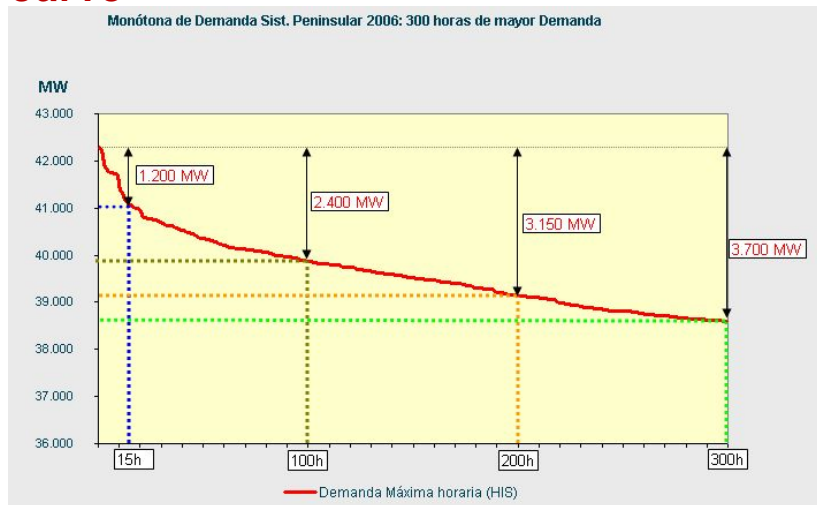
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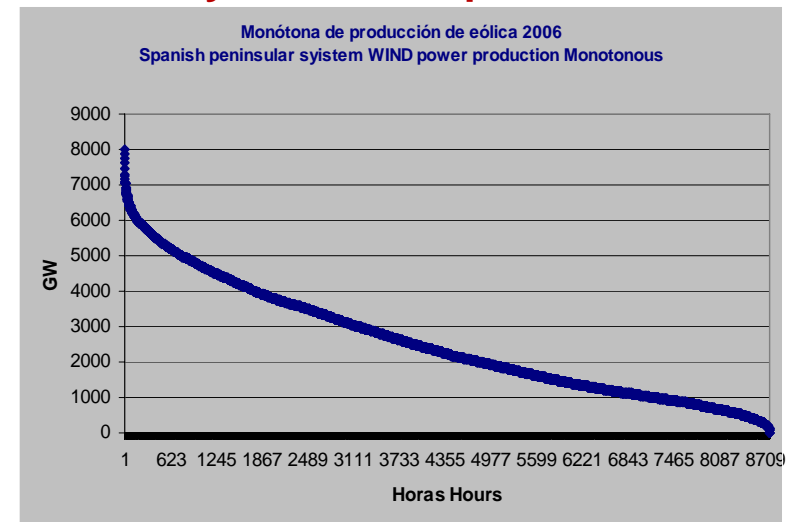
Size of peak load and wind power main triggers

Hourly energy demand in the 300 hours of higher consumption.
Spanish system monotonous power curve



For these 300 hours alone the system needed up to 3.000 MW of additional capacity of generation and grid adequacy in 2006

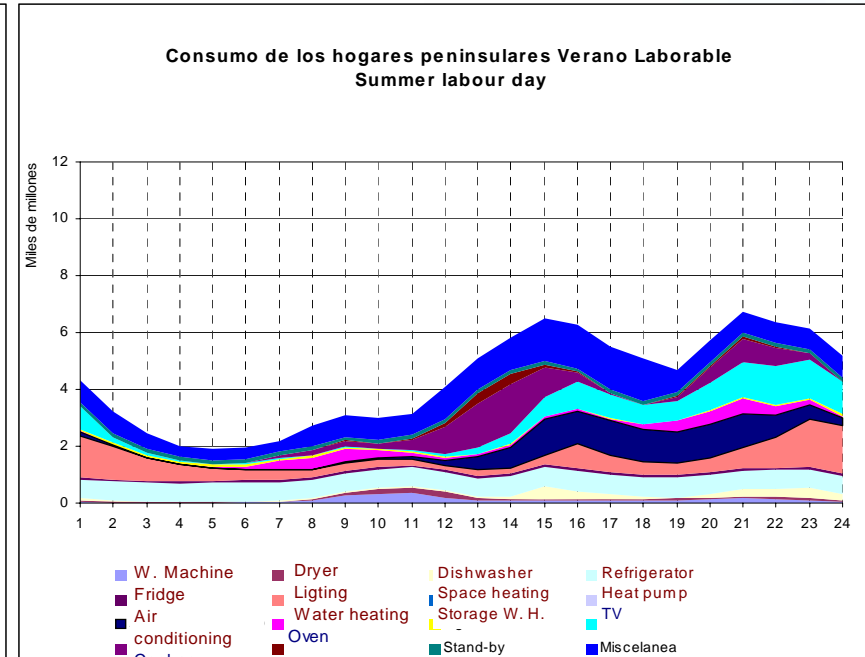
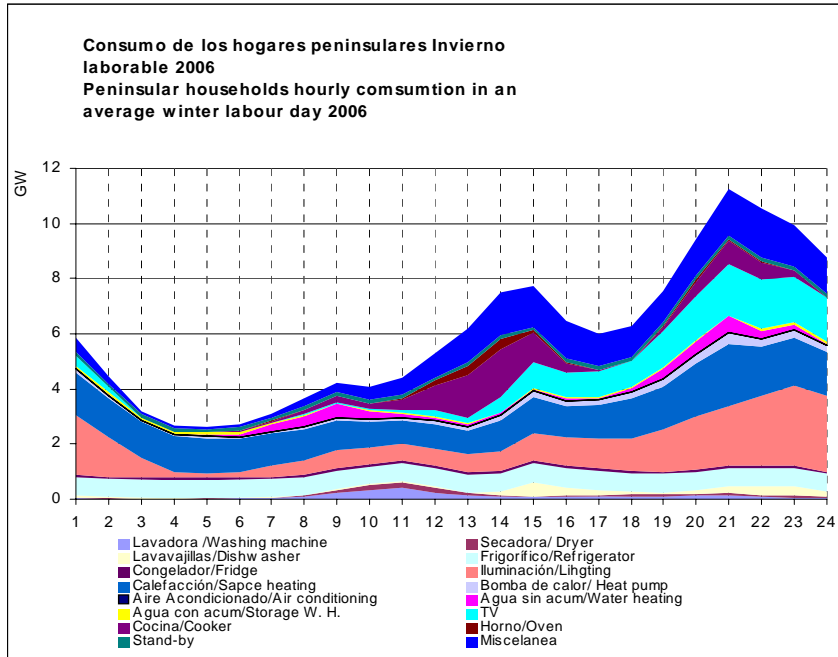
Monotonous wind power production in Spanish the system
Wind power output peaked to its highest value only for a short period of time.



100 times a year, the variation during two consecutive hours of power delivery reached 2% of system demand.



Households operable capacity



Source: Red Eléctrica de España EMERGIE Project 2006

- ❑ Considered all the loads as interruptible with the exception of the cooker, oven, lighting, TV and miscellanea.
- ❑ The top of load management in the residential sector reaches 4.000 MW in the winter average peak.



The attitudes towards participating in new DSM programs?

Red Eléctrica EMERGÍE project 2006 survey found wide favourable attitudes

The questions and answers were:

- Remote load control half an hour, several pieces of equipment, paid as a service provided, 100E a year, PLC and intelligent plugs as infrastructure;
 - 55% declared in favour.
- Remote load control half an hour, override permitted, several pieces of equipment, paid as a service provided, less (not defined how much less) than 100E a year, PLC and intelligent plugs as infrastructure;
 - 57% declared on favour.
- A domotic system would sift consumptions from expensive periods to cheaper ones, that option would reduce the electricity bill. (Not defined which quantity of reduction);
 - 62% declared in favour.

