

ADSM in Spain. Results from GAD Project.

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Gestión Activa de la Demanda

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Aims and Expected Impact



- Aims

- Active Demand Side management using smart devices with embedded system approach. These devices allow the load curve lamination and the reduction of the electric demand.

- Expected Impact in Electrical System

- Infrastructures optimization
- Improvement of security of supply
- Development of end user awareness on the generation costs on peak demand periods
- Reduction of Green House Effect gases emissions
- Development of national industry capacities related to smart grids and smart metering.

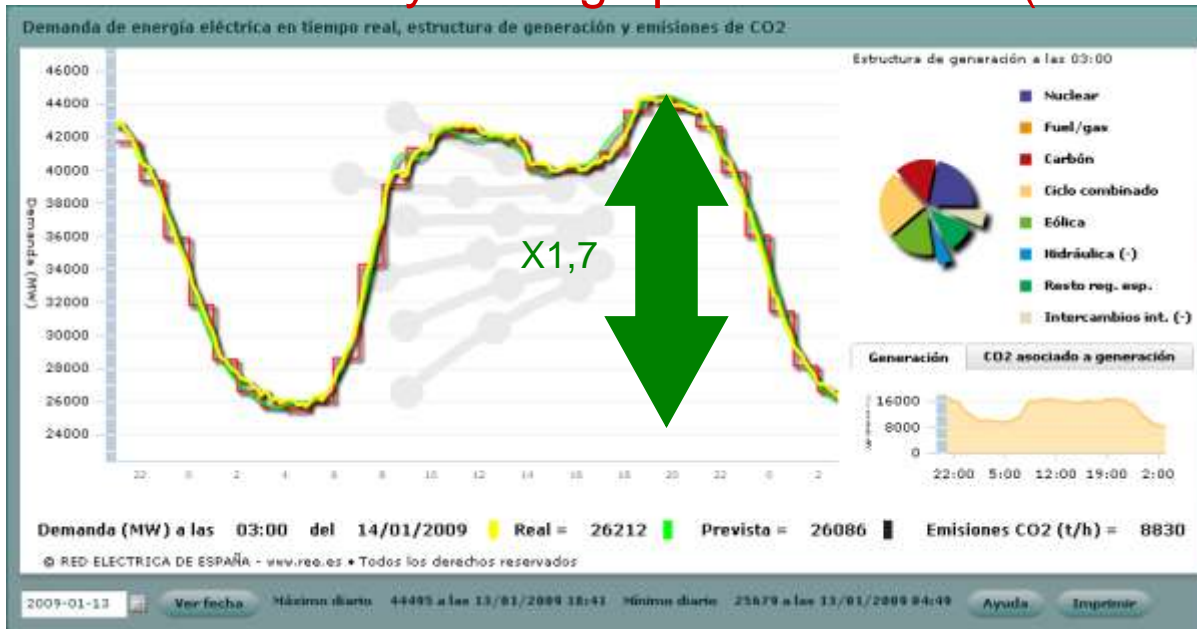
- GAD project

- 23 M€
- 4 years term(2007 a 2010)
- Funded by program CENIT 2007 of CDTI



Background

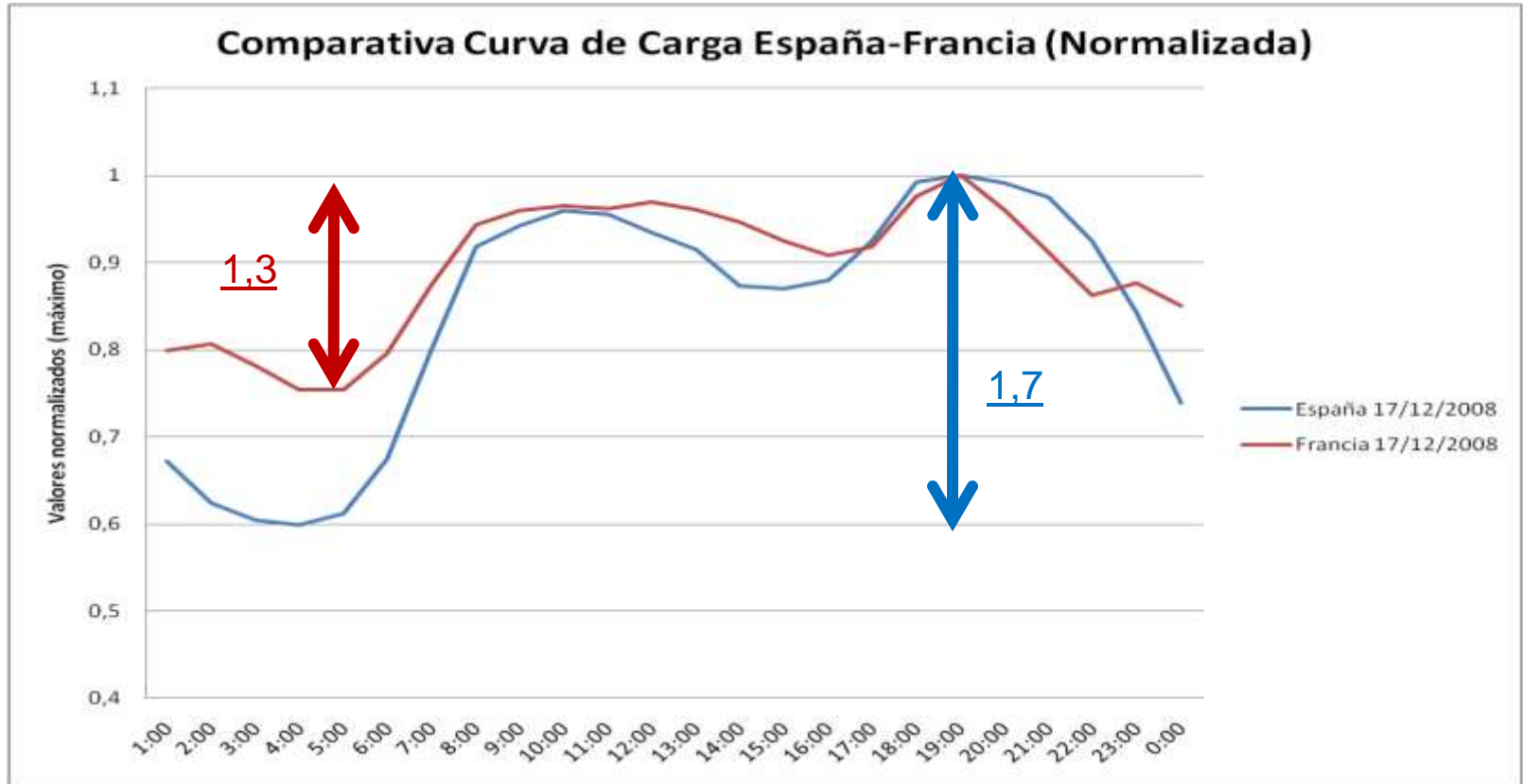
- Load curve of Spanish Electrical System (Source: www.ree.es). Maximum hourly average power demand (14/01/2009)



There's a need of optimising the load curve, transferring consumption from peak periods to valley periods

Background

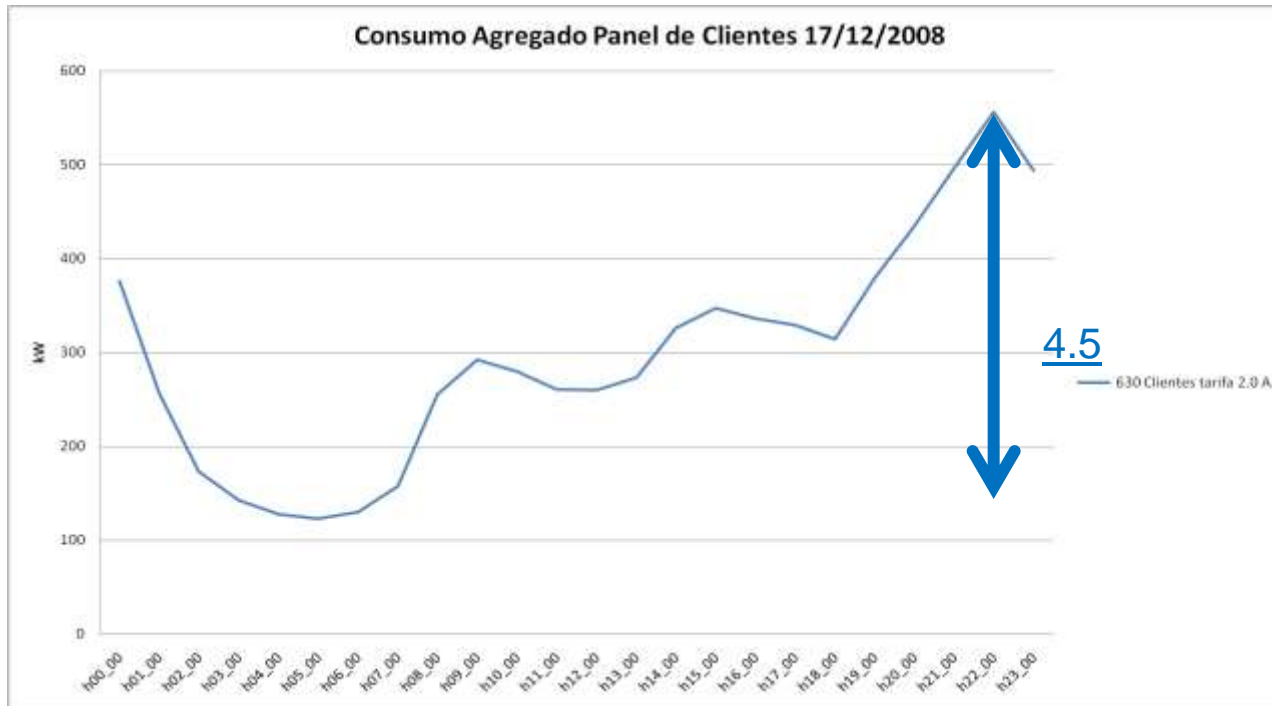
- Comparison between spanish load curve vs french load curve (source: ENTSO)



Background



- GAD Customers panel. Energy Consumption Behaviour



There's a huge potential in domestic active demand side management

Consortium

- Utilities(2 DSO, 1 TSO)
- Control Systems Integrators
- Meter manufacturers
- Appliances manufacturers
- Home automation solutions integrators
- Systems and SW engineering
- Communication equipment manufacturer
- 14 R&D Institutions



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Medida

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gtd

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ORBIS
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B/S/H/

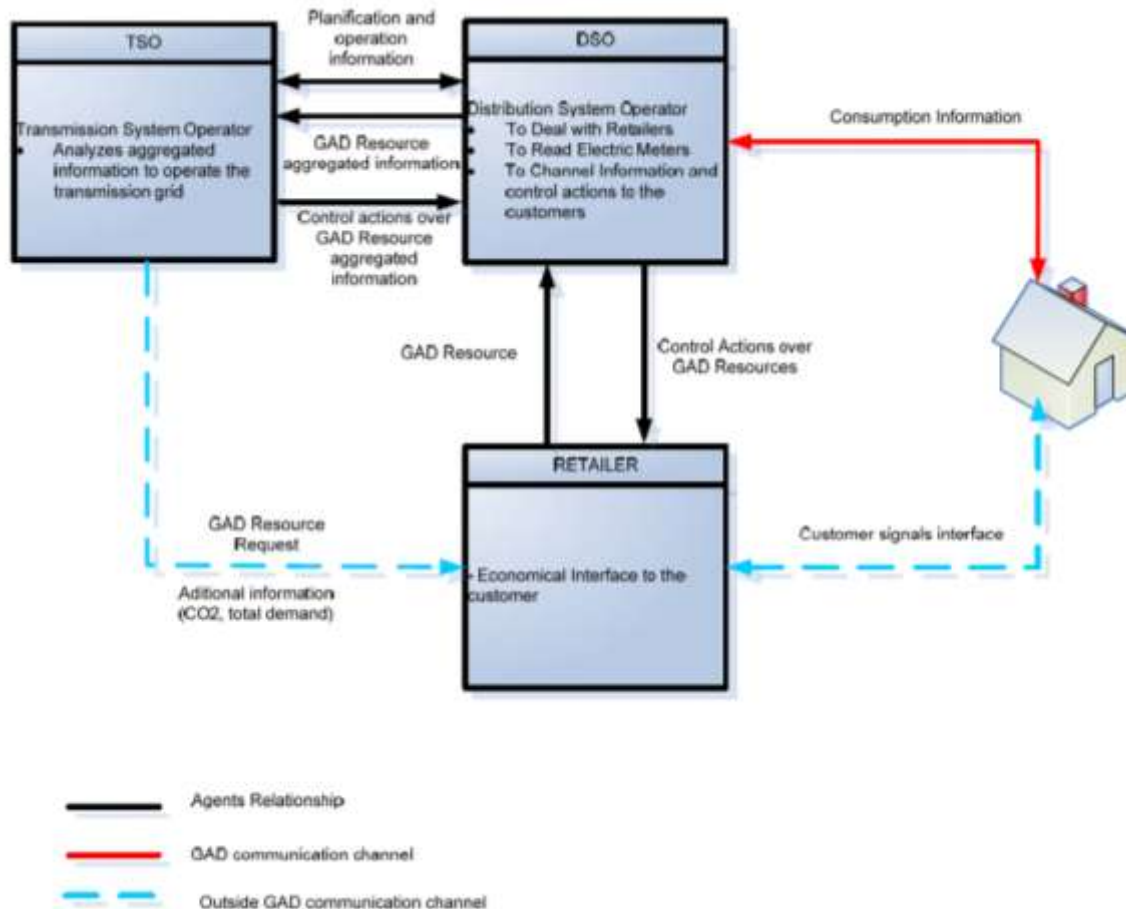
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CORPORACIÓN EMPRESARIAL

INGENIERIA DE SISTEMAS
Y DE SOFTWARE

DIMAT

2010

Agents Involved



Agents Involved. Benefits



- TSO Benefits
 - Quality and reliability improvement
 - Reducing and postponing the need of new generation and grid infrastructures
 - Integration of an increasing amount of non manageable renewable generation
 - Technical losses reduction
 - Contribution to the climate change mitigation
- DSO Benefits
 - Same as TSO +
 - More visibility at low voltage grid
 - Increase the quality of supply

Agents Involved. Benefits

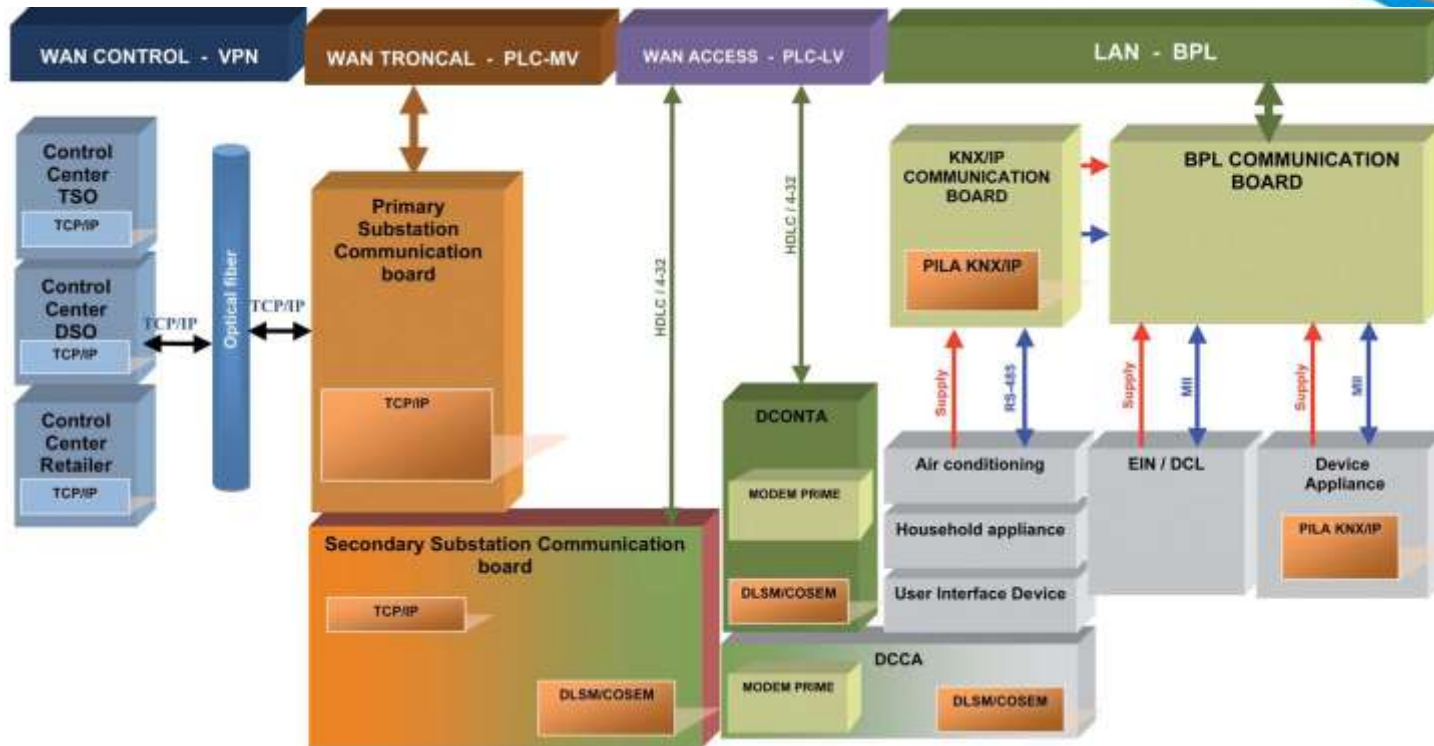
- Retailer Benefits
 - Product differentiation
 - Quality of service



GAD IMPLEMENTATION PROPOSAL



Gestión Activa de la Demanda



GAD IMPLEMENTATION PROPOSAL



- Pilot for technological test. Location: ITE



- ECST: Communication Device for Substation
- ECCT: Communication Device for Secondary Substation
- DCONTA: Electronic Meter
- DCCA: Energy Box
- DIFU: User Interface
- Smart Appliances
- Smart Plugs



LESSONS LEARNED



- Technology for Active Demand Side Management is available
- Huge potential on Active Demand Side Management in domestic sector due to aggregation effect.
- Cost-Benefit analysis agent by agent is needed to analyse the distribution infrastructures costs.
- Not all appliances are manageable. Usually thermal loads are more manageable due to inertia.
- Devices for Active Demand Side Management must have low energy consumption

NEXT STEPS



- Standardization of communication protocols
- Evaluation of Demand side management resource
- New legislation to promote demand side management.
- New tariffs.
- Customer awareness.

Questions?

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www.gadproject.com