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asociación de empresas con gran consumo de energía

Energy sustainability and European competitiveness

Security & adequacy of electricity supply: The consumer's viewpoint

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www.aege.biz

Madrid, 10 March 2005

MADRID SESSA CONFERENCE

- **Identification of the electric energy product**
- **Identification of the useful market**
- **Questions and reflections on supply guarantee**
- **Opinions and data on the demand and its evolution**
- **Opinions and data on efficiency in our country**
- **Ideas on the MIBEL (Electricity Market in Iberia)**
- **Data on rate-managed demand**
- **Conclusions and suggestions**

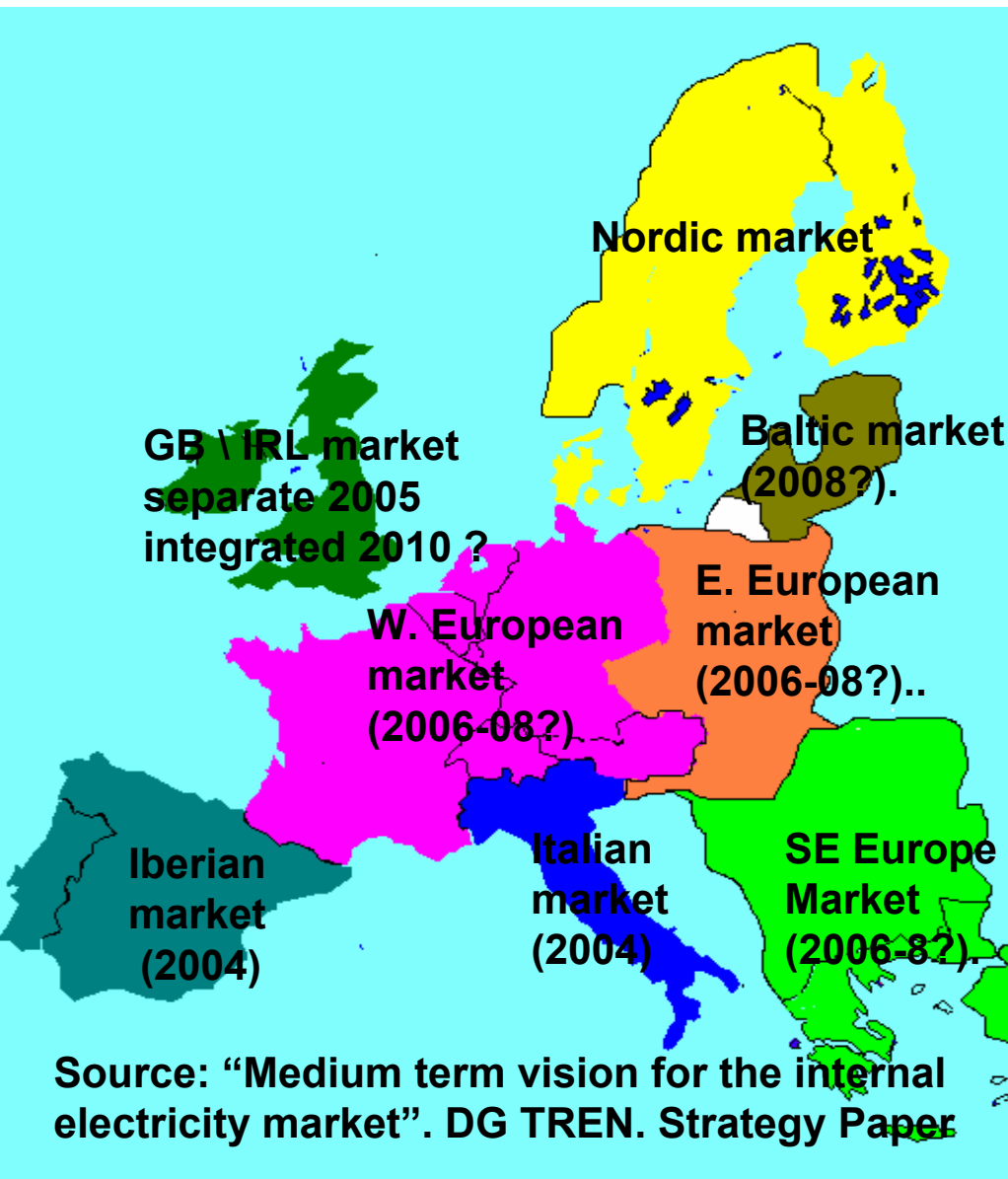
Identification of the electric product *Three ways of viewing it*

- **This is a fundamental service of rigid demand that covers the vital needs of the population in any country, under very diverse circumstances.**
- **Moreover, it offers the population increasingly better possibilities of comfort, with user cost acceptable for family incomes in any developed country.**
- **It is also a fundamental raw material absorbed in large quantities in the end product of many companies**

Identification of the electric product Three prototypes of consumer

- **The householders, those that the politician will never leave vulnerable to the market, because they are "his clients", the voters**
- **Many company consumers little affected by the price of electricity**
- **A few company consumers for whom electricity is one more raw material fundamental for being competitive**

The electricity liberalization framework: What market we are speaking about?



- The EU recognizes difficulties for attaining a single market
- It intends “to begin” with regional markets.
- A collection of “zonal” markets is not better than an EU market
- The horizon of the single EU electricity market is too remote

Spain should refine its regulatory framework for electricity liberalization from the perspective of a very isolated market

- **Is it necessary to guarantee the supply of electricity?**
- **Who has the responsibility?**
- **Why does competition seem not to produce an excess of supply in this product?**
- **Certainly with sufficient time and experience, the electricity market will guarantee the supply but, can we wait and run the risk, even though it is temporary?**
- **Is recognizing the requirement to guarantee the supply, the same as recognizing there is no market?**
- **Is the “normal” consumer of this very special product prepared “to select” his level of supply guarantee?**
- **Can anyone, no matter how important, assume the responsibility of being able to avoid, in any condition, a severe misbalancing enough to produce a blackout in Madrid, or Barcelona, or Tomelloso...?**

- **Must the market decide the long term global supply of primary energy in a country.**
- **Do politicians have something to say, and to do?**
- **If the answer is “they have” ... can the electric market decide the “politically assumed” generation mix of electricity by itself?**
- **Must the electric market accept the obligation to keep close to the “politically decided long term mix”?**
- **Is present market “philosophical” regulation prepared for that?**
- **Something like that, must be understood as an “intervention against the market”?**
- **Can it be understood by the market as “a part of the logical long term framework”**

The supply guarantee: Reflections

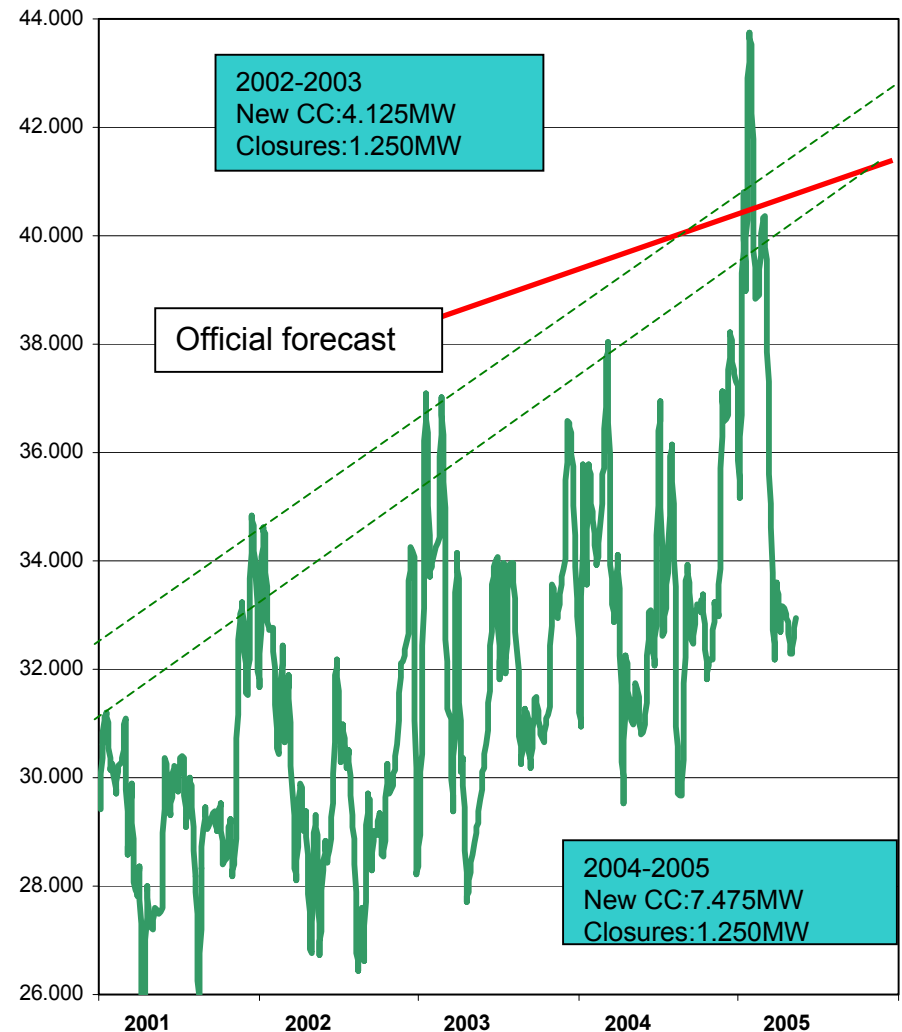
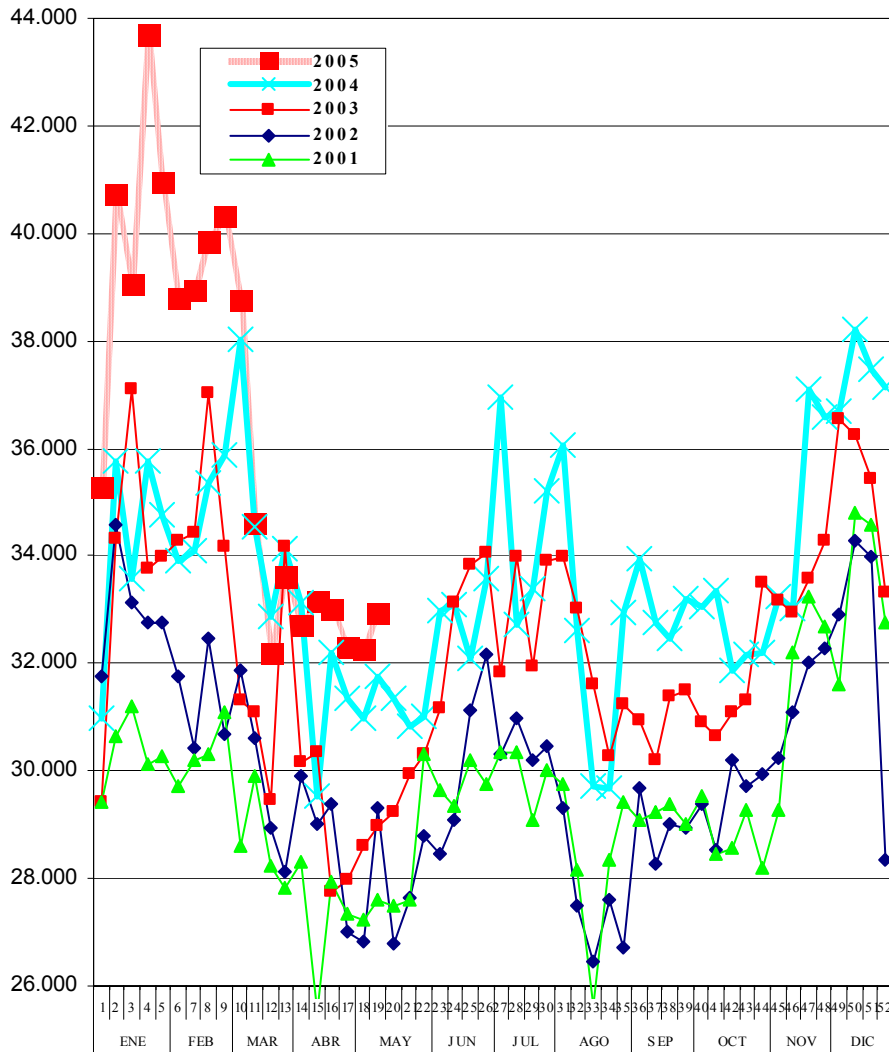
- **The dynamism of the Spanish demand and the reality of industrial investment in our country require decisions now, even though the questions have still not been answered.**
- **There have been too many incidents in too many countries for the politicians to “keep low”, waiting to see what happens.**
- **For this reason, it will be necessary to act with a lot of good sense and a mix of market and regulation.**
- **In Spain the White Paper can be an excellent opportunity.**
- **To begin, it is necessary to analyze the demand and its trend realistically. It is not logical to delude oneself .**

As the market still doesn't know, the Government must accept the responsibility to “guarantee” that the system maintains an adequate margin of excess over the “logical” foreseeable peak demand, and has margins to deal with unforeseeable events, in the minute, in the short term and in the long

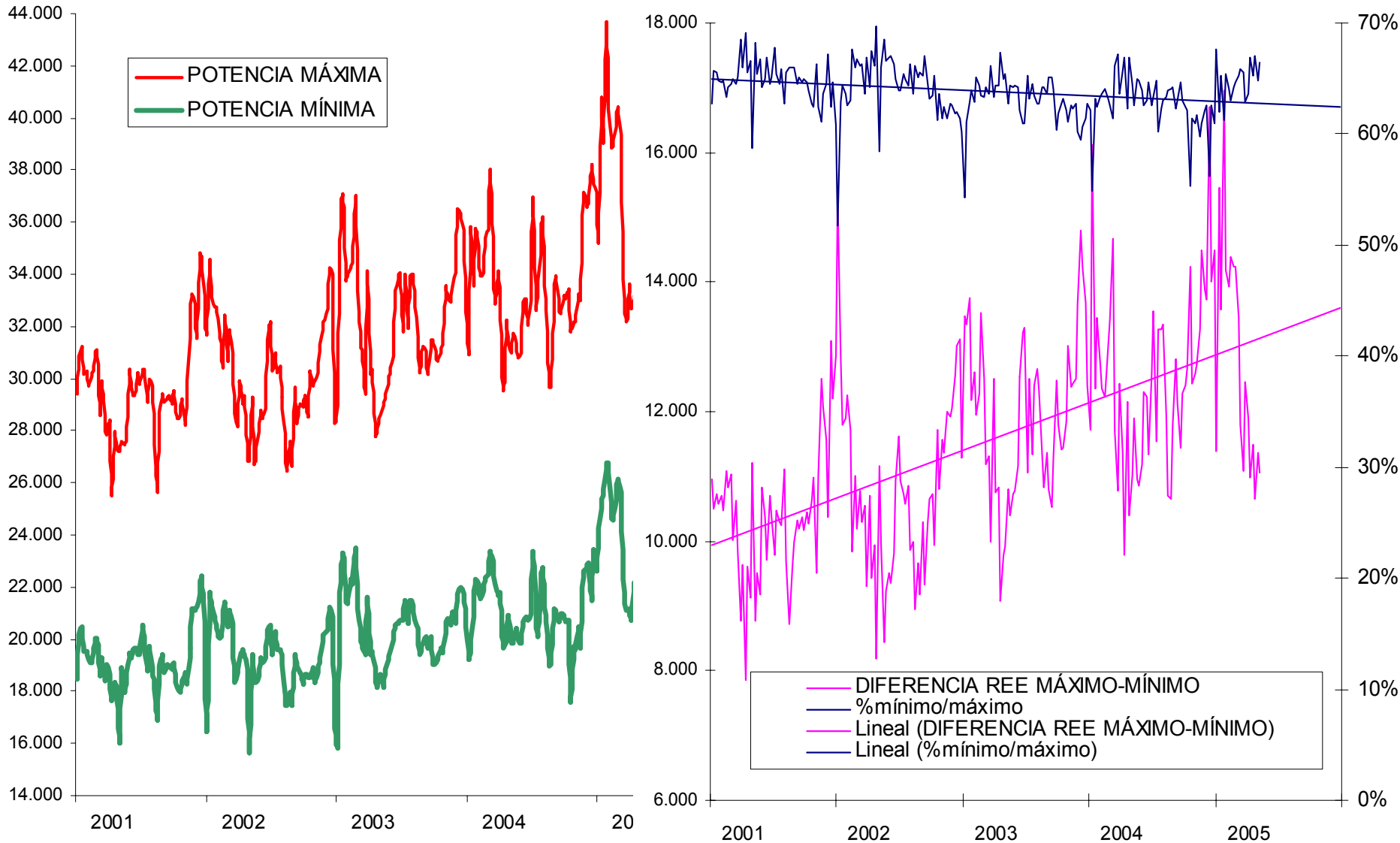
If in any country “guaranteeing” that balance depends on the effort of all, it is in Spain

- **Rate of growth of the demand**
- **Peak-valley demand difference growing**
- **Maximum option for renewables**
- **No gas, no petrol, only coal**
- **Extremely quick option in gas**
- **Liquefied gas option**
- **Isolation with regard to the rest of EU, both in gas and electricity**
- **Level of GDP midway**

Peak demand evolution in Spain



The difference between maximum and minimum demand



Source: REE

The offer-demand balance for different scenarios in 2011

		ESCENARIOS 2011				
		HUMEDO		SECO		Murphy
		Base	Muy frio	Base	Muy frio	
DEMANDA EN MW EN CONDICIÓN MIBEL						
Previsión 2011 según el documento de Planificación	(1)	49.000	49.000	49.000	49.000	51.450
Frío intenso			4.000		4.000	4.000
Compromiso neto a Portugal		1.500	1.500	1.500	1.500	1.500
Marruecos		1.000	500	1.000	0	1.000
TOTAL		51.500	55.000	51.500	54.500	57.950
OFERTA						
Oferta real dic 2001(frio y seco)	(2)	35.000	35.000	35.000	35.000	35.000
Hidraulicidad alta	(3)	5.000	5.000			
Saldo con Francia supuesta operativa la nueva línea	(4)	3.000	0	3.000	0	0
Nueva eólica aportada en la punta	(5)	5.000	1.000	5.000	1.000	500
Nueva cogeneración		2.000	2.000	2.000	2.000	1.000
Cierres 2001-2011 por edad, fuel oil, medioambiente...	(6)	-6.000	-6.000	-6.000	-6.000	-9.000
Nueva potencia según inversiones con simultaneidad 85%	(7)	19.040	19.040	19.040	19.040	19.040
TOTAL POTENCIA "DISPONIBLE" SEGÚN INVERSIONES PREVISTAS		63.040	56.040	58.040	51.040	46.540
MARGEN RESPECTO DE DEMANDA TOTAL		11.540	1.040	6.540	-3.460	-11.410
		22,41%	1,89%	12,70%	-6,35%	-19,69%
DÉFICIT PARA MANTENER MARGÉN MÍNIMO 10%			4.460	-1.390	8.910	17.205
(1) 49.000 es la demanda punta prevista por Mineco para 2011, en condiciones normales						
(2) Oferta real máxima del sistema el 17.12.2001, incluidas renovables , cogeneraciones e indisponibilidades						
(3) REE lo evalúa actualmente en 4.000 MW						
(4) En condiciones climáticas adversas Francia ya ha fallado hacia Italia y España						
(5) Si el frío es causado por "viento polar", puede haber mucha generación eólica, pero no con frio anticiclónico						
(6) Podrían llegar a 9.000, según fuentes de Planificación, aunque sin precisar fecha						
(7) La CNE prevé como probables 22.400 MW de nuevos cc						

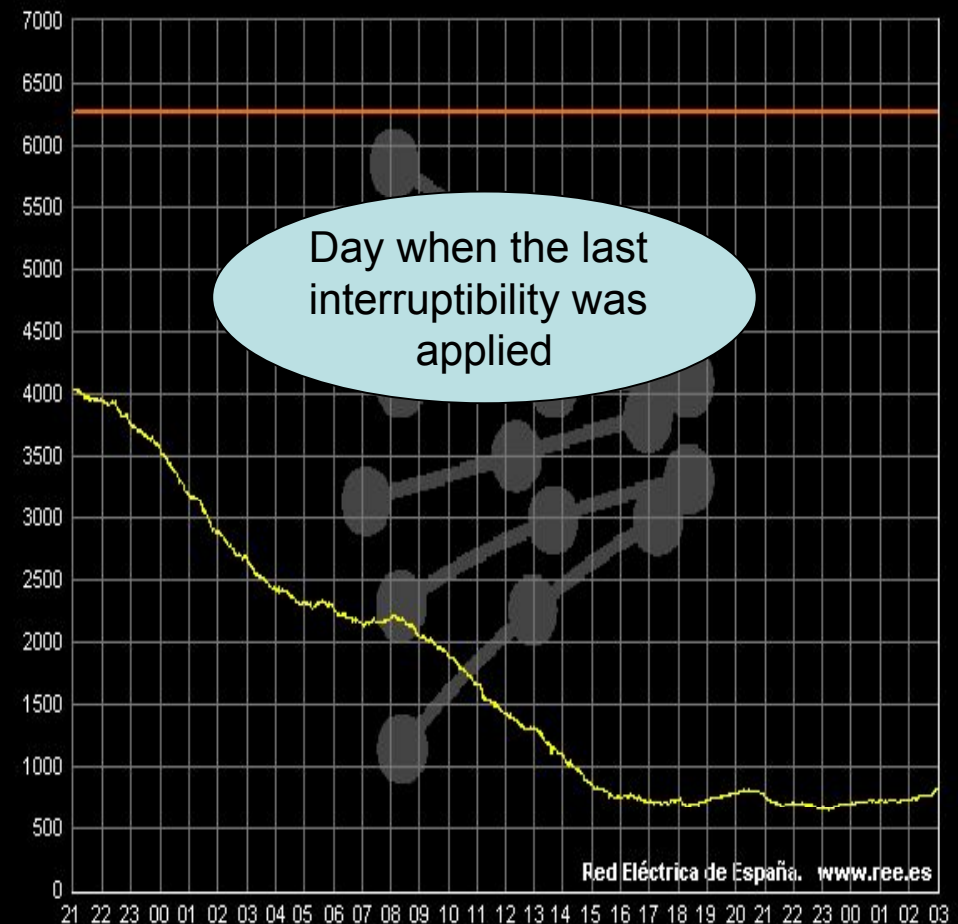
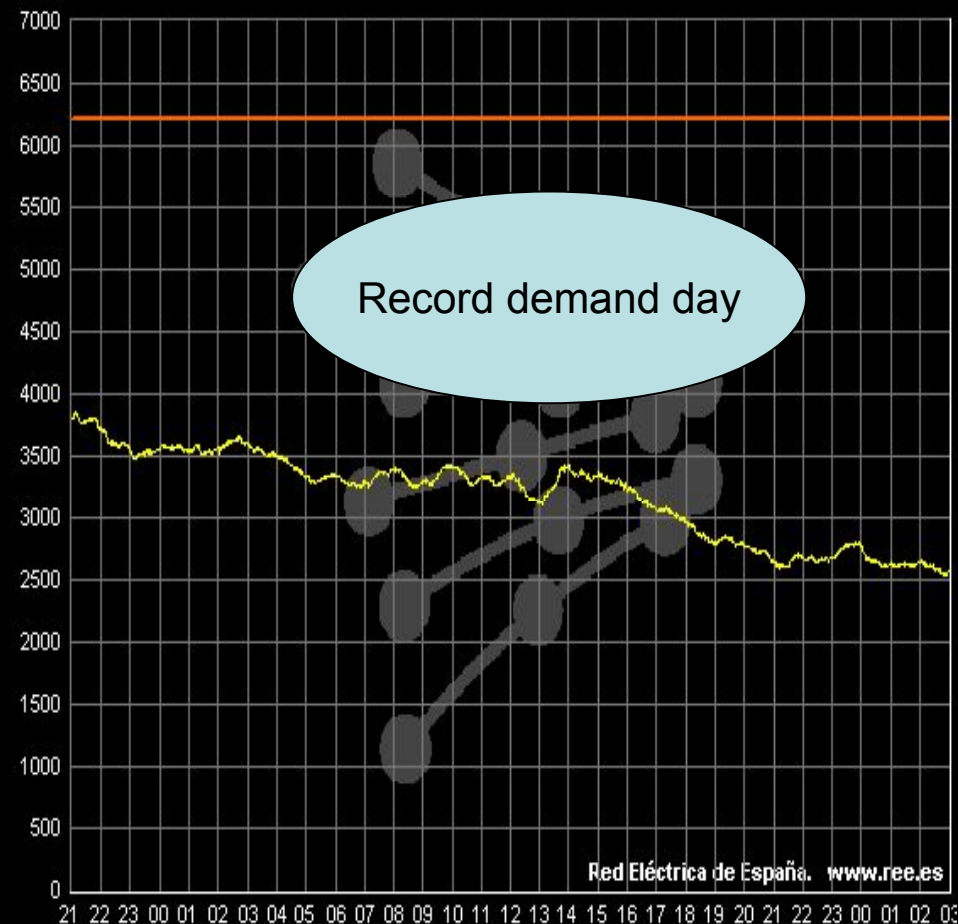
Wind is excellent, but still not a guarantee

Generación de energía eólica

Jueves, 27 Ene 2005
 Generación real Máx. 3.663 MW a las 02:41 h. Mín. 2.593 MW a las 21:10 h.
 Máxima teledorada 6.208 MW 6.208 MW

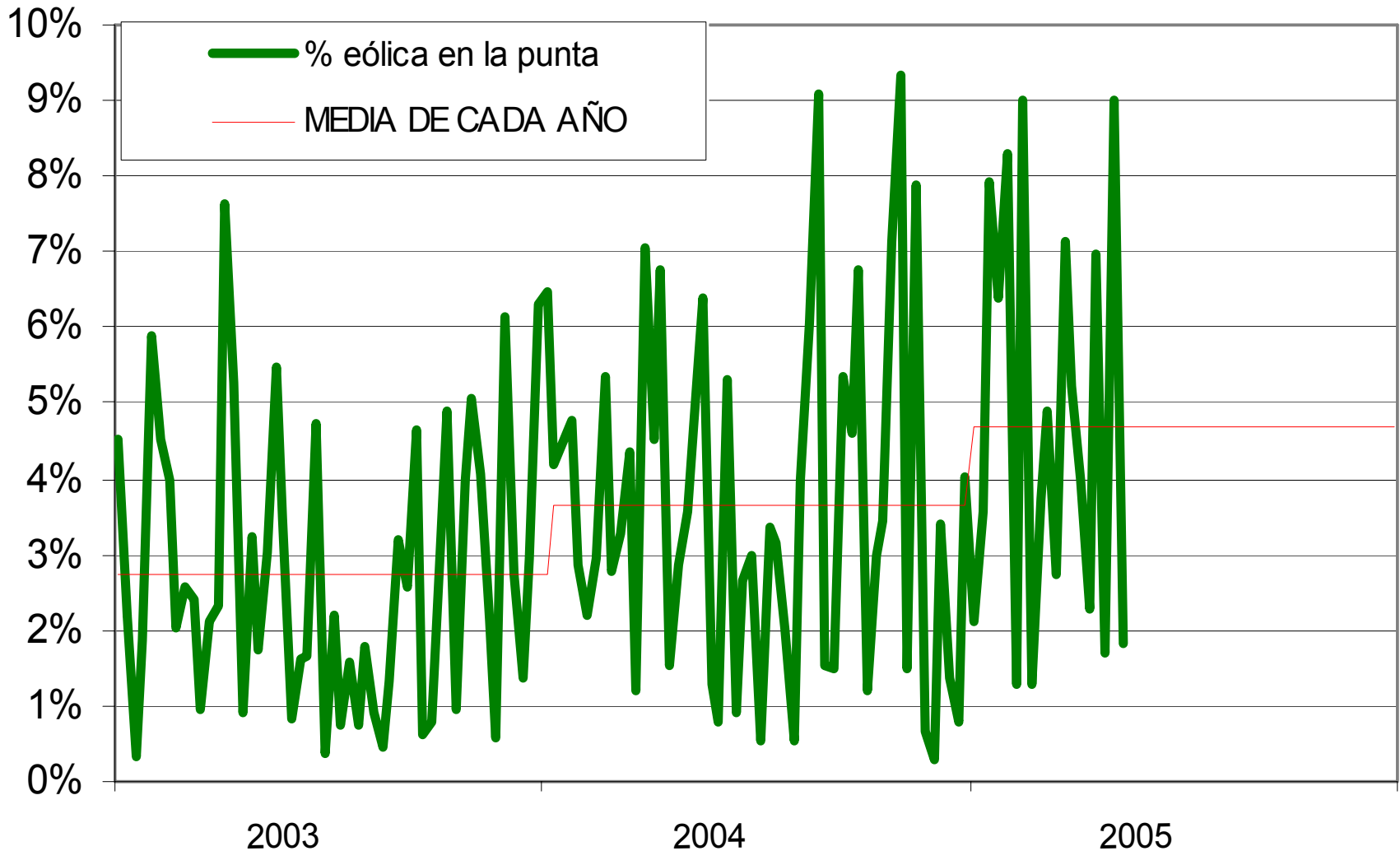
Generación de energía eólica

Martes, 1 Mar 2005
 Generación real Máx. 3.517 MW a las 00:01 h. Mín. 651 MW a las 23:12 h.
 Máxima teledorada 6.266 MW 6.266 MW



Wind power in the moment of peak demand

%

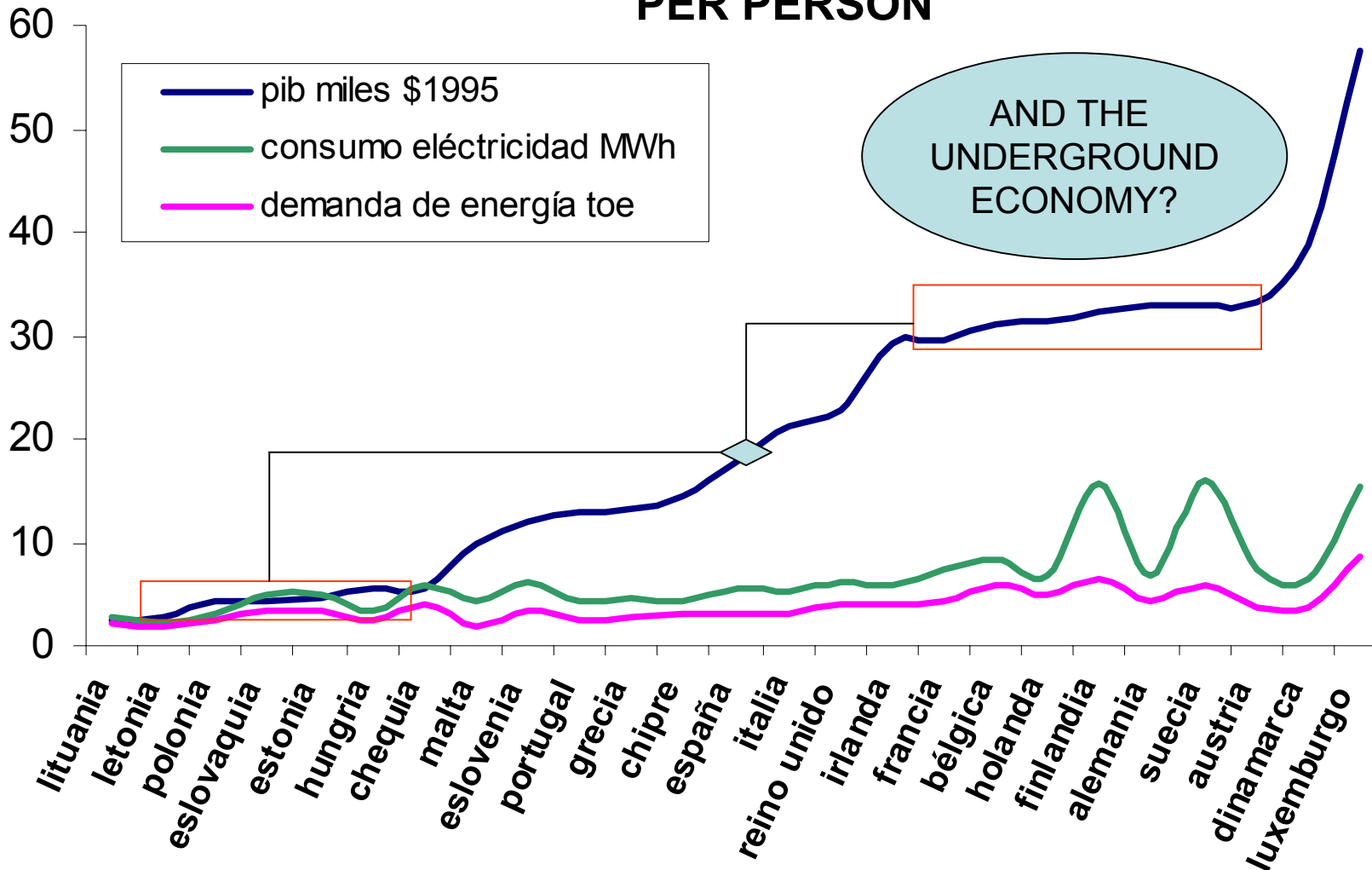


(1) FIGURES CORRESPONDING TO POWER METERED REMOTELY BY REE.
THE REAL DATA CAN BE 30% HIGHER

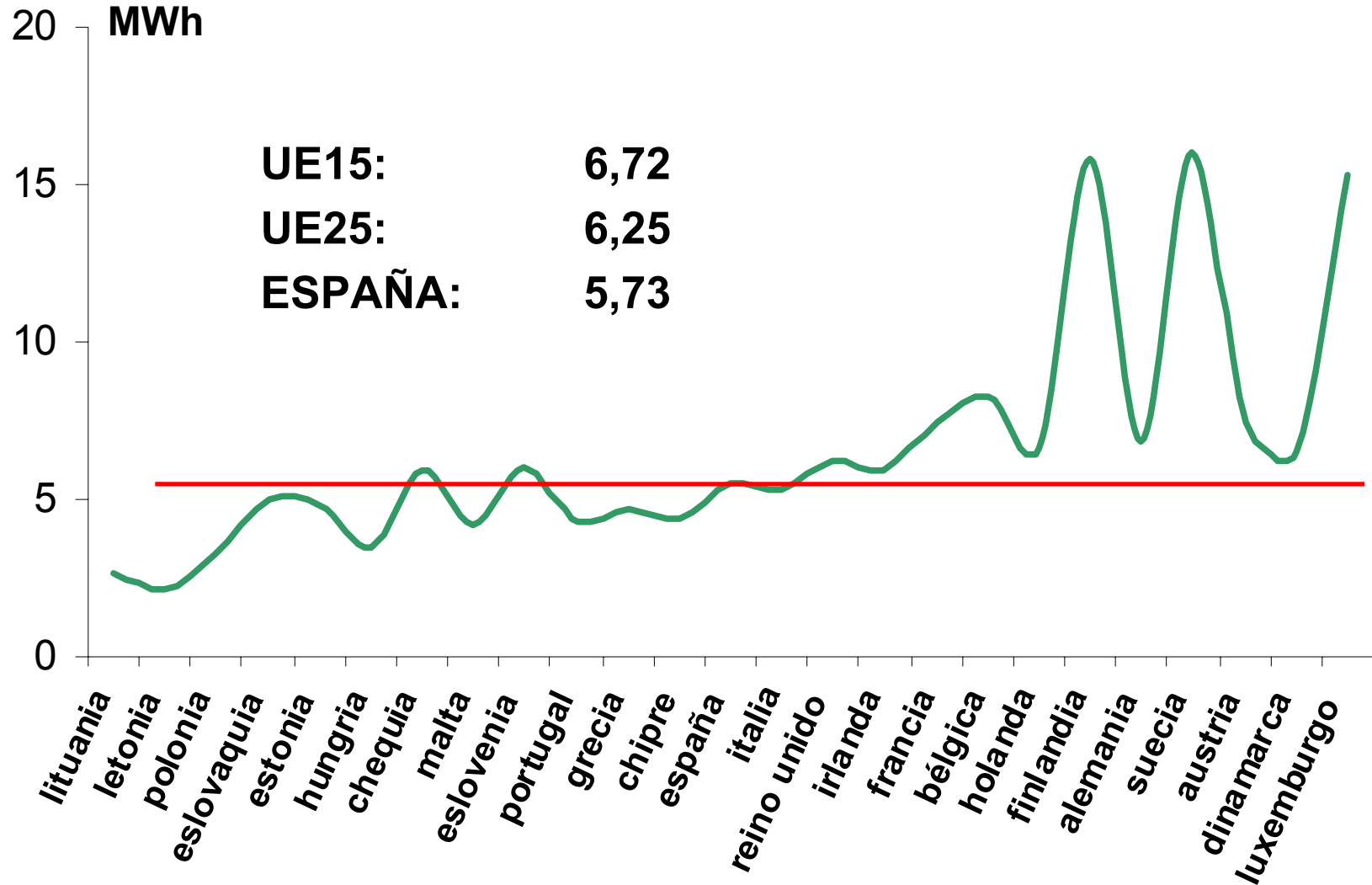
	PER CÁPITA				IN RELATION WITH GDP		
	gdp \$(000)95	energy demand tep	electricity demand MWh	CO2 emission t	energy tep/(000) \$	electricity MWh/(000) \$	CO2 t/(000) \$
Switzerland	46,639	3,723	7,990	6,012	0,080	0,171	0,129
France	29,912	4,342	7,366	6,158	0,145	0,246	0,206
U.K.	23,238	3,826	6,158	8,939	0,165	0,265	0,385
Italy	21,270	2,976	5,447	7,466	0,140	0,256	0,351
Spain	18,259	3,244	5,725	7,482	0,178	0,314	0,410
Taiwan	15,500	4,168	8,843	10,308	0,269	0,571	0,665
South Korea	14,280	4,272	6,495	9,478	0,299	0,455	0,664
Hungary	5,752	2,505	3,544	5,456	0,435	0,616	0,948
Czech Rep.	5,691	4,086	5,886	11,260	0,718	1,034	1,978
Poland	4,555	2,334	3,217	7,402	0,512	0,706	1,625

COULD IT BE THAT THERE IS STILL LITTLE GDP BECAUSE WE ARE INVESTING, AND CONSUMING, TO GROW TO THE FOLLOWING "GDP PLATFORM"?

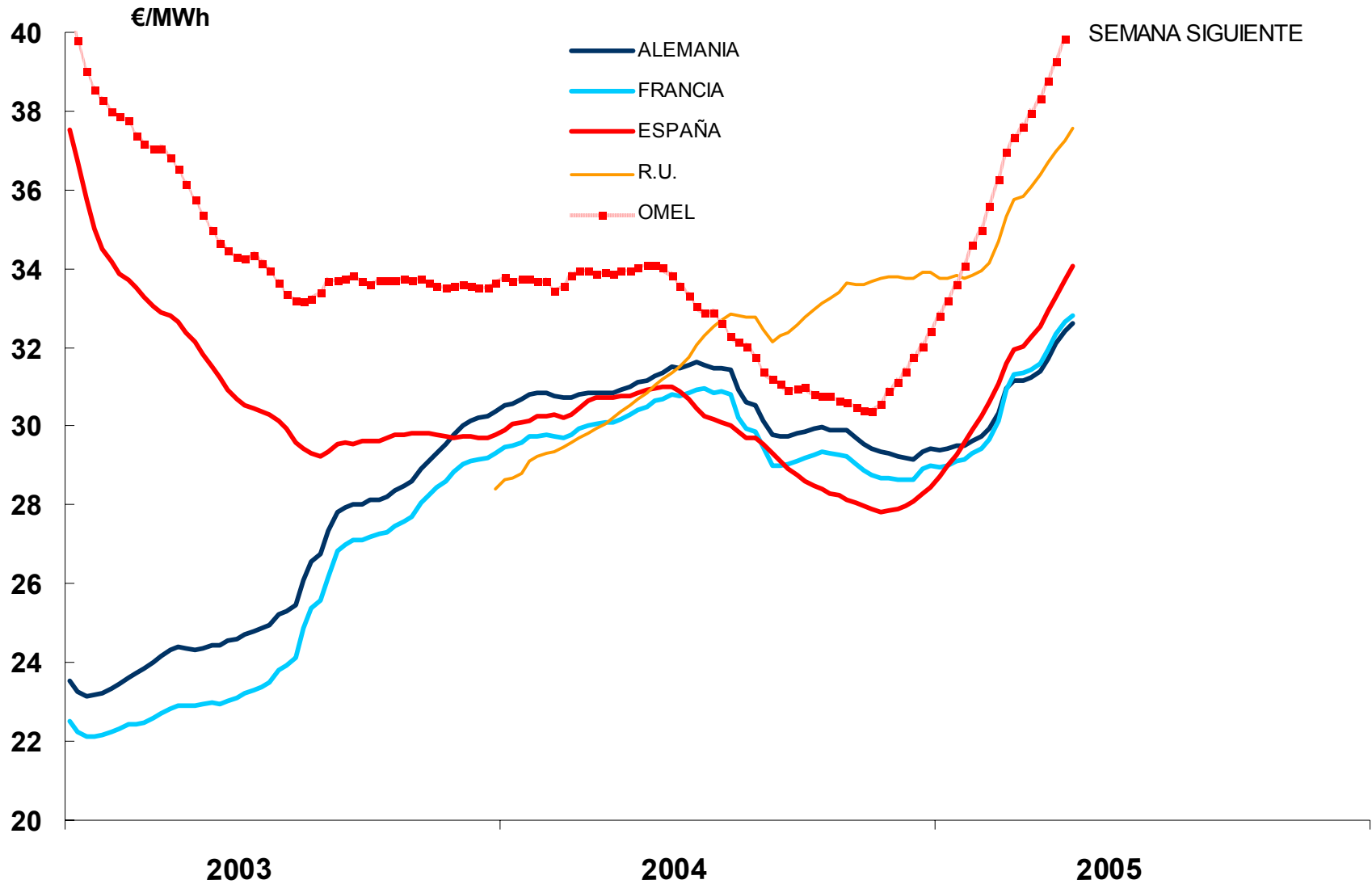
UE25: 2002 GDP, ENERGY AND ELECTRICITY CONSUMPTION PER PERSON



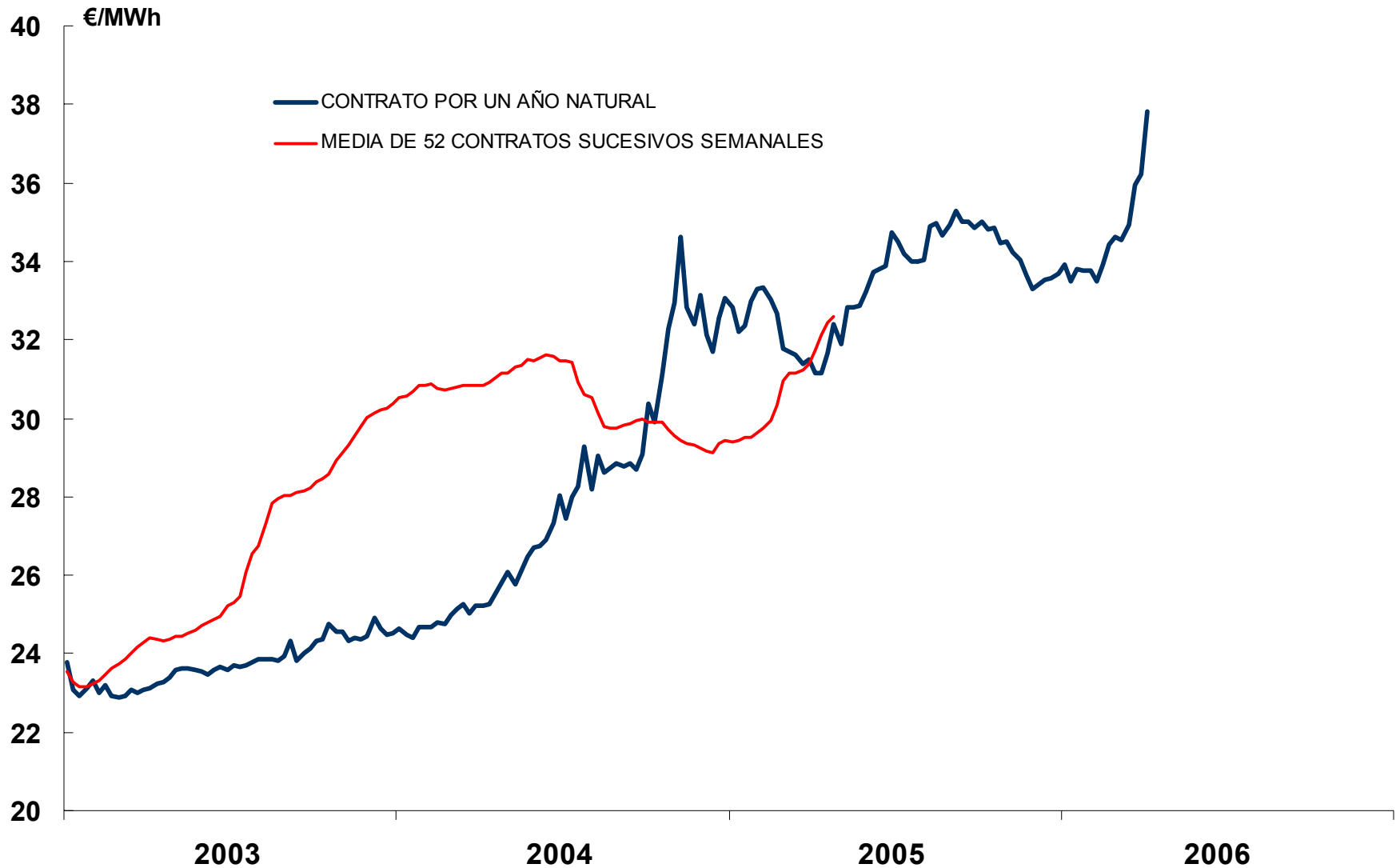
UE25: 2002 ELECTRICITY CONSUMPTION PER PERSON



Electric power prices. Last 52 week average "week ahead" values

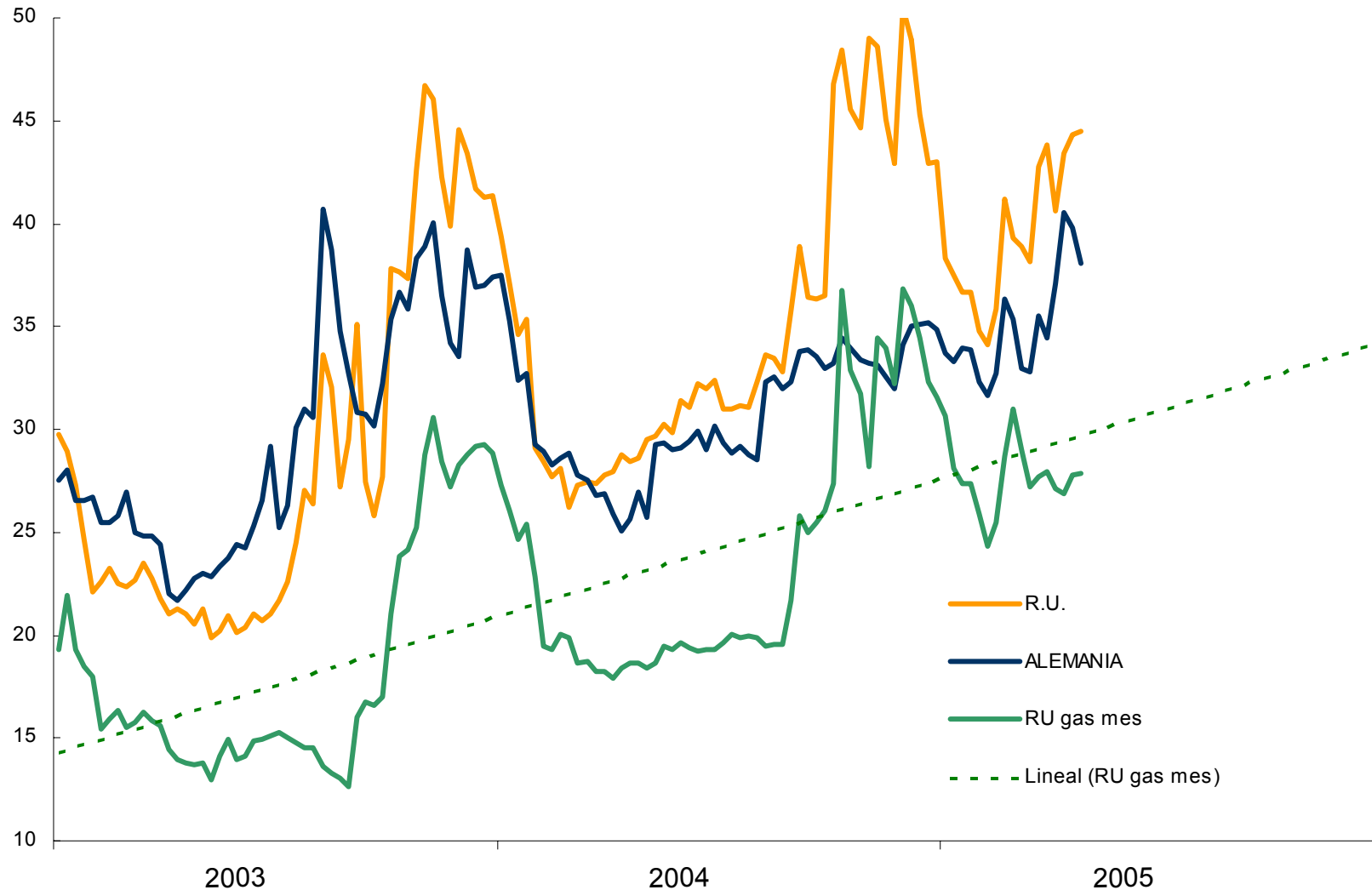


Electric power prices in Germany according to weekly and yearly contract



Electricity and gas prices. Weekly average of one-month contracts

€/MWh



MIBEL IN FIGURES ACCORDING TO 2001 DATA

		Portugal		España		MIBEL
		Total	% MIBEL	Total	% MIBEL	
Población	Millones	9,9	20,2%	39,2	79,8%	49,1
Potencia instalada	GW	10,6	16,4%	54,1	83,6%	64,7
Energía producida	TWh	40,0	16,3%	205,5	83,7%	245,5
Punta máxima	GW	7,1	17,0%	34,9	83,0%	42,04
Lineas>220kV	km	3.834	10,9%	31.376	89,1%	35.210
Consumo por habitante	kWh/año	4.040	80,8%	5.242	104,8%	5.000

All the Portuguese electricity percentages are below those of the population

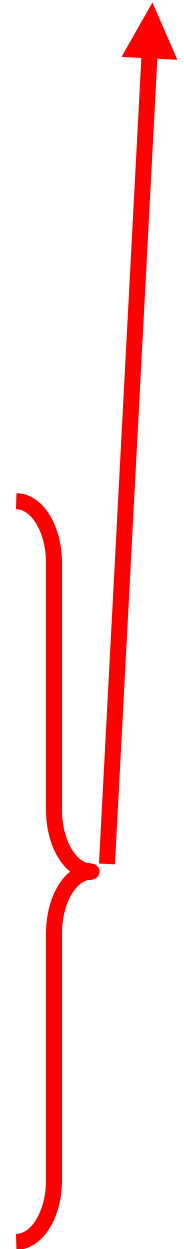
Source: REE.

At the same time we are facing

**European energy liberalization
China, and others, growing
and UE Kyoto approach**

with

**Our own level of GDP
Our “unreal” commitment to Kyoto
The growth of our demand
The “market approved gas electricity production”
Our “political” solution of gas supply by the
“liquefied path”
The “renewables” political decision
The MIBEL
The energy island
Supply security & adequacy
Freedom of offer
....**



If we are competitive in our own business

**Must we be able to deal with so many things?
Must we suffer that much?
Must we risk our business, trying to meet
“other's business”?**

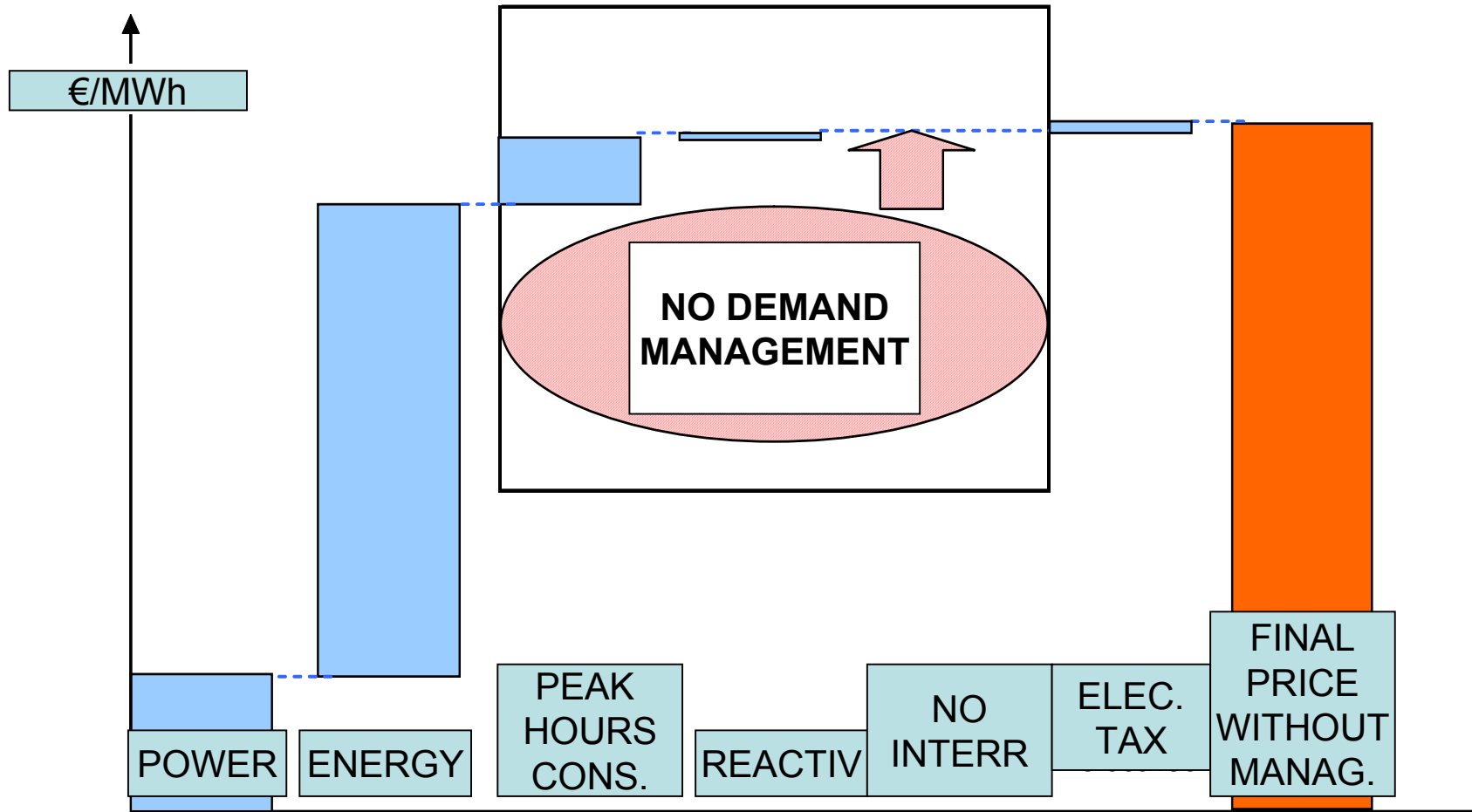
- **Any basic industrial consumer wants a full guarantee of a “flat” supply at competitive prices**
- **However in Spain we have “lived” for 20 years making much use of our tariff demand management signals, because it was, and still is, the only way to obtain competitive prices in our country**
- **After full liberalization we would like to be restriction-free consumers, in a single EU market**
- **But we are aware that today, this is utopian, and that each zonal market will have its own cost-price formulas**
- **Our electric system won't be the cheapest in the EU, and it will be very isolated**

We think Iberian system will need managing demand actions, as in the past, and, as we have the experience, we will obtain competitive prices in the market if we are able to offer our services to the system in market conditions

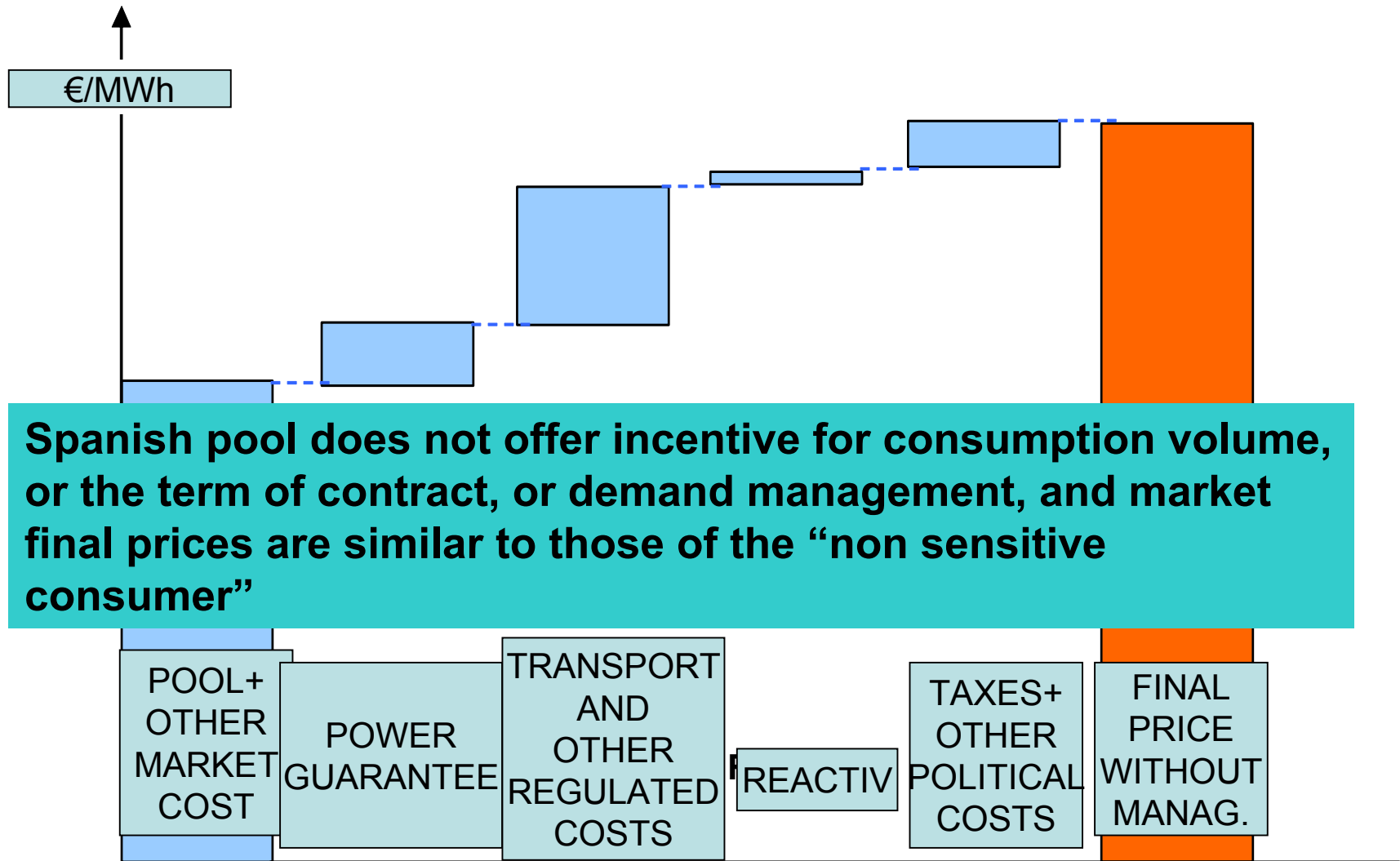
- **To continue going deeper into electricity liberalization aware of the difficulties and with respect for all the agents**
- **To prepare a good analysis of demand coverage, LAST MOMENT, MEDIUM TERM AND LONG TERM, in a dynamic and isolated market like ours, having in mind the resulting cost-price**
- **To study the best plan that allows demand to collaborate in balancing the system**
- **To transform and adapt the current structure of tariff management signals into a “contractual” relationship with the System Operator**
- **At the same time, to examine more deeply formulas of bilateral, long-term, supplier-client contracts, appropriate for the Spanish mix and each type of consumer**
- **To maintain the current tariff-structure-market balance while the foregoing is developed**

FORMATION OF PRICES IN SPAIN ACCORDING TO RATES CONSUMER “NOT SENSITIVE” TO THE PRICE OF ELECTRICITY

Does not manage in terms of electricity rates, and the supplements in billed price have to be “added”

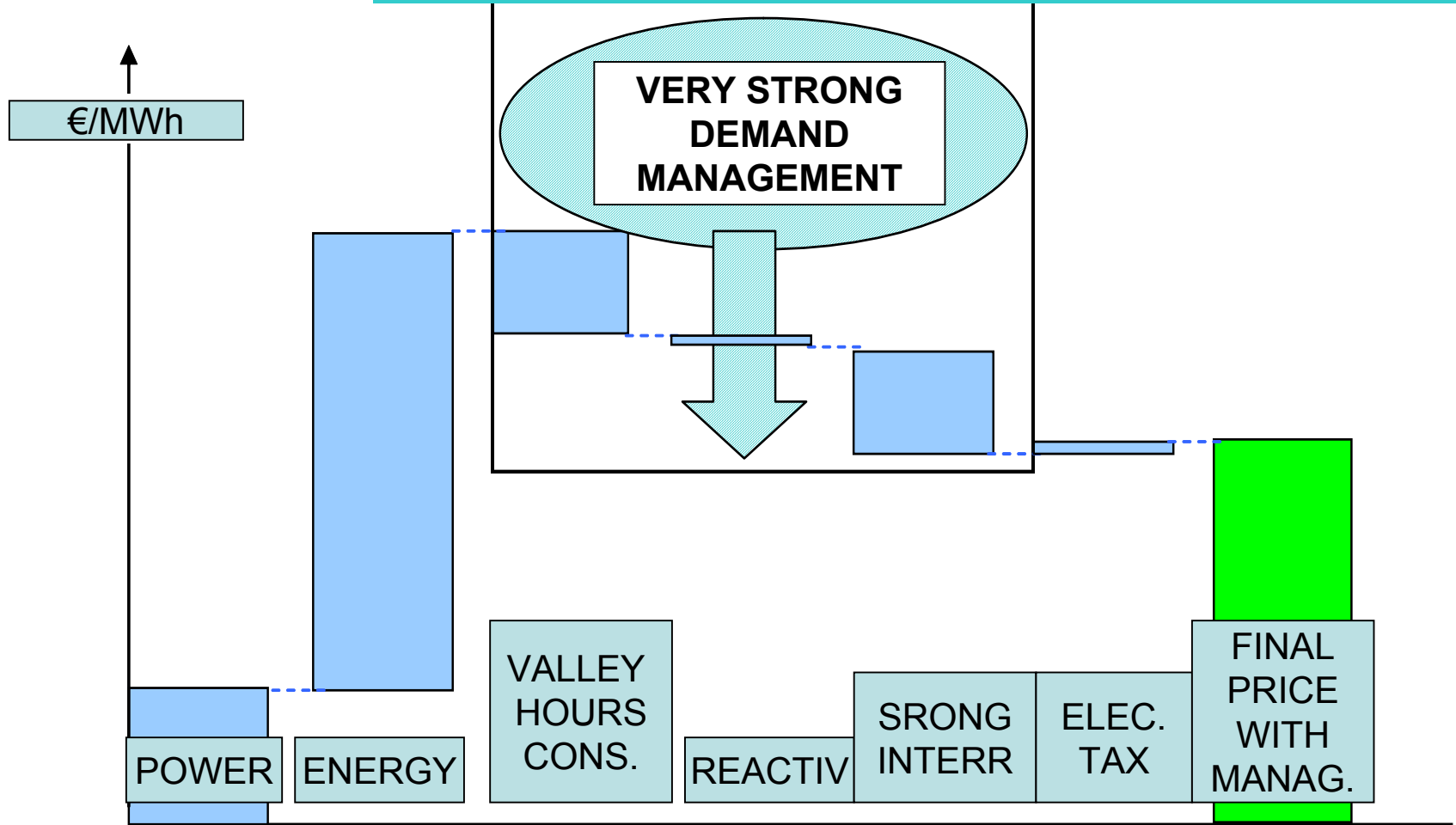


FORMATION OF PRICES IN SPAIN BY MARKET = THEY ARE NOT COMPETITIVE FOR BASIC INDUSTRY

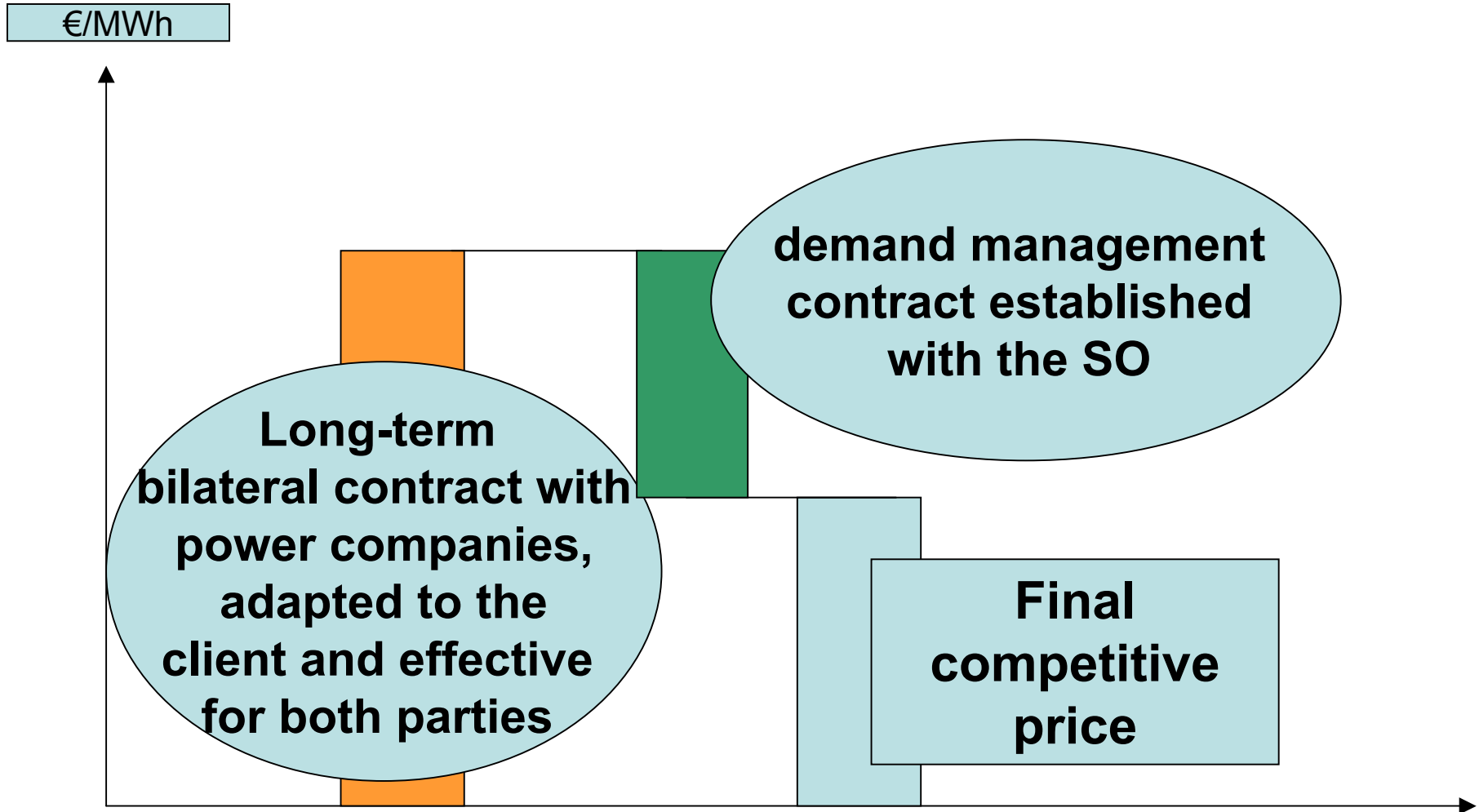


FORMATION OF PRICES IN SPAIN ACCORDING TO TARIFF CONSUMER "VERY SENSITIVE" TO THE PRICE OF ELECTRICITY

Adapts his demand and assumes management commitments so that the billed supplements are "subtracted", whereby he obtains competitive prices



OUTLINE OF THE AEGE PROPOSAL FOR CONTRACTING ELECTRIC POWER IN SPAIN UNDER ISOLATED MARKET CONDITIONS



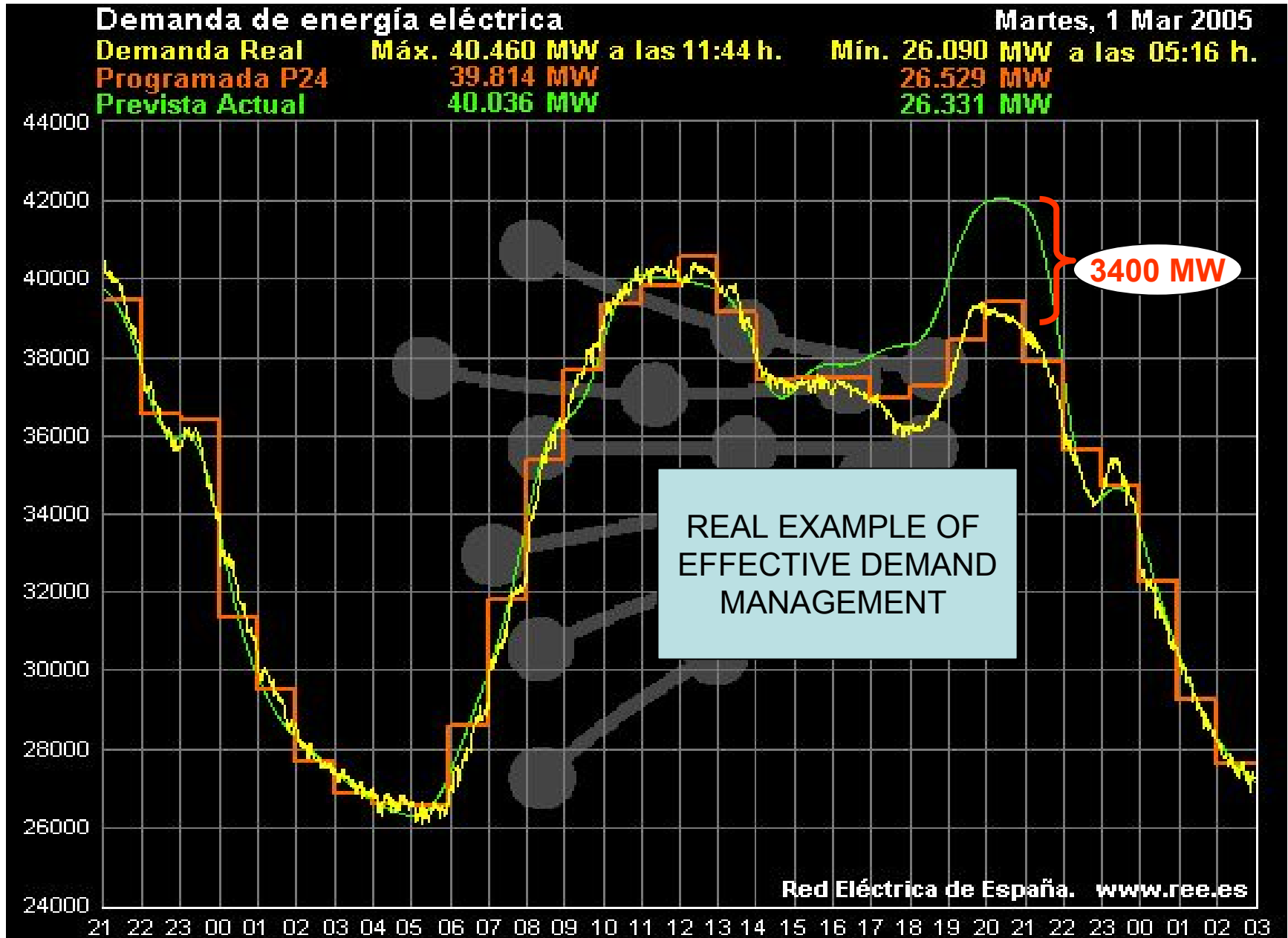
Our experience as demand managers

We know what we are speaking about :

We have been investing in technology and equipment for 20 years under electricity tariff demand signals, and managing day to day operation and working shifts as a function of the electrical calendar

What AEGE means in demand management under rated conditions

- **4500 MW of simultaneous power demand in valley hours**
- **3500 MW in peak hours, 1000 MW less, every day**
- **600 MW interruptible without advance notice, although of short duration**
- **3500 MW interruptible in long duration, with advance notice of 5 minutes**
- **New possibilities under study and development**
- **Improvements in the general process of communications with REE**



Measures of demand management requested by REE. Period 2001-2005

REE used demand management by rates intensively in the winter of 2001, dry and cold, starting with Catalonia.

2001				2002			
FECHA	TIPO	ZONA	POTENCIA	FECHA	TIPO	ZONA	POTENCIA
			PUNTA				PUNTA
			MW/Hora				MW/Hora
26/10/2001	INT B	CATALUÑA	28.340/20:00	10/01/2002	INT C	ANDALUCÍA	34.010/19:43
12/11/2001	INT C	CATALUÑA	31.860/18:53	2003			
15/11/2001	INT C	CATALUÑA	32.670/18:54	12/06/2003	INT C	ANDALUCÍA	33.850/17:53
		ARAGON					
		CENTRO					
		LEVANTE					
		ANDALUCÍA					
26/11/2001	THP		33.157/18:39	12/06/2003	INT C	MADRID	33.850/13:25
27/11/2001	THP		32.700/18:49			LEVANTE	
28/11/2001	THP		32.670/19:02			MADRID	
29/11/2001	THP		32.220/18:50	12/06/2003	INT C	LEVANTE	33.850/13:25
05/12/2001	INT C	CENTRO	31.590/18:54	13/06/2003	INT C	ANDALUCÍA	34.240/12,52
		LEVANTE					
		EXTREMADURA		10/07/2003	INT C	ANDALUCÍA	34.410/13,16
		ANDALUCÍA					
10/12/2001	THP		33.610/18:54	11/07/2003	VOL	AND-EXTREM	34.550/13,23
	INT C	LEVANTE	33.610/18:54	01/08/2003	VOL	AND-EXTREM	33.300/12,52
		MURCIA		11/08/2003	VOL	AND-EXTREM	31.480/13:26
11/12/2001	THP		33.890/18:50	12/08/2003	VOL	AND-EXTREM	31.670/13:25
12/12/2001	THP		34.810/18:46	13/08/2003	VOL	AND-EXTREM	31.460/13:43
13/12/2001	THP		32.200/18:59	2004			
	INT C	TOTAL		28/06/2004	VOL	AND-EXTREM	36.130/13,26
17/12/2001	THP		35.490/18:53	29/06/2004	VOL	AND-EXTREM	36.690/13,23
	INT C	TOTAL		30/06/2004	VOL	AND-EXTREM	36.950/13,27
18/12/2001	THP		34.560/18:49	01/07/2004	VOL	AND-EXTREM	36.190/13,25
	INT C	TOTAL		02/07/2004	VOL	AND-EXTREM	34.690/13,23
19/12/2001	THP		34.560/18:56	23/07/2004	VOL	AND-EXTREM	36.700/13,24
	INT C	TOTAL		2005			
20/12/2001	THP		33.360/10:50	01/03/2005	INT B	TOTAL	42.000/19 H
	INT C	TOTAL					

. and also in the summer of 2003 and 2004, hot and wet, fundamentally in the South

. and also in the winter of 2005, cold again, with little rain and with gas problems

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Thank you all very much

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