



Carbon and electricity markets, National Allocation Plans

General Management for Spain and Portugal



June 2006

Contents

- 1. The Carbon and Electricity markets**
- 2. Activity of ENDESA in the Carbon market**
- 3. Balance of the first year of application of the 2005-2007 NAP in Spain and Europe**
- 4. ... and Phase II**

- 1. The Carbon and Electricity markets**
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The Carbon market has been operational

CHARACTERISTICS

- It has shown to be a commodity with intrinsic value
- There has been sufficient liquidity: Traded volumes of allowances in 2005 reached 362 MMton.
- Lack of transparency in some situations has not always allowed informed choices.
- Forward price curves have been available and a good reference to the market

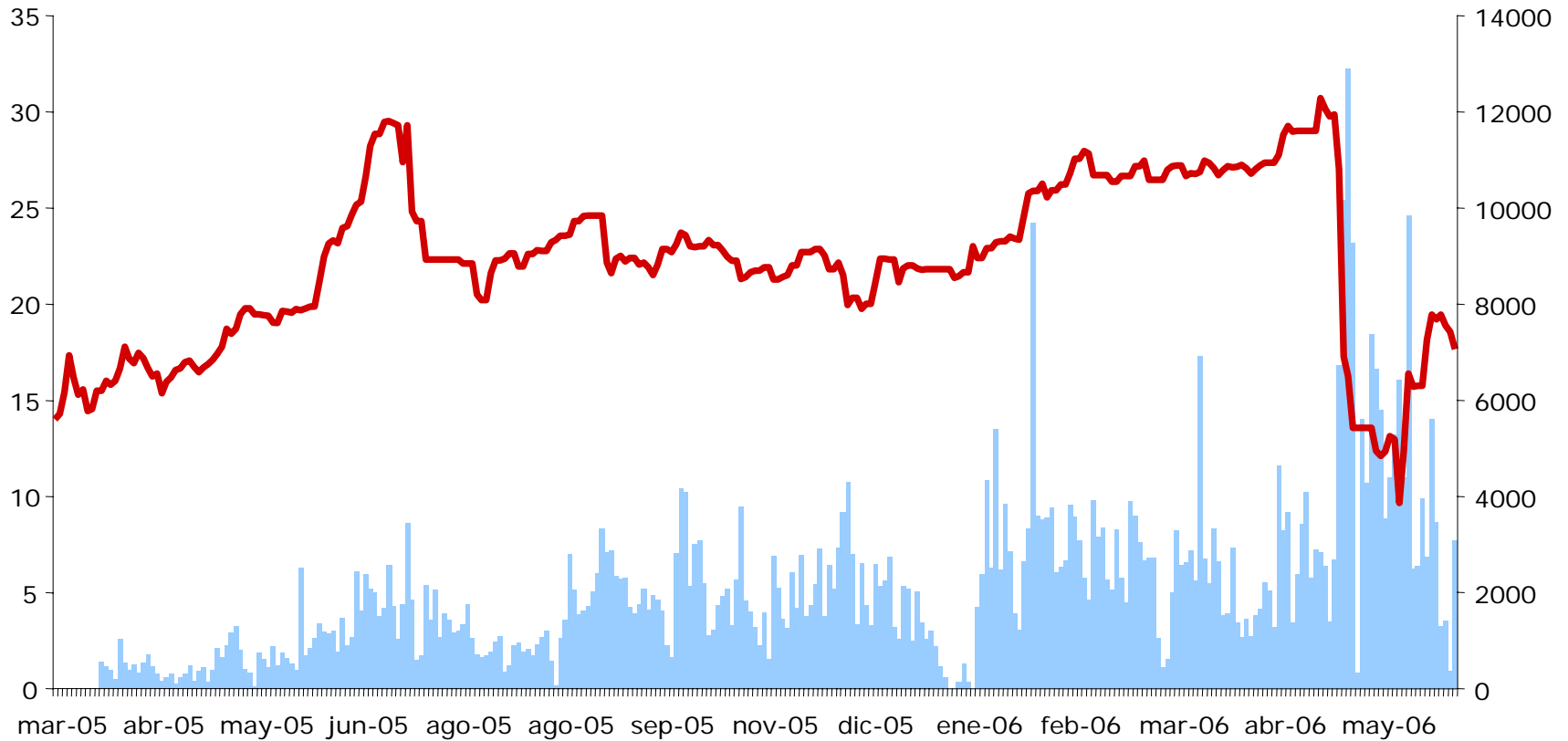
TO BE IMPROVED

- Quality of monitoring and verification will confirm the value of the rights.
- It has been shown that information about "distance to cap" was not reliable.
- Uncertainties and delays in NAPs of several member states did not contribute to increase confidence, and the lack of rules for emission reporting didn't help either.
- The second phase still has so many uncertainties that forward curves can be very volatile.

The Carbon market has been operational

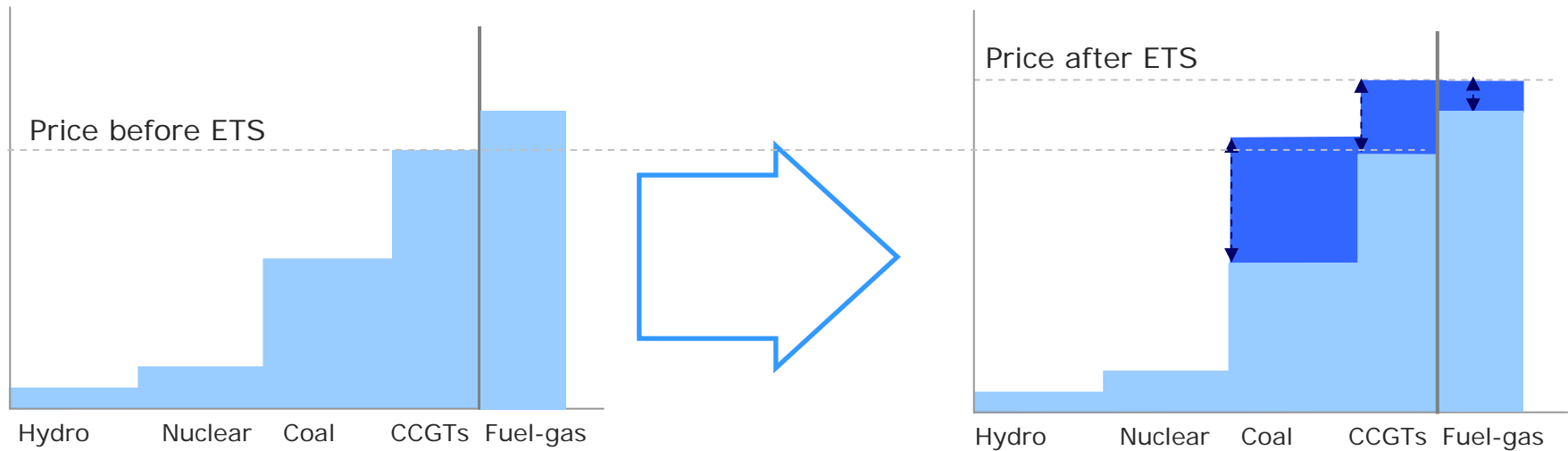
Price (€/tCO₂)

Volume (MtCO₂)



Volume CO₂ Price

Carbon market has forced power plants to internalize the cost of emission rights



- The application of ETS was expected to make necessary for agents to include the price of emission rights in the electricity price. The degree to which players have reflected full price of emissions or just the cost of the purchases to cover deficit is an issue for debate.
- The consequences of this was repeatedly warned by both the power industry and the energy consumers: Power prices would reflect the increase in marginal cost
- The EU attitude has always been that such impact was the only way of achieving energy efficiency and environmental efficiency
- Even with full knowledge of this effect, the EU always advocated the free allocation ("grandfathering") in the legislation of NAP's

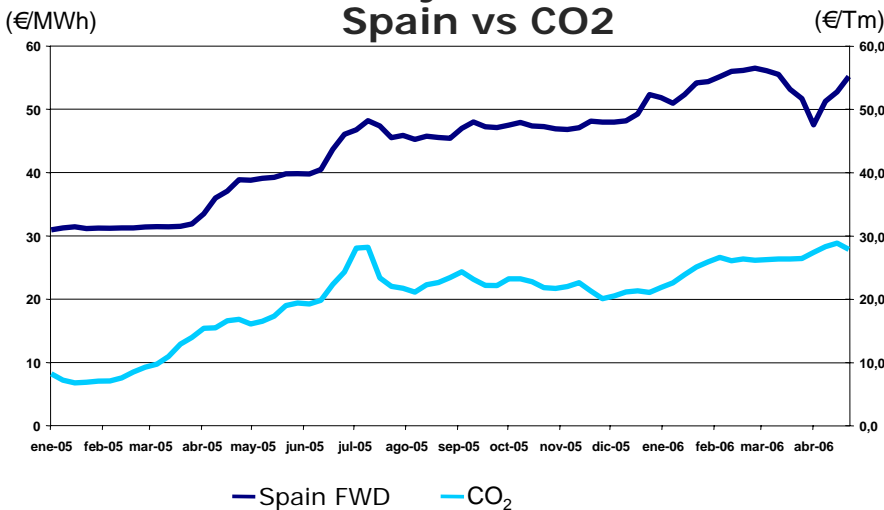
Electricity prices have reflected CO2 prices

Strong parallelism can be identified between CO2 prices and forward prices

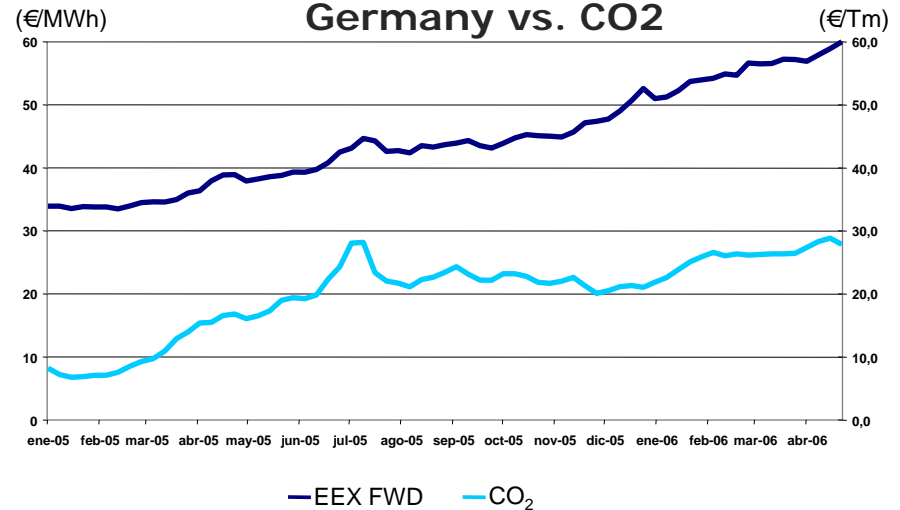
- Electricity prices have been formed considering cost of marginal fuel and CO2, so hedges of clean spread (electricity-CO2-fuel) have been usual
- Correlation among electricity and CO2 has been strong in the forward curve.

▪ CO2 has linked electricity prices across Europe

Electricity Forward in Spain vs CO2



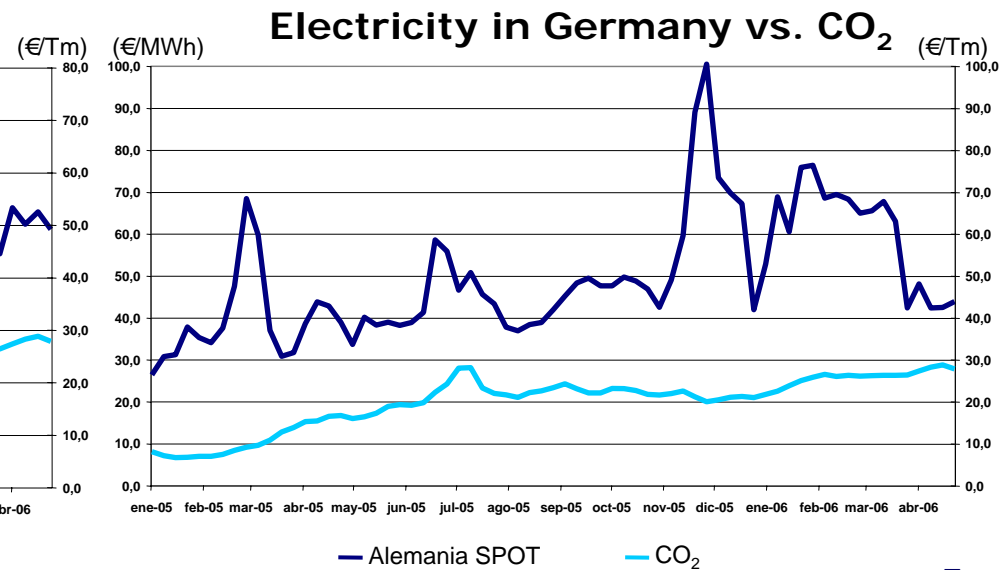
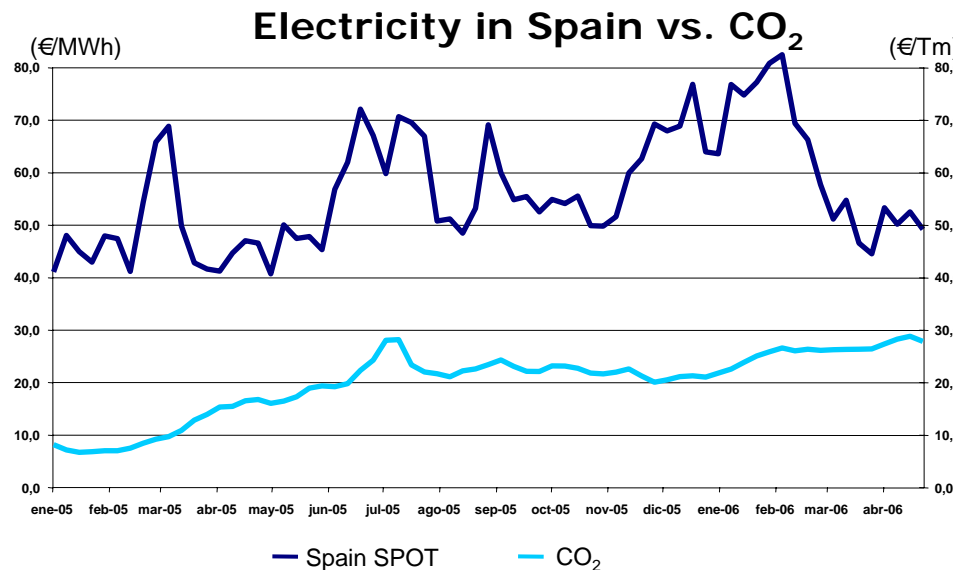
Electricity Forward in Germany vs. CO2



Electricity prices have reflected CO2 prices

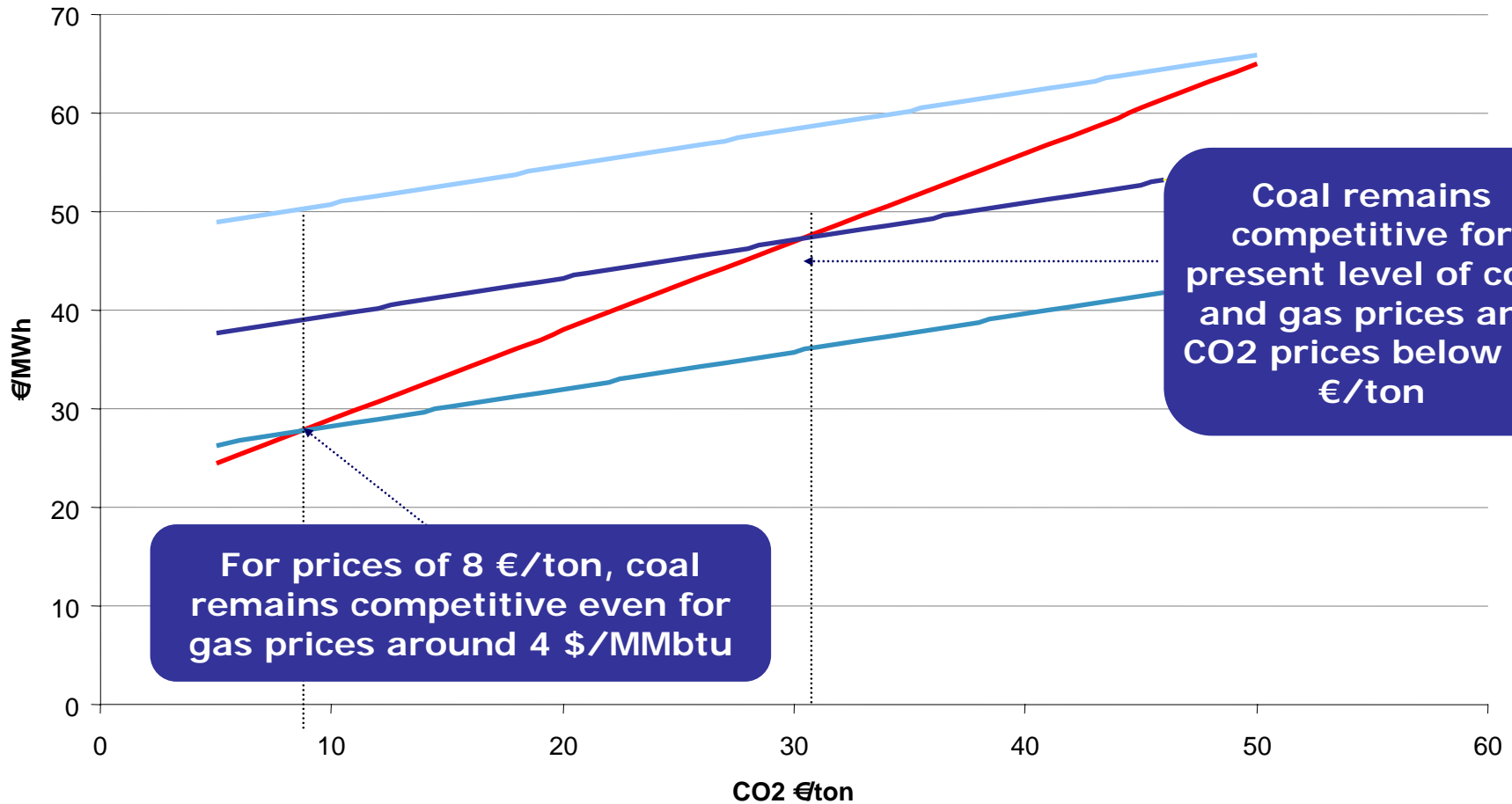
Spot electricity prices show a tendency to reflect CO2 prices changes... although not always and not equally in all markets

- **The spot market reflect the cost of the marginal technology:**
 - Coal or gas production in the margin determines to what extent the cost of CO2 increases the price of electricity.
 - Other technologies such as water and nuclear, non CO2 emitting soften the effect of CO2 prices.
 - Direct correlations between electricity spot price and CO2 price are normally low.



Competitiveness of coal vs gas

Coal CIF at 61 \$/ton and Gas from 4 \$/MMbtu to 8 \$/MMbtu



— Coal (€/MWh) (61\$/ton)

— CCGT (€/MWh) (Gas 4\$/MMbtu)

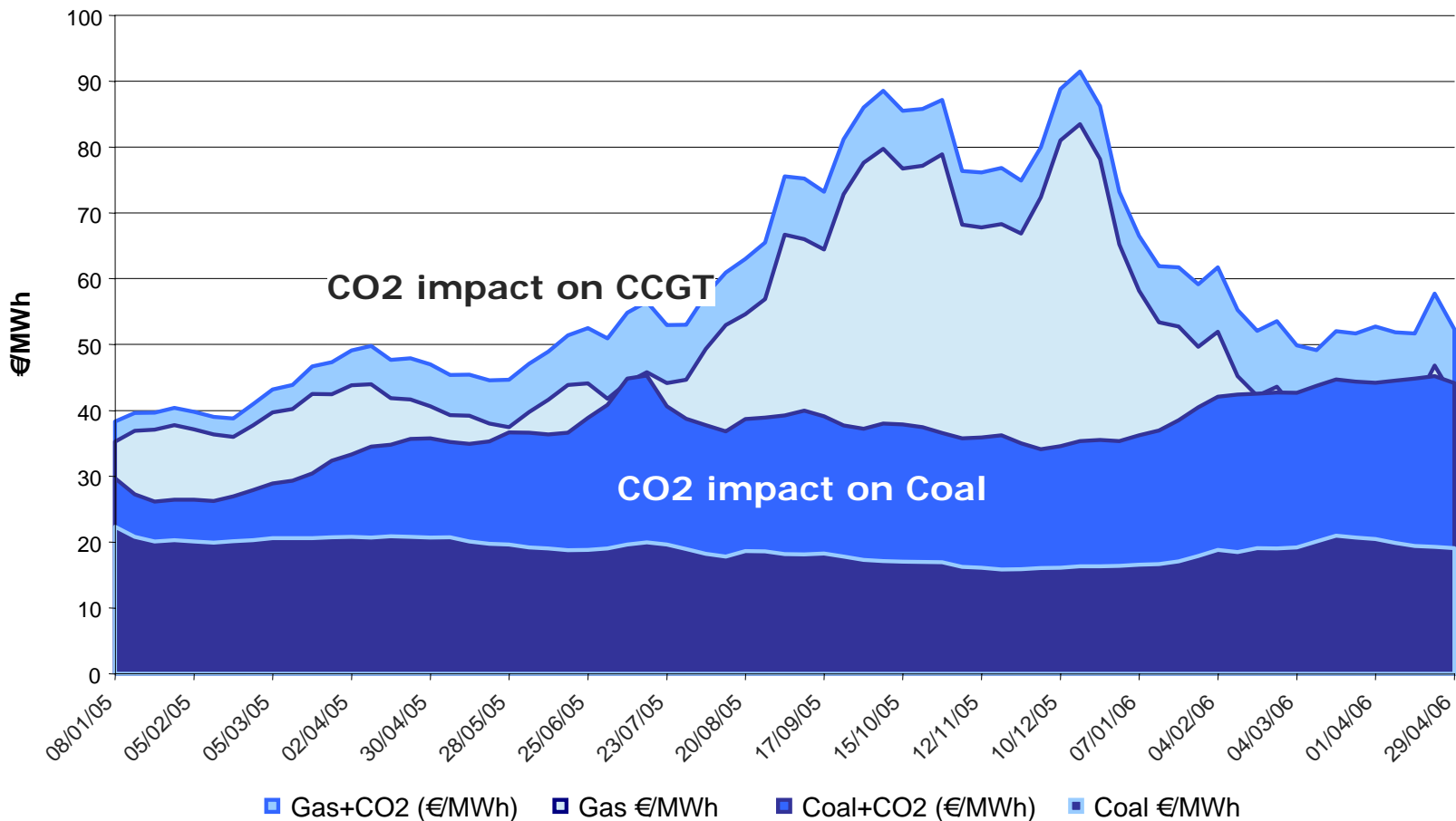
— CCGT (€/MWh) (Gas 6\$/MMbtu)

— CCGT (€/MWh) (Gas 8\$/MMbtu)

Competitiveness of coal vs gas

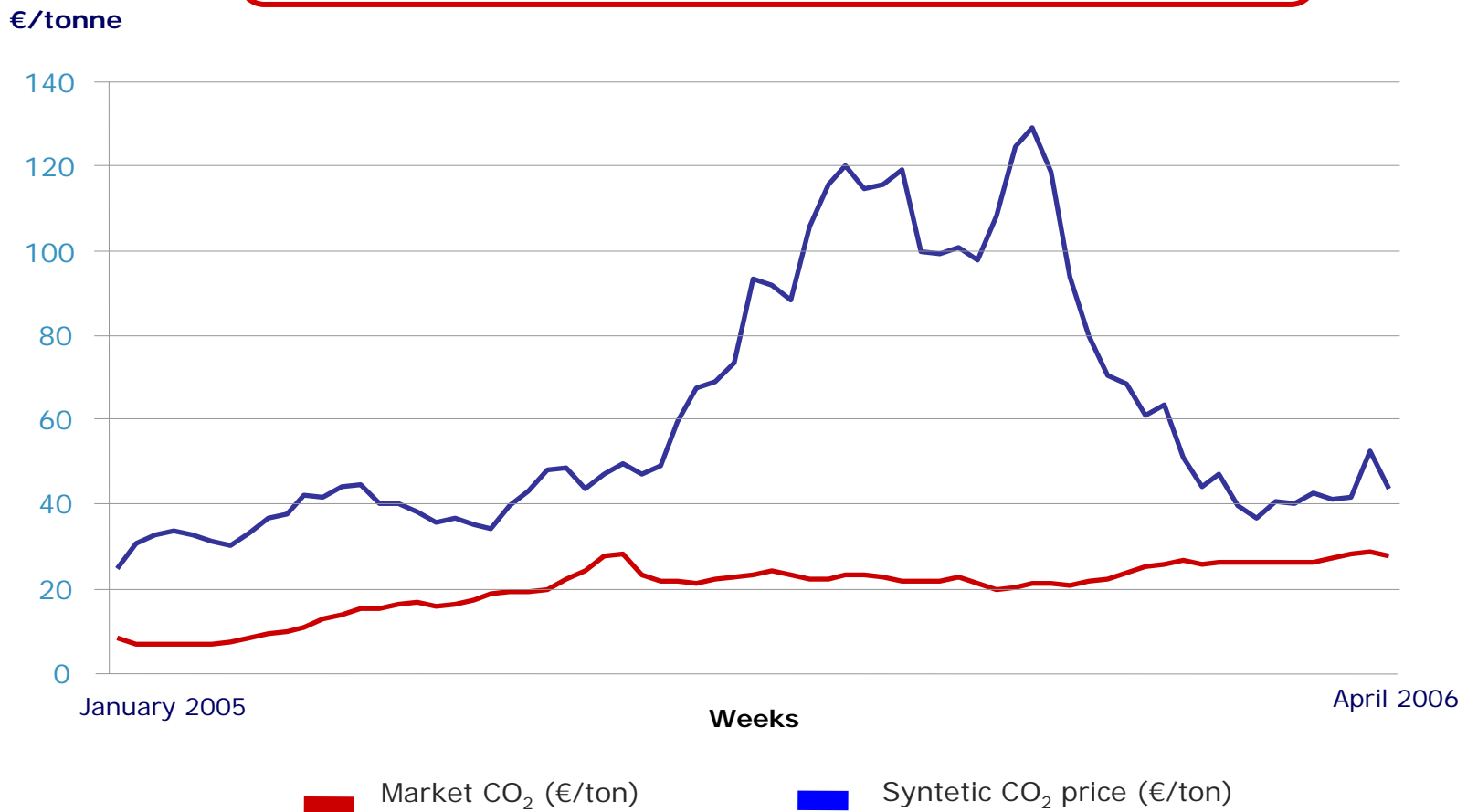
While coal remains competitive, the impact of CO₂ cost in its margin is more important than for CCGT.

Variable cost



The price of CO₂ has not caused coal substitution by gas

- The CO₂ price required to cause Coal substitution by CCGT, has been beyond reasonable values



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Activity of ENDESA in the Carbon market

- Endesa is a very active player in the carbon market:
 - Trading of more than 10 million tonnes of CO2 allowances
 - Active participation in relevant organised markets and OTC deals:
only through Nordpool we have negotiated more than 4.5 million tonnes

- And not only for EUAs, but also in CDM, where Endesa is one of the most active players:
 - Endesa Climate Initiative (ECI) is a unique experience
 - We participate in more than 42 projects, from which we expect to cover around 30 % of our needs for the first phase, and near 50 % of the second phase.

Strategy of ENDESA in the Carbon market Managing EUAs

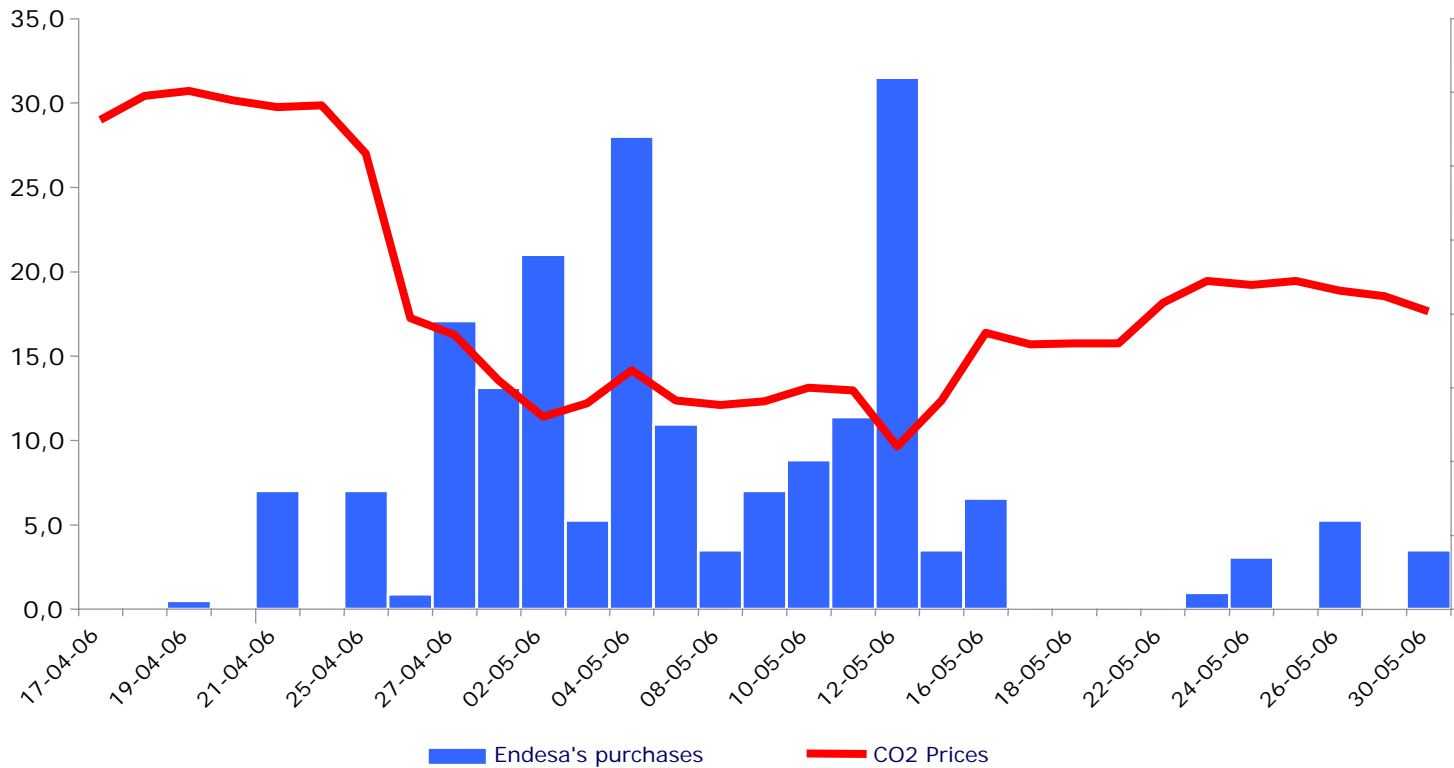
- Up to date, Endesa has been acting mainly for hedging purposes, i.e. we buy as we need the allowances:
 - A hedging strategy will integrate the spot price of CO₂ in the bid of electricity to the market, and if dispatched, the allowances purchased in the very same day the emission take place.
 - More sophisticated approaches will consider our view of “cheap” or “expensive” price levels of allowances, with possible temporary deficits or excess of allowances.

Strategy of ENDESA in the Carbon market

Managing EUAs: the collapse of CO2 prices

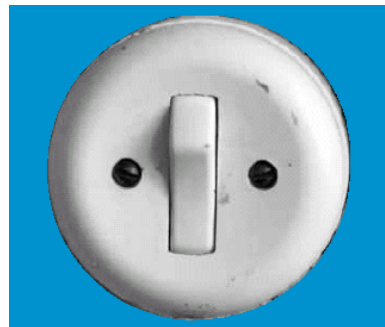
Price (€/tCO₂)

Volume (tCO₂)

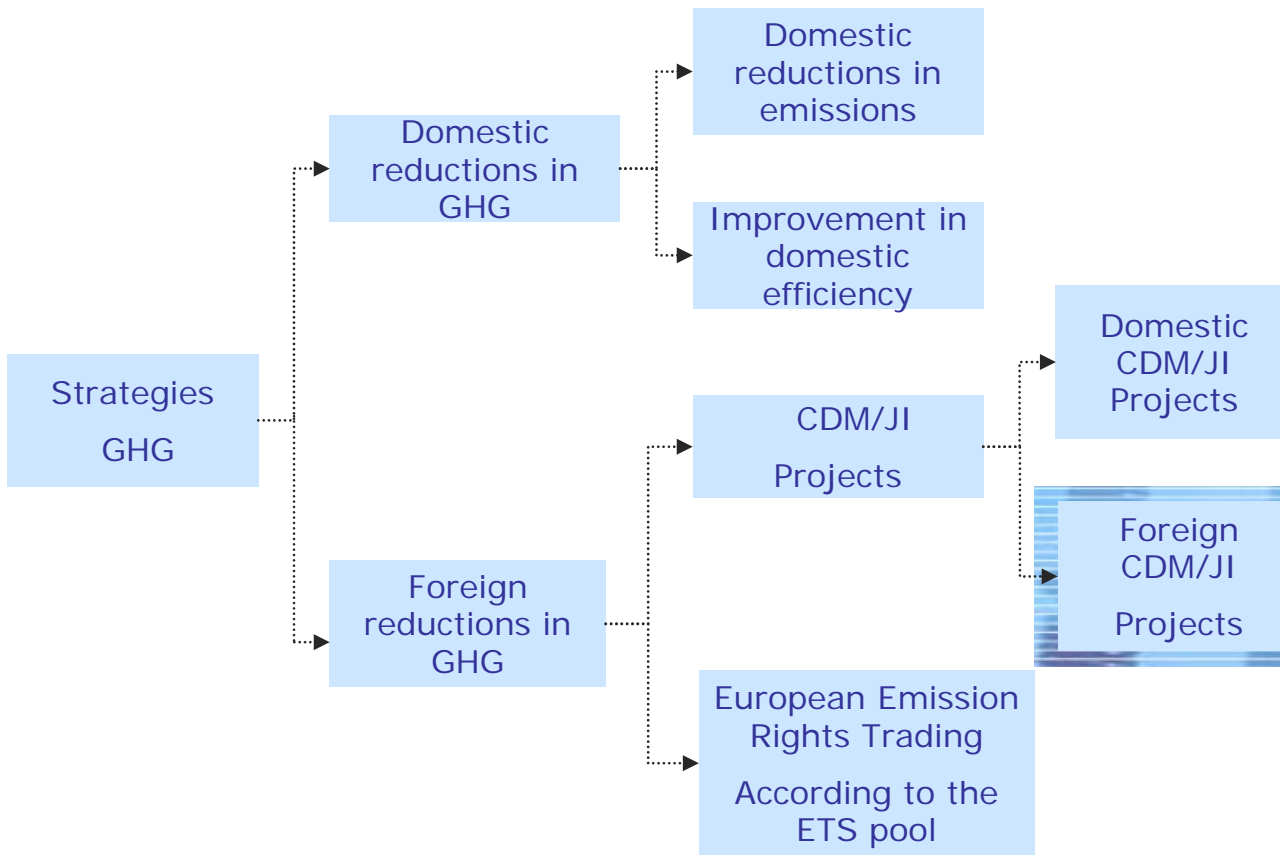




climate™ initiative



Endesa Climate Initiative falls within the framework of Endesa's strategy to Reduce Greenhouse Gases (GHG Plan)



climate™
initiative

CDM and JI: Flexibility mechanisms established by the Kyoto Protocol

- **CDM** Clean Development Mechanism. Mechanism of reducing emissions whereby an **Appendix I country** may use Certified Emissions Reductions (CERs)* from **projects carried out by non-Appendix I countries**.
- **JI**: Joint Implementation Mechanism. Mechanism whereby a **Appendix I** country can use Emission Reduction Units (ERUs)* generated by emission **reduction projects** carried out in another **Appendix I country**.
- **Appendix I Countries**: with quantifiable commitments to reduce GHG
- **Non-Appendix I Countries**: no quantifiable commitments to reduce GHG

Organisation in charge of overseeing the CDM

- CDM Executive Board: Belongs to the United Nations Framework Convention for Climate Change (UNFCCC), and is based in Bonn.

Process to follow to obtain credits for a CDM or JI project

- Prepare CDM project
- Evaluation and validation process
- Register the project with the United Nations
- Verification and certification
- Obtain emission reduction certificates issued by the CMD Executive Board

* Both the ERC and the ERU are equivalent to a tonne of CO₂.

CDM projects carried out in countries not listed in Appendix I of the United Nations Framework Convention for Climate Change (UNFCCC) and the JIs in countries listed in Appendix I with emission reduction commitments

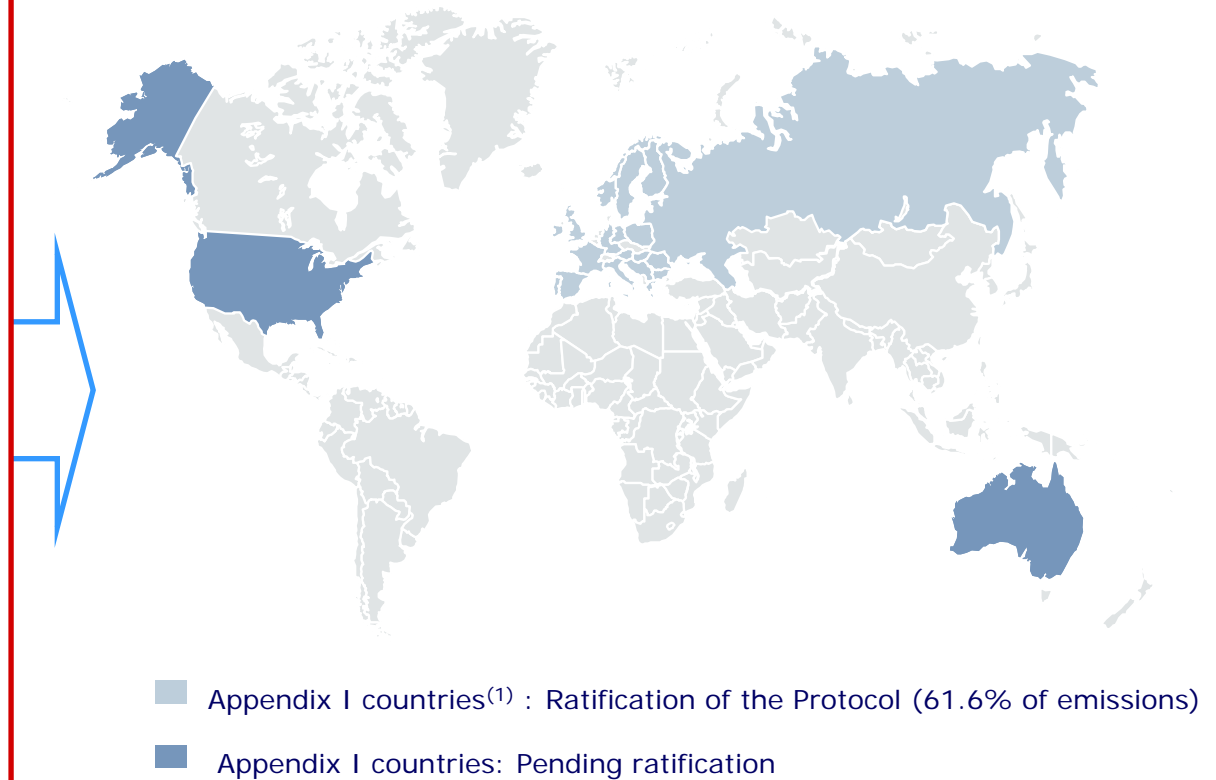
Appendix I Countries:

- European Union (25)
- Australia
- Belarus
- Bulgaria
- Canada
- Croatia
- United States
- Russian Federation
- Iceland
- Japan
- Liechtenstein
- Monaco
- New Zealand
- Romania
- Switzerland
- Ukraine
- Turkey

Non-Appendix I

Countries:

Rest of the countries.



A CDM project has 5 stages in its life cycle

	Objectives	Output	Entity in charge	Expected duration
1 Preparation of CDM project	<ul style="list-style-type: none"> ▪ Demonstrate that the project fulfils the requirements needed to be considered a CDM 	<ul style="list-style-type: none"> ▪ Project Design Document (PDD) ▪ Guidelines ▪ Monitoring programme ▪ Confirm voluntary participation of parties involved 	<ul style="list-style-type: none"> ▪ Project manager ▪ DNAs 	<ul style="list-style-type: none"> ▪ 5 months
2 Evaluation and validation	<ul style="list-style-type: none"> ▪ Public's comments within 30 days ▪ Project approved or rejected 	<ul style="list-style-type: none"> ▪ Validation report for the Executive Board <ul style="list-style-type: none"> ▪ if the project is rejected, no report if required but the reasons must be explained 	<ul style="list-style-type: none"> ▪ DOE 	<ul style="list-style-type: none"> ▪ 2 months(1)
3 Register project	<ul style="list-style-type: none"> ▪ Final approval of project 	<ul style="list-style-type: none"> ▪ Register as a CDM with the United Nations 	<ul style="list-style-type: none"> ▪ Executive Board 	<ul style="list-style-type: none"> ▪ Automat once received
4 Verification, certification and awarding of credits	<ul style="list-style-type: none"> ▪ Verify that the project reduces emissions forecast ▪ Award credits 	<ul style="list-style-type: none"> ▪ Monitoring report on emissions reductions ▪ Verification report on emissions reductions ▪ Credits for projects 	<ul style="list-style-type: none"> ▪ Project Manager ▪ DOE 	<ul style="list-style-type: none"> ▪ 3 months
5 The project will not generate emission credits until it is in place				
<ul style="list-style-type: none"> ▪ The construction and initiation time must be taken into account ▪ Periodical verifications and certifications will be carried out during the project's life 				

Main aspects of the Endesa Climate Initiative



- **First private initiative in the world to buy CDM and JI project emissions reductions**
- **Channels carbon credit purchases in a structured manner**
- **Preference for large projects (1Mt to approx. 2012) in the industrial, energy and waste management sectors**
- **Offers attractive prices and conditions for project owners**
- **The initiative's objective is for the purchaser and vendor to make a good deal**

ENDESA CLIMATE INITIATIVE

Endesa in charge of design and development of project

- The **objective** is to choose eligible projects within the CDM and JI mechanisms of the Kyoto Protocol via a business-to-business proposal
- **Advantages:**
 - Position Endesa as an attractive credits purchaser
 - Leverages advantages of a public tender
 - Documents available to vendor
 - Process is structured and efficient for Endesa and stable for the vendor
 - Creates positive reputation and image
 - Leverages advantages of direct contracting
 - Flexibility to seek made-to-measure solutions
 - High negotiation margin

ENDESA CLIMATE INITIATIVE

Endesa in charge of design and development of project

- **Phases of Endesa Climate Initiative**
 - **Preparation: prepare reference guidelines and documentation, draw up internal procedures**
 - **Marketing: web page design and brochures, press release, launch events**
 - Madrid – 10 November 2005 (Launch)
 - Brazil – 21 November 2005 in Río de Janeiro
 - Canada – 8 December 2005 (Montreal COP11/MOP1)
 - China – 19 January 2006 in Peking
 - India – 6 February 2006 in New Delhi
 - Mexico – 21 February 2006 in Mexico City
 - Chile – 19 April 2006 in Santiago de Chile
 - **Project selection and contracting: project analysis, letters of intent, negotiation, contracting**

Brochures in 4 languages: Spanish, English, Portuguese and Chinese

www.endesa.com/eci

安第沙电力公司气候行动

您在 CDM(清洁发展机制)
减排项目中的
合作伙伴




项目提案邀请

www.endesa.com/eci

Endesa Climate Initiative.

Seu parceiro de negócios
na contratação de
reduções de emissões
em projetos MDL e IC.




Solicitação de propostas de projetos.

www.endesa.com/eci

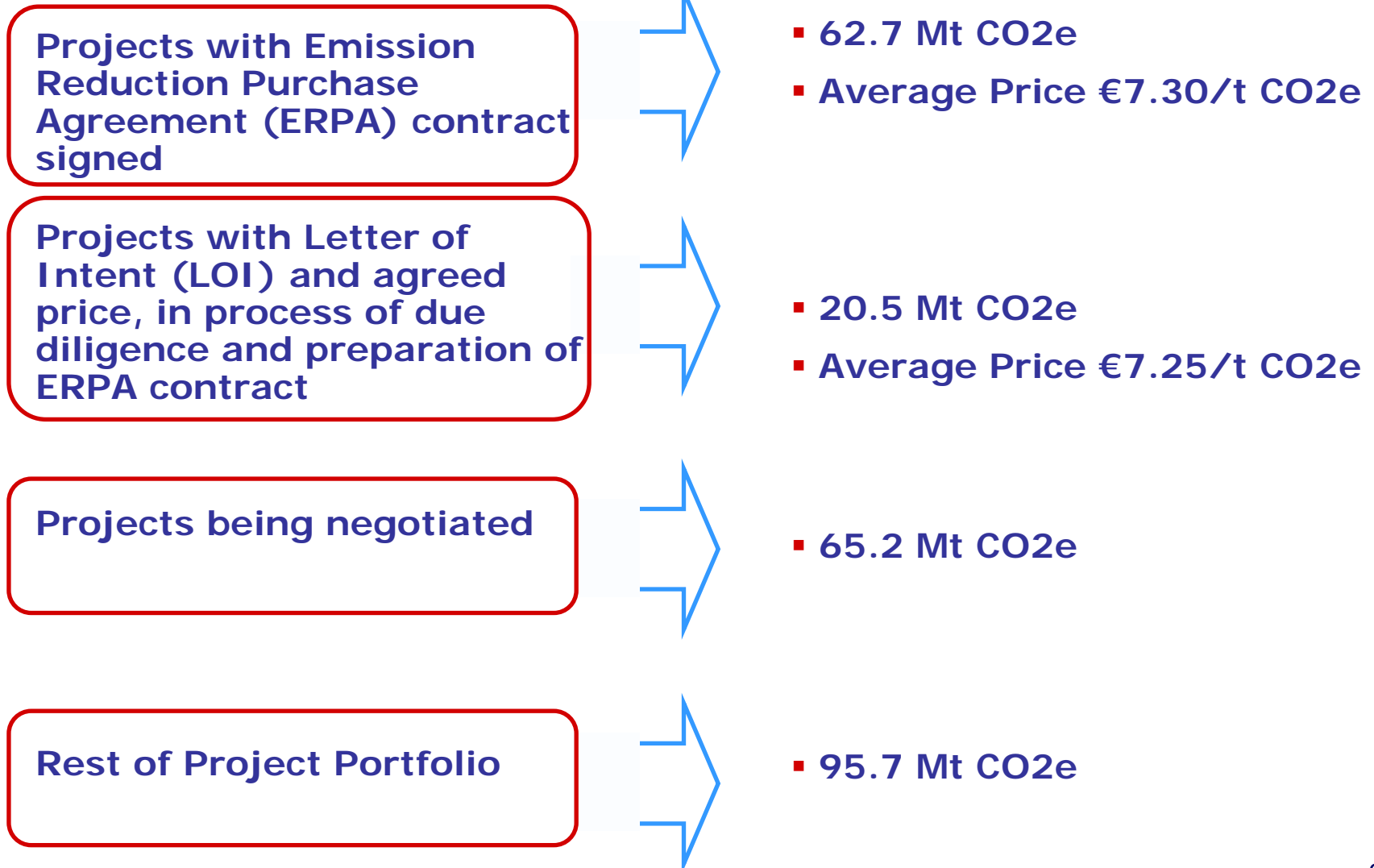
Endesa Climate Initiative.

Your business partner
in contracting
emission reductions
from CDM and JI Projects.



Request for project proposals.

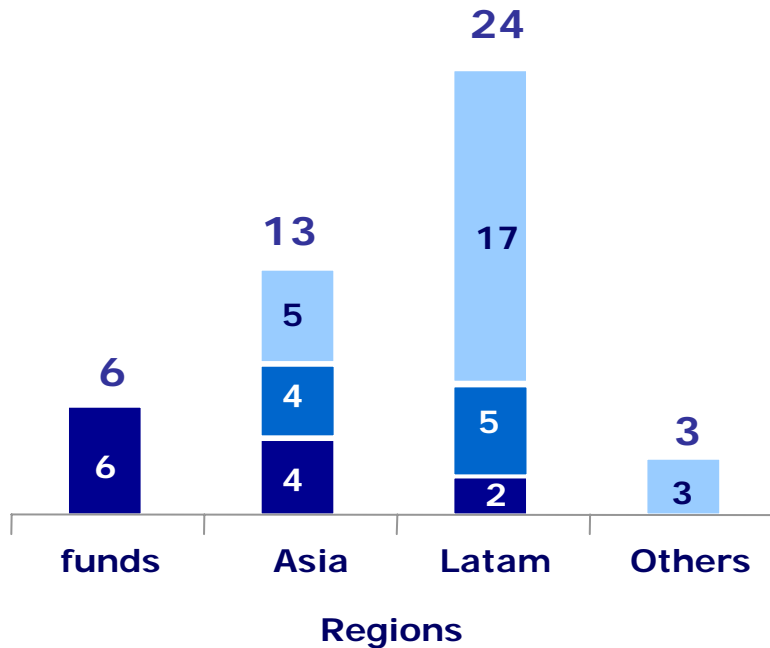
CDM and JI Project Portfolio



Endesa's CDM project portfolio: regional distribution

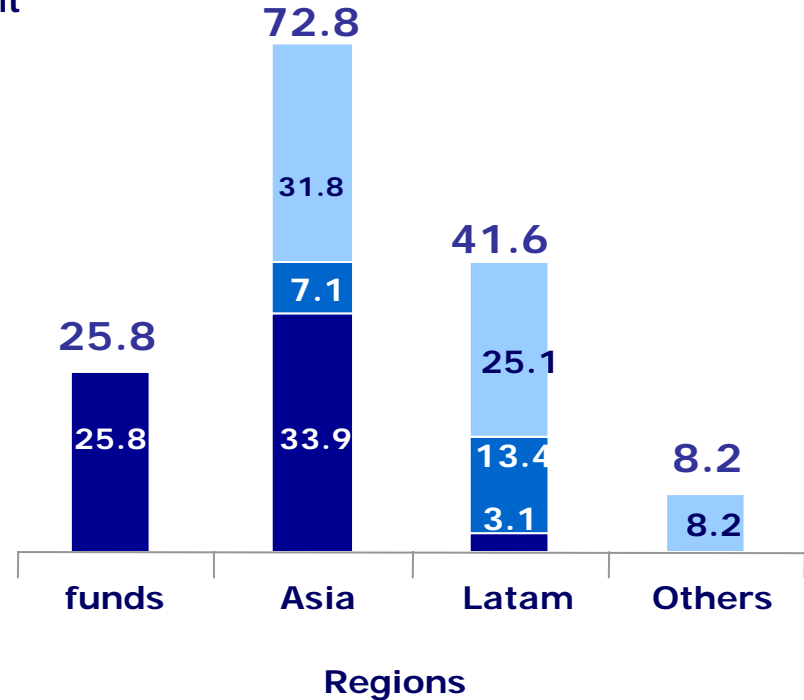
Total projects: 46

Nº of projects



Total Mt: 148.4

Mt



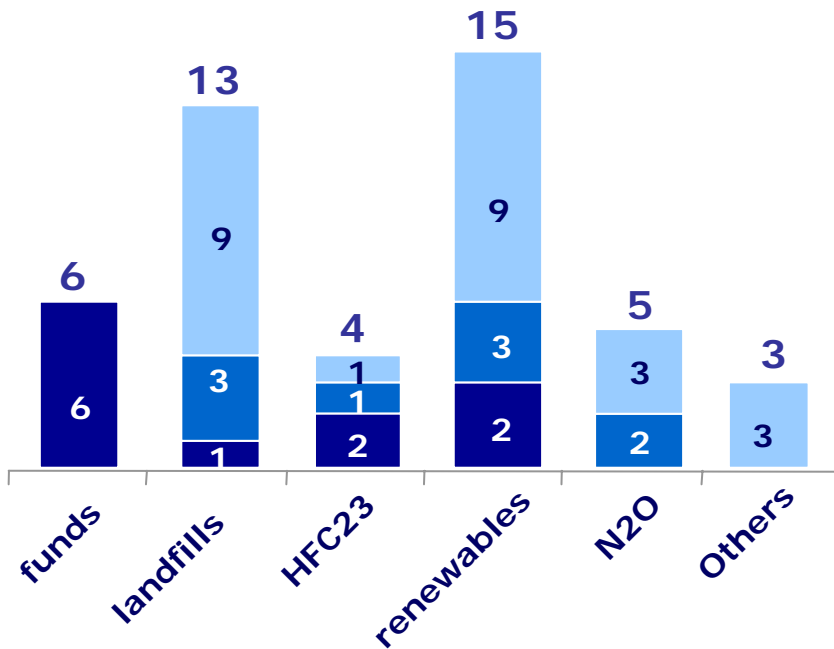
■ ERPA signed
 ■ LOI signed
 ■ LOI being negotiated

Funds: Hold project portfolios from various regions

Endesa's CDM project portfolio: technological distribution

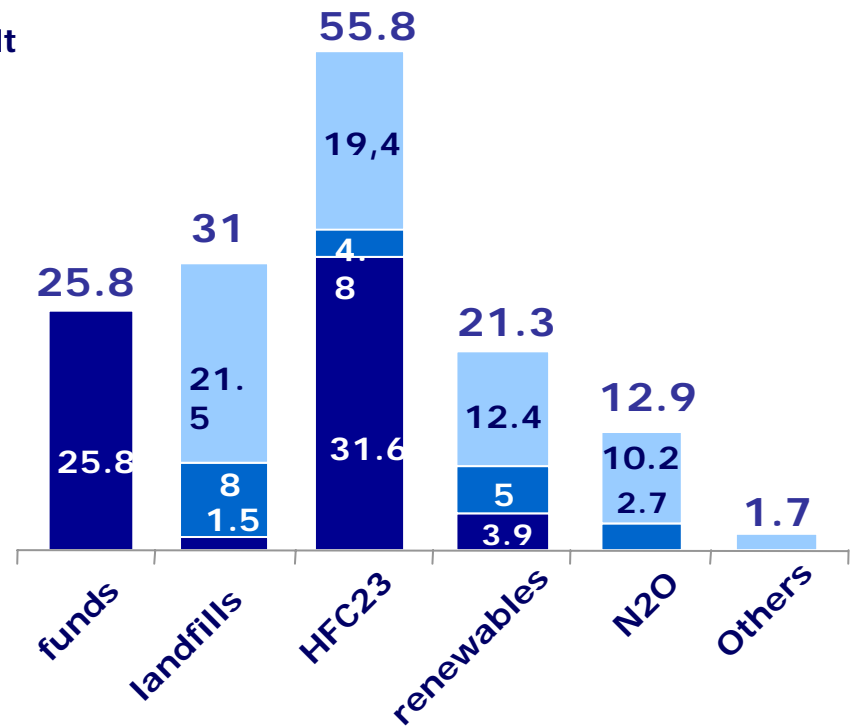
Total projects: 46

Nº of projects



Total Mt: 148.4

Mt



Technology

Technology

■ ERPA signed ■ LOI signed ■ LOI being negotiated

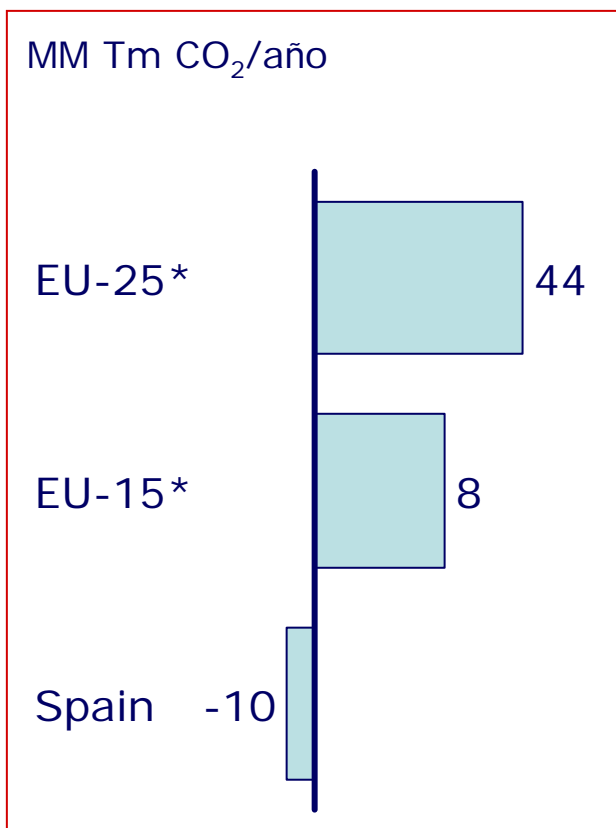
Funds: Hold project portfolios from various regions

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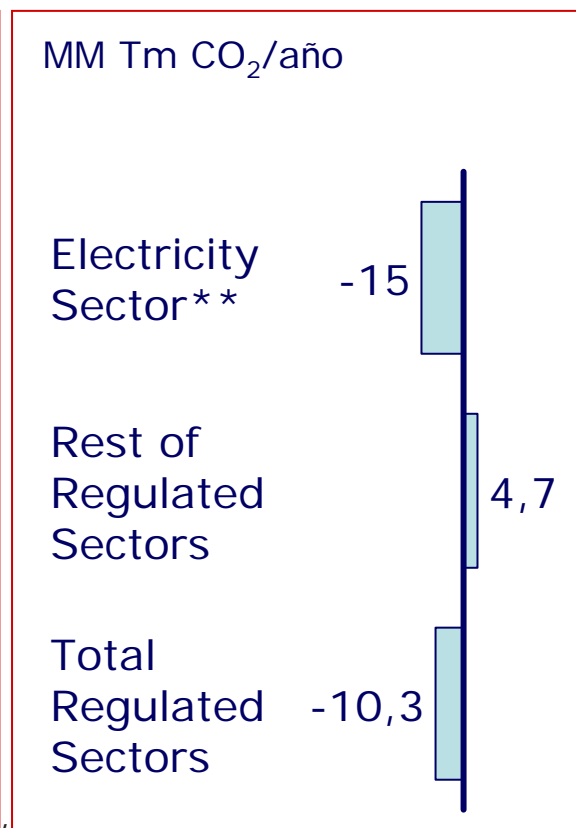
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The deficit of emission allowances of the Spanish 2005-2007 NAP impacted mainly the power industry

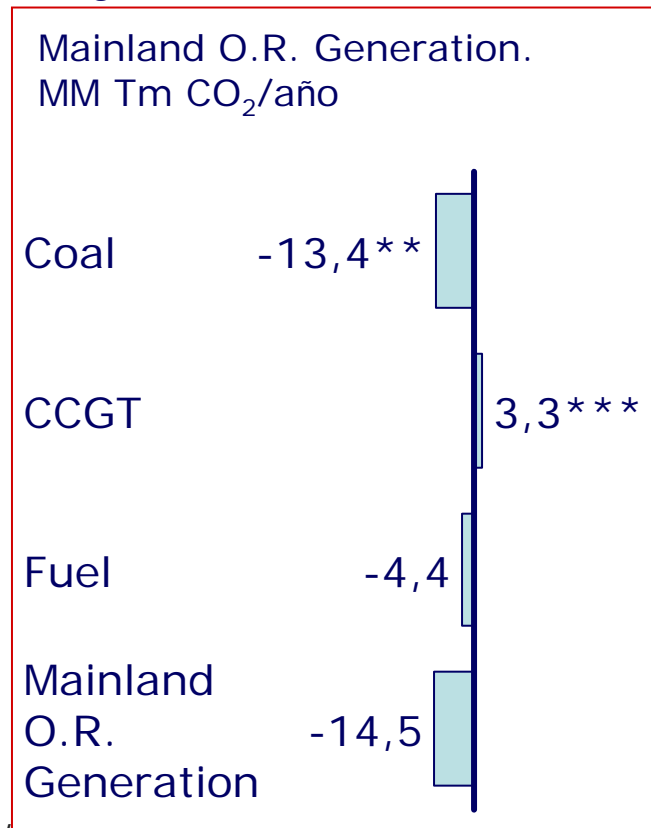
Spain has been one of the few countries with deficit of allowances, ...



... this deficit has been bear by the electricity sector ...



... where important technological asymmetries existed



Calculated according to forecasts in the Study "Effects of the Kyoto Protocol on the Spanish Economy" of FWC

* Incluye los 21 países que han presentado el balance hasta la fecha (21 del EU-25 y 14 del EU-15, excepto Luxemburgo)

** Incluye gases siderúrgicos

*** Incluye instalaciones mixtas Anexo I y no Anexo I

The 2005-2007 NAP allocated emission allowances to the power industry according to emission objectives per installation

- Islands

- Full allocation, according to expected needs

- Mainland

- Fueloil

- Fix amount decreasing for 2005 and 2006

- Gas and Coal

- By technology: according to two equations

Total allocation to thermal units – fuel-oil units allocation = Coal production x coal specific emission + Gas production x CCGTs specific emission

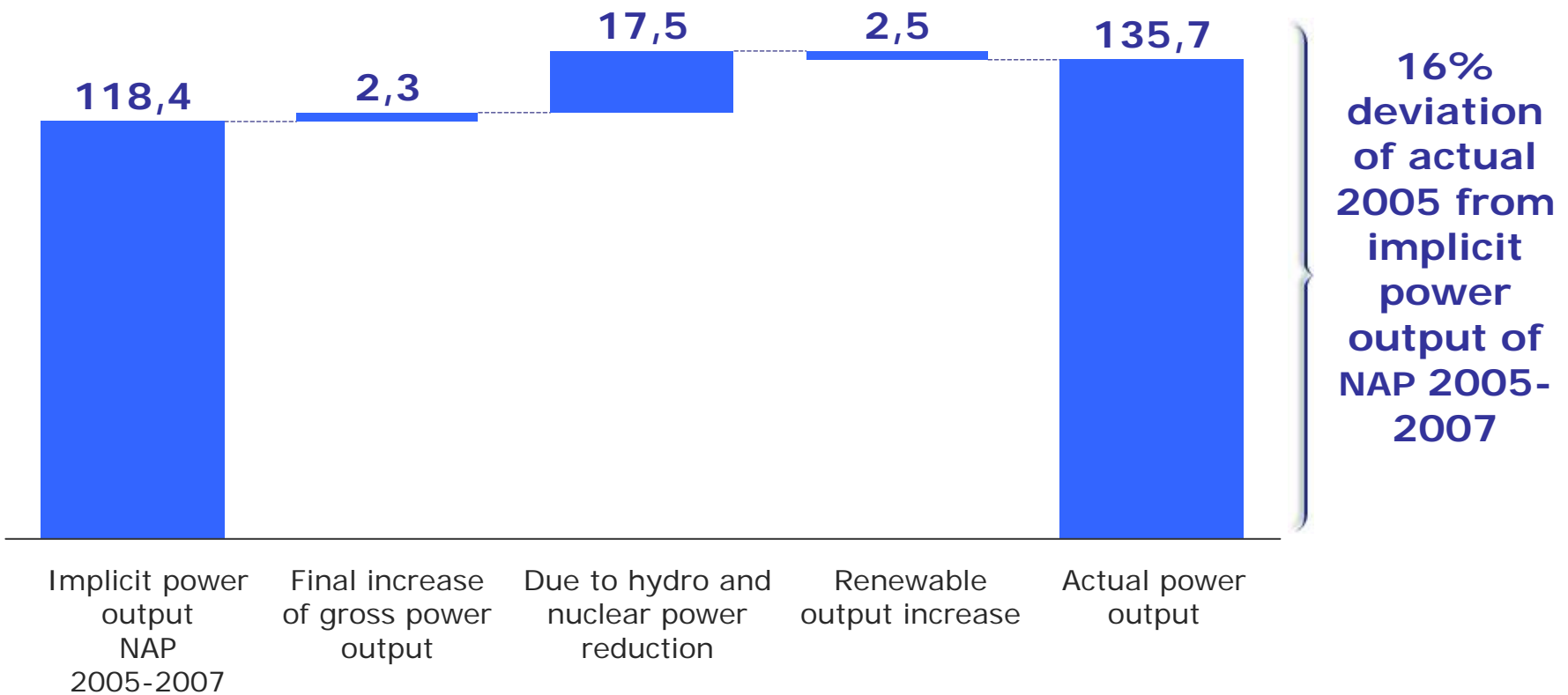
System need of Thermal production – fueloil output = coal output + CCGTs output

- By installation :

- CCGTs: proportional to capacity
- Coal units: proportional to historic emissions and to the inverse of the specific emission factor

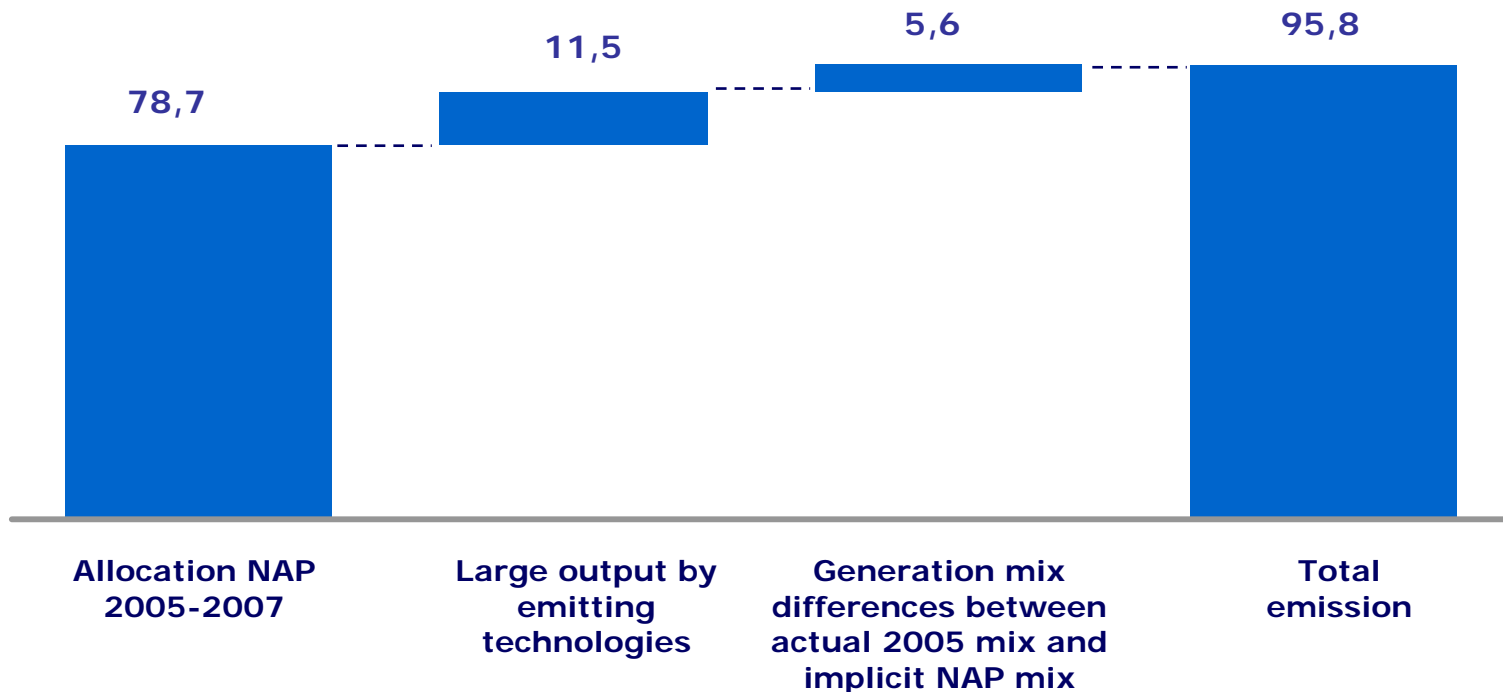
Power output by emitting technologies growth 16% versus power output implicit in 2005-2007 NAP

Gross power output by emitting technologies in 2005. TWh



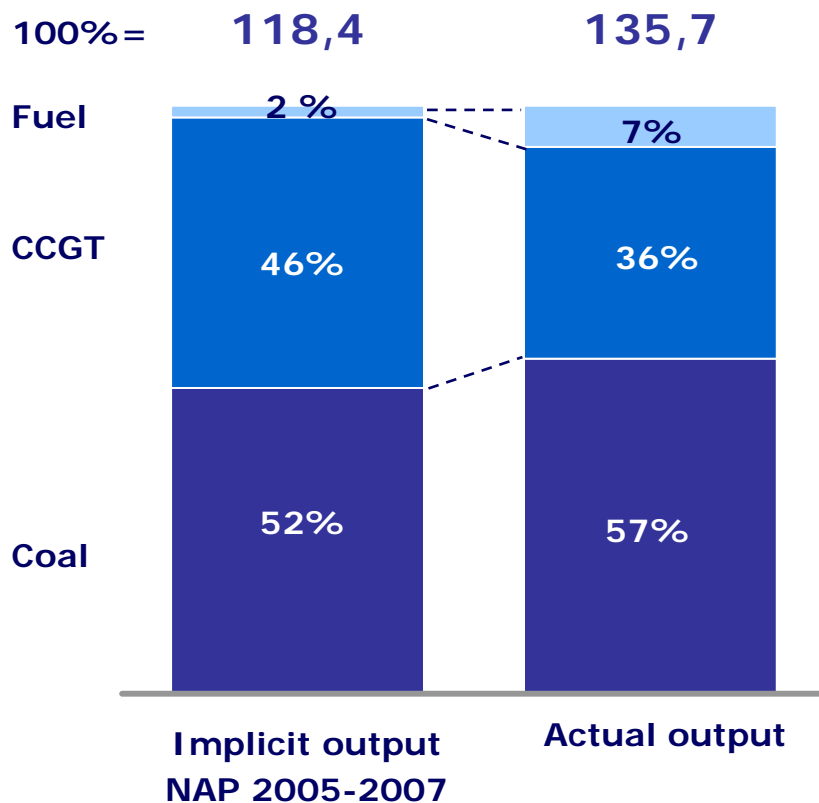
Total emissions in 2005 has been well above allocation of 2005-2007 NAP

Mainland power sector emissions. Mton CO₂. 2005



The degree of substitution of coal production by gas production, assumed by the NAP has not been achieved

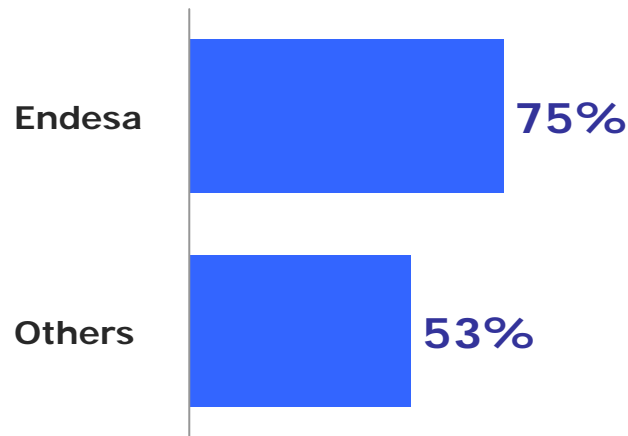
Gross output by emitting technologies
in mainland 2005. TWh



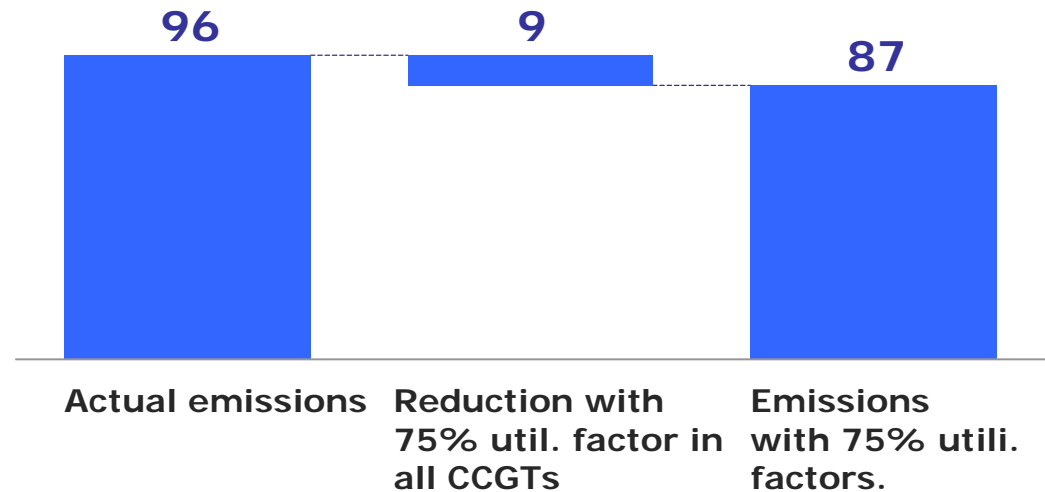
- 135,7 Emissions increase in 2005:
 - Increase of output by emitting technologies (11,5 Mton)
 - Different actual generation mix to that implicit in the NAP (5,6 Mton)
- Hence, the substitution mechanisms of NAP have not achieved the expected degree of coal substitution

The lower utilisation factor of CCGT of other agents also explains the failure to achieve the expected coal substitution

CCGT Util. factor CCGT
%. 2005



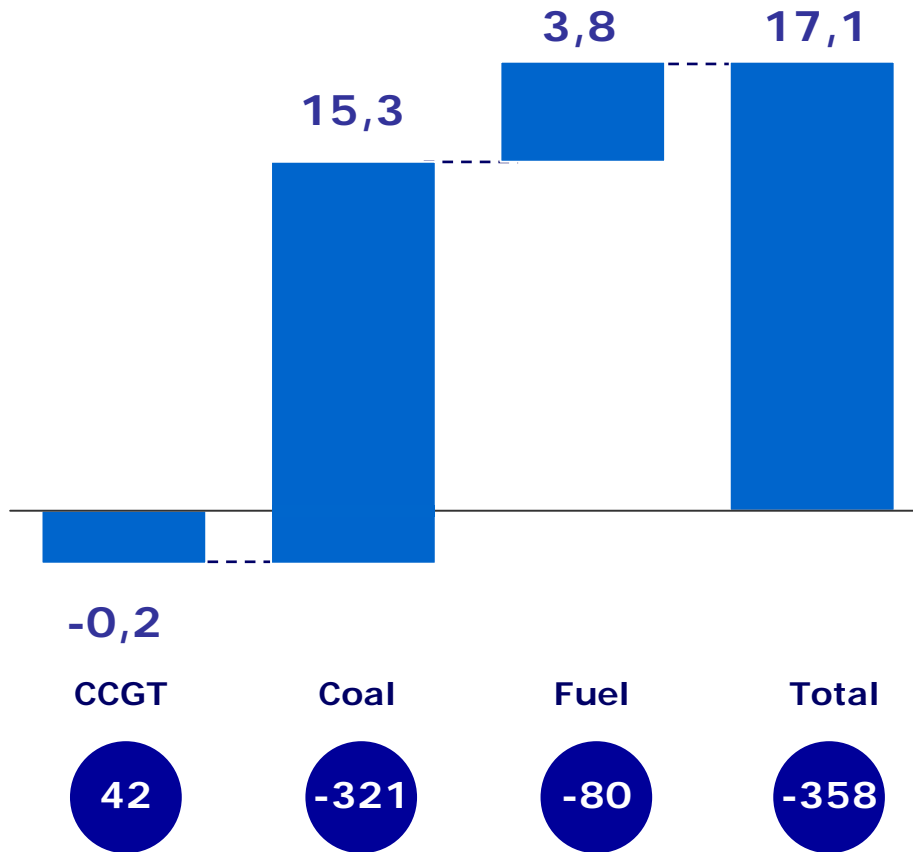
Mainland power sector emissions
Mton CO₂. 2005



**An increase of CCGT util. factor up to 75% would had achieved a degree of coal substitutions even above the objective of the NAP
(9,3 Mton CO₂ vs. 5,6 Mton CO₂)**

The economic impact for the agents has been discriminatory

Deficit/(excess) of allowances. Mton CO2
Mainland O.R. Generation 2005



- Allocation in excess for CCGTs (42 M€ of extra value)
- Allocation deficit for coal (321 M€ of extracost)

Revenues/
Cost CO2 M€

Note: EUA 21 €/ton

Source: Endesa

Summarising, balance of year 2005 shows that technology switch depends on international market prices of fuel (gas and coal) as well as on CO2 prices

- Switch of generation technology was a objective of NAP 2005-2007, it has not taken place:
 - Emissions has not only been reduced, but substantially increased due to lower of hydro and nuclear, as well as higher demand than assumed in the NAP, but also
 - The expected substitution of Coal production by CCGT has not taken place as expected:
 - CCGT utilisation factors of other agents have been well below the NAP assumption
 - Coal remains a reliable and competitive technology, even if discriminated by the original allocation criteria
-
- The biggest paradox is that CCGT have profited from selling the excess allocation in the market, and also from diverting gas to other markets
 - Environmental objectives have not been met and security of supply(gas)has been at risk

Balance in Europe

44 Millions tonnes above average allocation in Europe shows an overall long position that was not expected

30th April

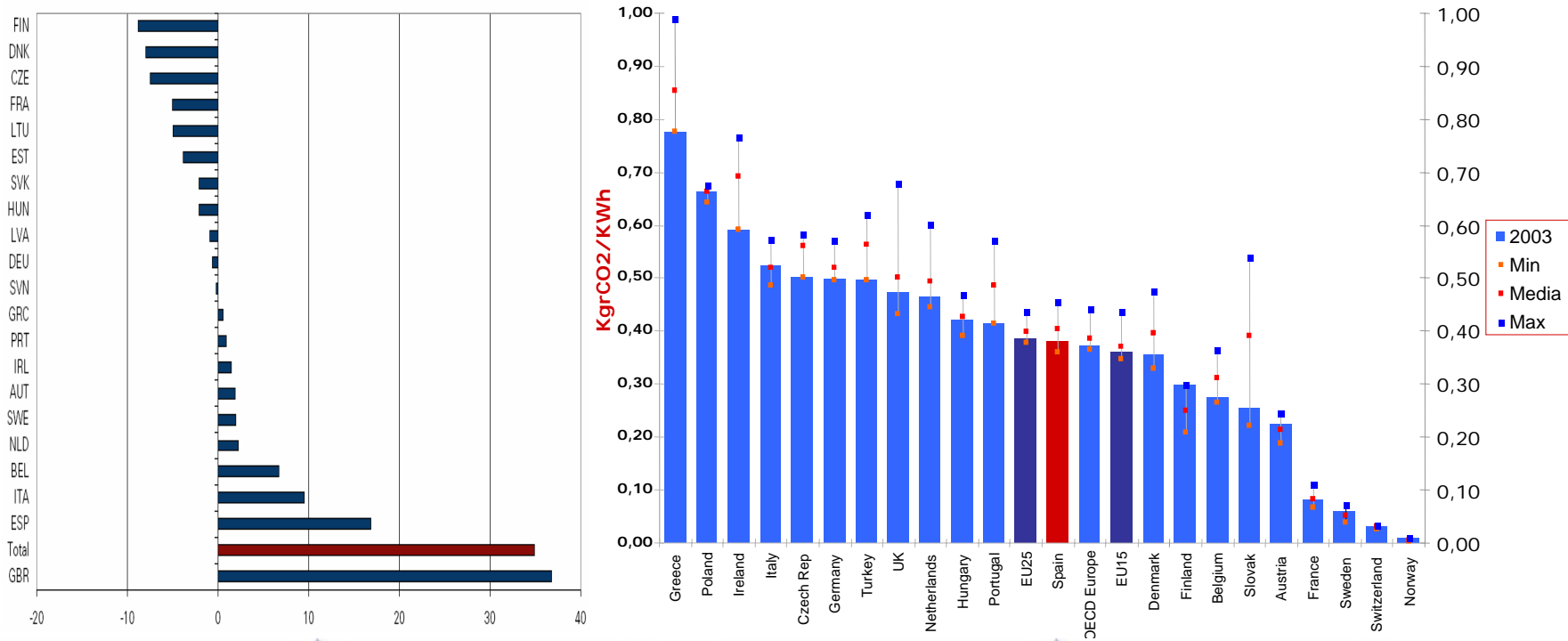
Member State	CO2 emissions for 2005 in Millions of tonnes	Annual average allocation in 2005 to 2007 in million of tonnes**	Emission to cap in millions of tonnes
Austria	33,37	32,67	-0,70
Belgium	55,35	59,85	4,50
Czech Republic****	82,45	96,91	14,45
Denmark	26,09	31,04	4,95
Estonia	12,62	18,76	6,14
Finland	33,07	44,59	11,51
France*****	131,15	150,50	19,35
Germany	473,72	495,07	21,36
Greece	71,03	71,14	0,10
Hungary	25,71	30,24	4,52
Ireland	22,40	19,24	-3,16
Italy	215,42	207,52	-7,90
Latvia	2,85	4,05	1,20
Lithuania	6,60	11,47	4,86
Netherlands	80,35	86,44	6,09
Portugal	36,41	36,90	0,49
Slovak Republic****	25,24	30,36	5,13
Slovenia	8,72	8,69	-0,03
Spain****	181,06	162,11	-18,95
Sweden	19,31	22,53	3,22
United Kingdom	242,40	209,39	-33,01
Total	1.785,34	1.829,48	44,14

- The effort for emission reduction has not been significant at European level
- The balance shown over average annual allocations, may not reflect actual figures for 2006 and 2007, which will be more demanding

Balance in Europe

The consequences for the Spanish Power industry are discriminatory

- The Spanish Power Industry, with a significant deficit, has lower specific emissions than other European States where allocation have produced excess of allowances.



- E-t-C Power & Heat Sector Source: PointCarbon (15th May 2006).

- Specific emission 2003 of power sector

Spain is the second state with the largest emission allowances deficit in his power sector

- **The cost of this deficit would have been for the Spanish power sector of approx. 400 €M at 2005 prices**
- **Only UK had a larger deficit, but with a larger sector to sustained it**
- **The emission level in Spain is 45 % above Kyoto objectives**
- **The government should consider this situation for phase II, in order to improve economy efficiency and not discriminate the Spanish power sector.**

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Recommendations of the EU Commission for 2008-2012 NAP

General

- More coherence among member states
- More transparency and simpler methods

Allocation volumes

- Reduced allocations compared to those of 2005-2007 NAP
- Eventually, government purchases of allowances
- **Auction of up to 10% of emission allowances**

Allocation method

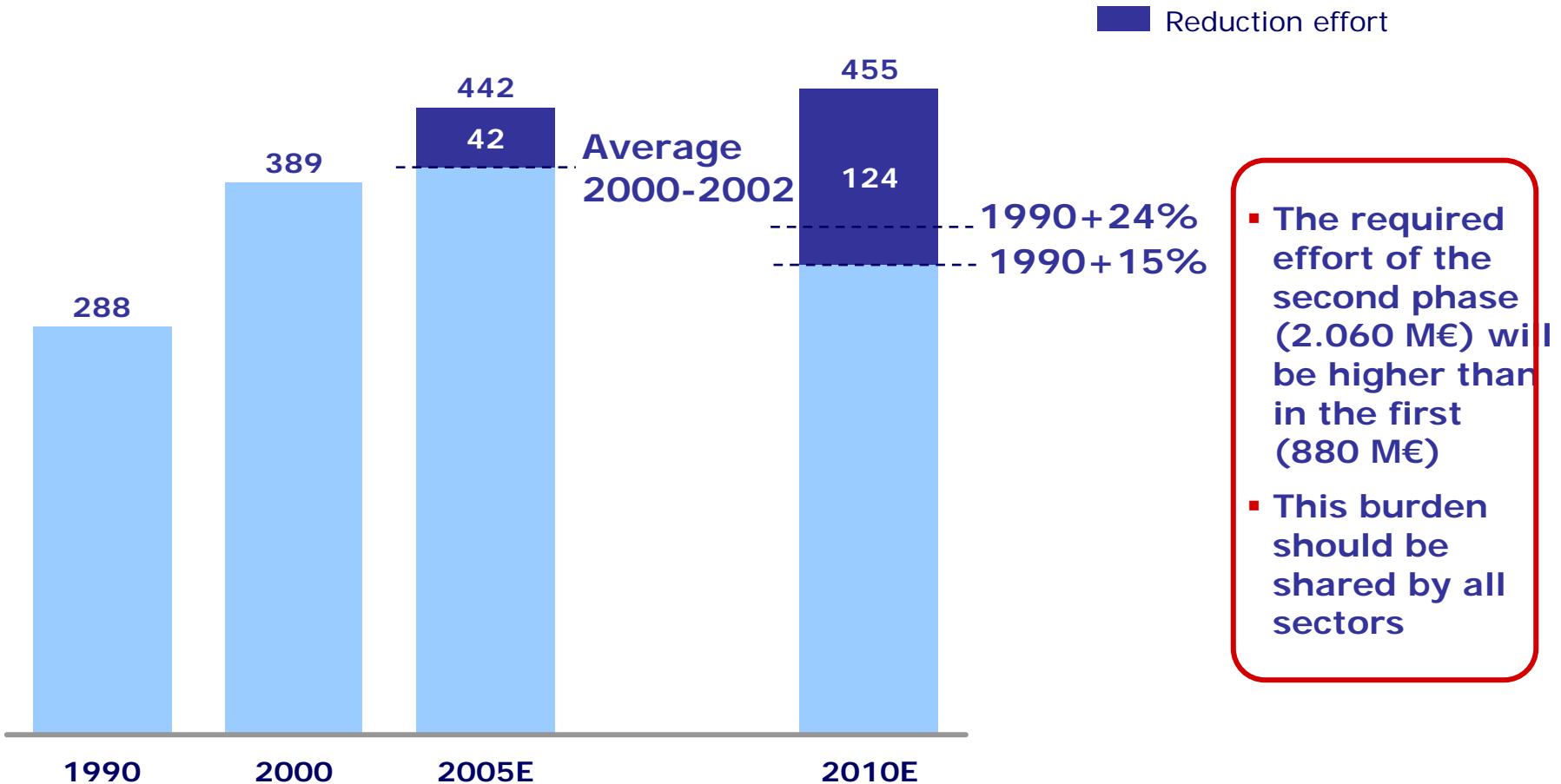
- **Non unjustified penalisation to any sector or technology**
- Complementary measures with other non-commerce sectors
- Compatibility with national energy decisions and endogenous energy:

-Direct allocation to those installations with regulated or committed production (domestic coal, Island)

-Recovery of those Investment made before Directive introduction

The 2008-2012 NAP means a significant burden for the economy of Spain

All sectors CO₂ Emissions. Mton equivalent CO₂

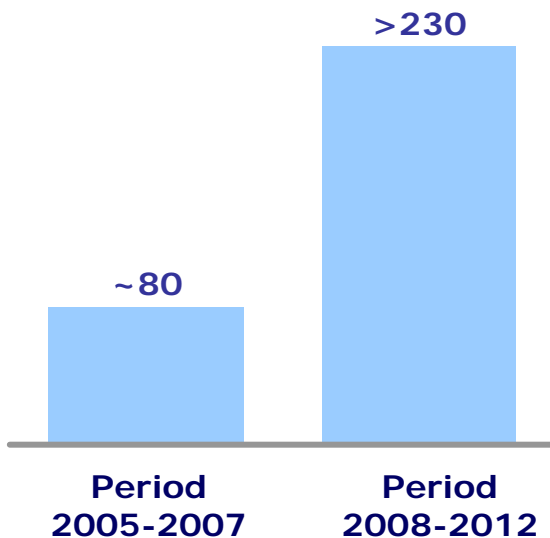


Source: PNA, "Evolución de las emisiones de gases de efecto invernadero en España", abril 2006, CC.OO.; "Efectos del protocolo de Kioto en la economías española", PWC

The allocation of the reduction burden to the power industry may cause unforeseen consequences

Deficit of regulated sectors in Europe

Mton CO₂/year



- The final effect of insufficient allocation to the power sector will cause either high electricity prices, and if capped, investment reductions that may affect security of supply
- Possible limitation to coverage of deficit by CDM/JI will be dealt with through secondary market of CERs

Lessons learned from the National Allocation Plan for the second period 2008-2012

- **The electricity price and the NAP**

- In order to provide the right price signal to new investment and to consumers, electricity price should internalise CO2 market price.
- Provisionally and until the additive tariff is established, it could be considered a mechanism for the mitigation of the impact on the tariff of electricity price increases due to CO2:
 - Discount in the revenues of the generation that does not need to buy allowances, of the value of the internalisation of CO2 in the electricity price . This mechanism preserve the environmental efficiency pursued by emissions trading.
 - This mechanism does not discriminate technologies, while other mechanisms such as return of the value of NAP allocation discriminates coal production.

Lessons learned from the National Allocation Plan for the second period 2008-2012

▪ NAP criteria for free allocation:

▪ **Technology switching must take place as a result of the combined effect of the markets: electricity, fuel, CO₂ and cost of investment. Otherwise the cost to reduce emissions for Society could result larger than the actual environmental cost:**

▪ Free allocation is not a signal to incentive new investment: these should be done based on their market value, with the environmental cost internalised, according to ETS.

▪ **Return of investment done previously to the ETS application should not be reduced due to emissions trading:**

▪ Sufficient free allocation during the installation useful life.

▪ Sufficient free allocation for coal production in order to avoid discrimination occurred during the first period and in order to ensure its contribution to security of supply.

▪ **Need to guarantee non-discriminatory treatment among CO₂ sectors in Spain.**

▪ Allowance surplus for industrial sectors must be avoided, since a power sector allowance deficit will have a higher impact on electricity prices and negatively affect competition in these industrial sectors.

Disclaimer

This presentation contains certain “forward-looking statements” regarding anticipated financial and operating results and statistics and other future events. These statements are not guarantees of future performance and are subject to material risks, uncertainties, changes and other factors which may be beyond Endesa’s control or may be difficult to predict.

The principal assumptions underlying these forecasts and targets relate to economic, market and regulatory environment. In addition to other factors described under “Risk Factors” in our annual report on Form 20-F for the most recent fiscal year and in the Documento Registro de Acciones presently in force registered with the Comisión Nacional de Valores, the following important factors could cause actual financial and operating results and statistics to differ materially from those expressed in our forward-looking statements:

Materially adverse changes in economic or industry conditions generally or in our markets; the effect of existing regulations and regulatory changes; tariff reductions; the impact of any fluctuations in interest rates; the impact of fluctuations in exchange rates; the impact of more stringent regulations and the inherent environmental risks relating to our business operations; any delays in or failure to obtain necessary regulatory, antitrust and other approvals, or any conditions imposed in connection with such approvals; opposition or actions of partners, competitors and political or ethnic groups; adverse changes in the political and regulatory environment; adverse weather conditions; natural disasters, accidents or other unforeseen events. No assurance can be given that the forward-looking statements in this document will be realized.

Except as may be required by applicable law, neither Endesa nor any of its affiliates intends to update these forward-looking statements.

For all of these forward-looking statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.



Carbon and electricity markets, National Allocation Plans

General Management for Spain and Portugal



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