



# Utilities vs. Carbon: Phase II

## Greening the energy mix: leverage on windfall profits

- ▶ The EU climate change strategy is gaining ground: the **carbon constraint on the power sector is set to become drastically tougher** for the second phase and represent a **financial burden of EUR6bn p.a.** for the power sector.
- ▶ **The CO<sub>2</sub> risk and price signal** are now clearly **integrated into the investment plans** of the largest European players. However, given our estimate of a CO<sub>2</sub> price ranging from EUR18 to EUR25 per tonne until 2012, the EU ETS is **unlikely to deliver a carbon price high enough to trigger a massive switch from coal to gas.**
- ▶ **The integration of the CO<sub>2</sub> price into wholesale electricity prices is a now fact, as reflected by the sector's windfall profits.** These drive competitiveness issues and significant political moves and lobbying at the EU and national levels.
- ▶ The **pass-through of the carbon opportunity cost to retail prices** varies depending on the country context: while still limited in countries with regulated tariffs, such as France and Spain, for the UK and Nordic players (**Fortum, RWE and E.On**), it **significantly increases the sensitivity of EPS to CO<sub>2</sub> prices.**
- ▶ While the EC is expected to maintain its pressure for higher CO<sub>2</sub> prices, leading to further increases in European electricity prices, **it is likely to reconsider the sustainability of windfall profits for the most carbon-intensive players.**
- ▶ In the medium/long term, **companies with the least CO<sub>2</sub>-intensive energy mix, such as EDF, Iberdrola, and Suez, are the best plays,** in our view, due to leverage on windfall profits. **Fortum** has already taken advantage of this system.

In co-operation with

# IIGCC

Institutional Investors Group on Climate Change

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## Introductory note

### ***Cheuvreux and the Institutional Investors Group on Climate Change (IIGCC)***

Cheuvreux's collaboration with the IIGCC aims to improve the quality of information and analysis of carbon-related issues. It reflects Cheuvreux's ambition to place the issue of climate change at the heart of its research.

Since we endorsed specific carbon research in 2005, we have pursued two concomitant objectives: 1) making investors aware of the risks and changes involved in the climate challenge; and 2) measuring the impact of climate change on European sectors and companies.

This report is the twelfth in a series of reports focused specifically on the issues of climate change and carbon. While our research is progressing in terms of its accuracy and pertinence, the challenges we continue to face in finding and interpreting information do not reflect the considerable momentum that we see with regard to taking these issues into account.

Hence we believe it is our responsibility to work alongside the initiatives with the greatest legitimacy, such as the IIGCC. Our upstream contribution to defining a reporting framework for the utilities sector has enabled us to better assess the shortcomings and gaps in disclosure and to reduce their impact by dialoguing proactively with the main European players: this sets the trend.

The structure of this report logically follows that of the IIGCC Disclosure Framework for Electricity Utilities (included in the Appendix): on the one hand, looking ahead in order to fully understand the impact of the carbon constraint, and on the other, getting a clear picture of companies' climate change strategies. Therefore, we analyse the implications of the changes in the allocation process for CO<sub>2</sub> emission allowances to the power sector within the EU ETS – a key tool of the EU's climate strategy – and review the greenhouse gas footprint of various power generation technologies that bear significant CO<sub>2</sub> emissions abatement potential.

The company profiles provide a focus on each group's exposure to the CO<sub>2</sub> constraint by assessing several key parameters and data (e.g. the energy mix, emissions inventories, country exposure, the passing on of costs into electricity prices, etc.). We then examine each group's commitment to reducing the CO<sub>2</sub> intensity of its generation portfolio, notably through capacity investments and R&D in renewable energies, thermal power plants with higher fuel efficiency, and promising technologies such as CO<sub>2</sub> capture and storage (CCS). Another key parameter is the groups' participation in Clean Development Mechanisms (CDMs) and Joint Implementation (JI) projects and the related projected quantity of Certified Emission Reductions (and ERUs) generated by these projects.

***Stéphane Voisin, Head of Sustainable and Responsible Investment***

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► Sector Top Picks

Enagas		EUR17.13			1/Selected List - Target: EUR22.1
To 31/12	2006	2007E	2008E	2009E	
Sales (EUR m)	778.0	822.5	866.6	951.9	Enagas is the main gas transport company in Spain, operating 7,600km of pipelines (95% of total in Spain), two underground storages units and three regasification plants. Regulatory risks have decreased during the last few months: no change will take place in the short term for the pipeline network (two-thirds of the asset base) and a minimum IRR of 8.5% for underground gas storage has been announced by the Spanish government. Capex programme of EUR4bn for 2007-2012 was confirmed, with guidance of at least 9% CAGR 2006-12E for revenues and EBITDA.
NAP rest. (EUR m)	216.5	238.3	257.7	285.0	
Clean EPS (EUR)	0.91	1.00	1.08	1.19	
Reported EPS (EUR)	0.9	1.0	1.1	1.2	
P/E (x)	19.4	17.2	15.9	14.3	
Attrib. FCF yield (%)	NS	NS	NS	NS	
EV/EBITDA (x)	10.6	10.2	10.3	10.0	
EV/EBITA (x)	15.8	15.1	15.5	14.8	
ROCE (%)	12.5	11.8	10.7	10.4	
ROE (%)	19.2	19.2	19.1	19.5	
P/BV (x)	3.7	3.4	3.1	2.9	
Net debt/EBITDA (x)	3.1	3.4	3.9	4.2	
Net dividend (EUR)	0.47	0.60	0.65	0.72	
Yield (%)	2.7	3.5	3.8	4.2	

RWE		EUR80.23			2/Outperform - Target: EUR92
To 31/12	2006	2007E	2008E	2009E	
Sales (EUR m)	44256.0	42949.1	45510.5	46255.2	RWE has underperformed the DAX by some 22% year-to-date. We think this trend is set to reverse for the following reasons: likely increase in the guidance (currently EBIT expected up 10%, we target a 13% increase), lower CO <sub>2</sub> cost than expected (we target EUR800m), new CEO to arrive in November, IPO of American Water, cash return to shareholders and increase of the dividend pay-out to 70-80% (versus 50%). RWE is among the cheapest in the sector with multiples 30% lower than peers and a dividend yield 35% higher.
NAP rest. (EUR m)	3847.0	3396.7	4028.9	4206.8	
Clean EPS (EUR)	6.84	6.04	7.16	7.48	
Reported EPS (EUR)	6.8	5.7	7.2	7.5	
P/E (x)	12.2	13.3	11.2	10.7	
Attrib. FCF yield (%)	34.7	2.3	4.0	4.1	
EV/EBITDA (x)	8.0	6.8	6.3	6.1	
EV/EBITA (x)	10.9	8.9	8.1	7.8	
ROCE (%)	14.5	17.9	18.2	17.6	
ROE (%)	33.4	24.4	27.4	25.5	
P/BV (x)	4.1	3.6	3.2	2.8	
Net debt/EBITDA (x)	(0.4)	(1.1)	(1.0)	(0.9)	
Net dividend (EUR)	3.50	3.90	4.25	4.50	
Yield (%)	4.2	4.9	5.3	5.6	

Suez		EUR39.08			2/Outperform - Target: EUR47
To 31/12	2006	2007E	2008E	2009E	
Sales (EUR m)	44289.0	47507.0	51377.0	54638.0	The merger with Gaz de France is expected to take effect sometime in H1 2008. On a stand-alone basis, the group can fully capitalise on a strong generation mix (competitive and flexible), pan-European exposure, dual gas/electricity exposure and the further recovery/development of the environmental activities. Gaz de France will bring EUR1.0bn in synergies, as well as key positions in LNG, supply and E&P. Finally, Suez will exit its environmental activities once the recovery of this business is complete and after a strong re-rating of multiples.
NAP rest. (EUR m)	2625.0	2929.0	3421.0	3956.0	
Clean EPS (EUR)	2.05	2.35	2.77	3.21	
Reported EPS (EUR)	2.8	2.5	2.7	3.2	
P/E (x)	19.1	16.6	14.1	12.2	
Attrib. FCF yield (%)	4.0	4.6	2.5	3.9	
EV/EBITDA (x)	10.1	9.0	8.1	7.3	
EV/EBITA (x)	13.9	11.9	10.4	9.2	
ROCE (%)	12.3	14.3	15.4	16.3	
ROE (%)	20.4	17.3	17.3	18.3	
P/BV (x)	2.8	2.7	2.5	2.3	
Net debt/EBITDA (x)	1.7	1.8	1.7	1.5	
Net dividend (EUR)	1.20	1.30	1.45	1.50	
Yield (%)	3.1	3.3	3.7	3.8	

# INVESTMENT RECOMMENDATION

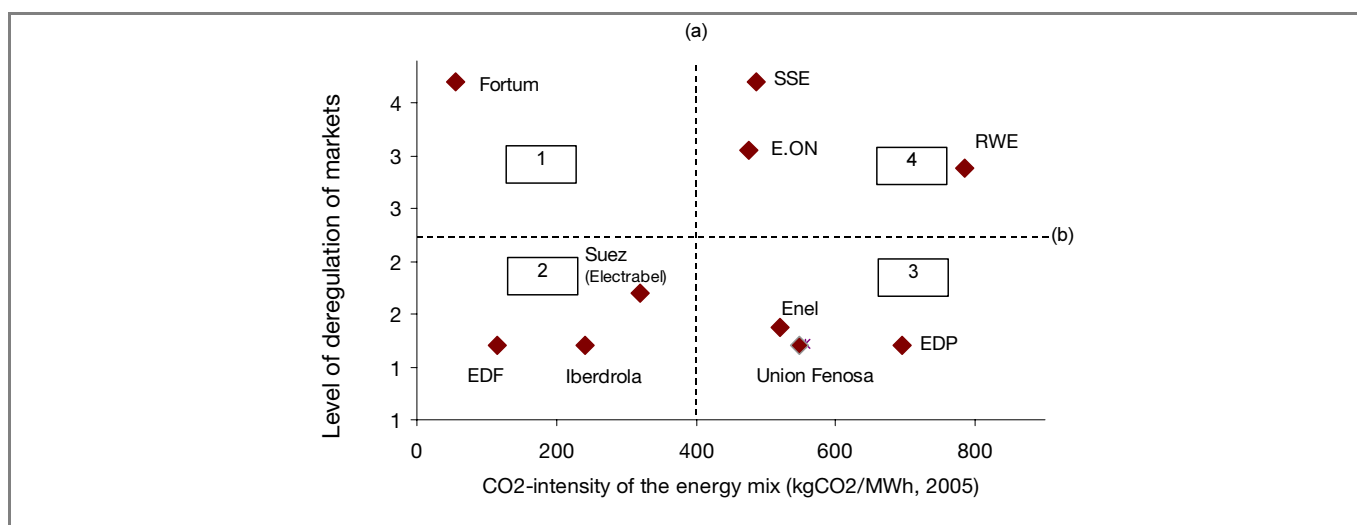
The EU climate change strategy is gaining ground: the carbon constraint on the power sector is set to become drastically tougher for the second phase of the EU ETS, covering the period 2008-2012. We estimate a deficit of around 300 million CO<sub>2</sub> emission allowances p.a. in the EU-25. This represents a **financial burden of EUR6bn p.a.** for the power sector (at EUR20 per tonne of CO<sub>2</sub>). **The CO<sub>2</sub> risk and price signal** is now clearly **integrated into the investment plans** of the largest European players. Capacity investments are mostly aimed at reducing groups' overall carbon intensity, and include increased capacity in renewable energies (wind), combined-cycle gas turbines (CCGTs) and cutting-edge 'clean coal' power plants.

The **integration of the CO<sub>2</sub> price into wholesale electricity prices is a fact**, and 2008 will see a lasting recovery in electricity prices due to CO<sub>2</sub>. However, the carbon pass-through to retail prices varies widely across Europe, depending on the process of opening up electricity markets: high in the UK and Nordic countries, compared with continued regulated tariffs in markets such as France and Spain. This situation leads to significant political moves and lobbying at the EU and national levels, and is starting to be addressed through new initiatives, including details on the EU energy policy to be released in September 2007. It will certainly lead to increases in retail electricity prices.

We believe the CO<sub>2</sub> price will continue to fluctuate in a range of EUR18 to EUR25 per tonne until 2012, **which is not high enough to trigger a massive switch from coal to gas. More certainty on the inclusion of the airline sector in the EU ETS and on the post-2012 EU ETS constraint will be a strong upward signal for the CO<sub>2</sub> price (we see a ceiling price at EUR40-45 per tonne).** Our valuations are based on a scenario of EUR20 per tonne of CO<sub>2</sub>. In the short term, the increase in CO<sub>2</sub> prices would still have a positive impact on the EPS of companies selling on deregulated markets (e.g. Fortum, RWE and E.On), with the top-line effect outweighing the increased compliance costs. In the medium to long term, companies with **the least CO<sub>2</sub>-intensive energy mix, such as EDF, Iberdrola, and Suez, are the best plays, in our view, due to leverage on windfall profits.** EDP could join this group if planned high capacity investments are achieved. Fortum has already taken advantage of this system; we believe that a windfall profit tax is now a threat.

We summarise the impact of various scenarios in the chart below. We see two main ways for groups to increase their positive exposure to windfall profits brought about by the EU ETS: 1) Reducing the CO<sub>2</sub> intensity of the energy mix – see trend (a). This is a long process, however, due to the long lifespan of power generation assets. Sourcing cheap Kyoto credits is a way to precipitate this process (see our case on RWE). 2) The second way depends on the process of opening up electricity markets in Europe, which is firmly pushed by the European Commission – trend (b). Groups in quadrants 1 and 4 have already benefited from this process, and we believe they now bear a more neutral-to-negative carbon risk in the long term. Groups in **quadrant 2 are pure carbon plays** in a scenario of electricity price deregulation, but we believe that taxes on windfall profits may darken the picture in the long term. Quadrant 3 would be also positively affected, but to a lesser extent.

**Screening of carbon investment ideas: energy mix vs. exposure to windfall profits**



Source: Cheuvreux

## I— CO<sub>2</sub> EMISSIONS RIGHTS: TOUGHER TIMES AHEAD

While Phase I (2005-2007) of the EU Emission Trading Scheme should be viewed as a test period, characterised by lax constraints on CO<sub>2</sub> emissions, the second phase, starting in 2008, presents a tougher, more harmonised carbon constraint on the power sector.

### From Phase I to Phase II of the EU ETS: fairness issues at the heart of the new carbon market

#### *Phase I: Carbon constraint reveals a strong 'Kyoto' country bias*

**Phase 1: fairly lax CO<sub>2</sub> emission caps...**

In Phase I, the carbon constraint has generally been lax, and the power and heating sector in the EU-15 was just 5.8% short in terms of CO<sub>2</sub> emissions allowances in 2006 (6.7m allowances in absolute terms).

However, this conclusion varies widely by country. The carbon constraint has been more dependent on the various groups' exposure to countries with strict allocations than on their energy mixes.

**...and a strong 'Kyoto' country bias**

The 'Kyoto' bias has been particularly strong in Italy and Spain, as these two countries implemented a relatively higher constraint in order to achieve challenging Kyoto targets. Germany, France and central and eastern European countries were not really constrained by their commitments under the Kyoto Protocol. The stringent allocation in the UK is in line with the voluntary national emissions reduction target that goes beyond its Kyoto commitment.

#### Country bias in the allocation process (power and heating sector)

(million tonnes CO <sub>2</sub> )	Actual emissions 2006	Allowances for 2006	Ratio, cap-to-emissions
UK	205.7	159.1	77%
Spain	111.8	92	82%
Italy	148.2	124.7	84%
Belgium	28.1	26.1	93%
Germany	374	383.5	103%
Poland	173.5	198.6	114%
France	29.3	43.6	149%

Source: CITL, Cheuvreux

This bias comes mainly from the various efforts each country must implement in order to achieve its target under the Kyoto Protocol.

#### Country bias at group level: RWE

	Allowance 2005 (t)	Emission 2005 (t)	Cap to emissions	Allowance 2006 (t)	Emission 2006 (t)	Cap to emissions
RWE Germany (27 power stations)	117.7	120.3	97.9%	117.7	122.2	<b>96.4%</b>
RWE UK nPower (8 power stations)	15.0	21.5	70.1%	15.0	23.2	<b>64.9%</b>
Total RWE	132.8	141.8	93.6%	132.8	145.4	91.3%

Source: CITL, Cheuvreux

This situation has therefore raised issues of fairness, as some of the largest emitters of CO<sub>2</sub> have faced lower carbon constraints than peers with a cleaner energy mix but located in countries that have adopted tougher stances on the allocation of emissions allowances (e.g. Spain, Italy and the UK).

The European Commission, in a general effort to harmonise the market across the EU, has been working to adapt the system to avoid such distortions. The top-down allocation methodology for Phase II is a first step in this direction. Increased auctioning is strongly encouraged and likely to come thereafter.

### ***Phase II: more harmonised allocation limits the country bias***

#### **Phase II: tough cuts to national allowances...**

#### **The EC's tough stance: no country should be overallocated**

The EC's methodology adopted to review NAPs for the second trading period tends to erase the country bias observed in Phase I.

For the second set of National Allocation Plans proposed by the 27 member states, the European Commission has systematically adopted a tough stance in the total amount of allowances to be granted for free.

The adopted allocation methodology aims at ensuring that no country is overallocated unless additional CO<sub>2</sub> emissions abatement measures are effectively implemented. The direct consequence is that no country, even those with lax Kyoto targets, should receive more allowances than needed.

The following formula has been adopted to set emission caps:

**Max. allowed annual average cap = Verified emissions for 2005 \* Growth trend, 2005-2010 (%) \* Carbon intensity trend, 2005-2010 (%) + Additional emissions covered by an extended scope of combustion installations.**

#### **Gradual cuts in total CO<sub>2</sub> emission allowances**

(mtCO <sub>2</sub> -eq.)	Phase I cap (2005-2007)	Proposed cap* (2008-2012)	Cut (%)	Allowed cap *(2008-2012)	Cut (%)	2006 verified emissions	Cap to emissions
Belgium	62.1	58.3	-6%	53.5	-8%	54.8	98%
Czech Rep.	97.6	101.9	4%	86.8	-15%	83.6	104%
Finland	45.5	39.2	-14%	37.2	-5%	44.6	83%
France	156.5	127.7	-18%	127.7	0%	123.3	104%
Germany	499	471	-6%	442.1	-6%	477.6	93%
Italy	223.1	209	-6%	195.8	-6%	227.1	86%
Netherlands	95.3	86.4	-9%	81.8	-5%	76.7	107%
Poland	239.1	278.3	16%	202.2	-27%	208.6	97%
Portugal	38.2	37.9	-1%			33.1	
Spain	174.4	146	-16%	145.6	0%	178.6	82%
Sweden	22.9	23.2	1%	20.8	-10%	19.9	105%
UK	245.3	236.7	-4%	236.7	0%	251.1	94%

\* After restatement for emissions from expanded scope

Source: European Commission, Cheuvreux

Countries that continue to lag behind their Kyoto targets (e.g. Spain and Italy) or that have adopted voluntary targets stricter than under the Kyoto Protocol (e.g. the UK) will continue to place a relative higher constraint on regulated sectors under the EU ETS, and particularly the power sector.



### The European Commission is likely to win the lawsuit against eastern European countries, in our view

We believe that these emission caps are now stable. Eastern and central European countries that only committed to lax objectives under the Kyoto Protocol decided to file a lawsuit against the European Commission. However, we believe that these proceedings are very unlikely to succeed, as granting emissions allowances for free falls under the EC's jurisdiction as State/public aid.

### The power sector to bear the bulk of the carbon constraint

The power sector is to bear most of this additional constraint, given its relatively low exposure to international competition and capacity. Additional cuts in total emissions allowances required by the European Commission are mostly transferred onto the power sector.

...mostly passed on to the power sector

#### Breakdown of quotas allocated by regulated sector in Spain

(million tonnes CO <sub>2</sub> )	2005 emissions	Allocation Phase I	Allocation Phase II	Cap ratio for Phase II / 2005 emissions
<b>Electricity and heating cos.</b>	<b>121.7</b>	<b>108.5</b>	<b>71.2</b>	<b>59%</b>
Refiners	15.5	15.3	16.1	104%
Cement manufacturers	29.5	30.0	31.3	106%
Steelmakers	11.1	11.2	12.2	110%
Paper/pulp manufacturers	4.8	5.3	5.5	115%
Other	7.5	8.6	8.5	114%
Reserves		3.3	7.8	

Source: NAP for Spain

Based on emissions forecasts for 2010 in the key western European electricity production markets, the burden on electricity companies is roughly equivalent.

#### Carbon constraint burden on the power sector

	Emissions (projections for 2010)	Allocation Phase II	Compliance gap
Germany	373.8	279.9	-25%
Spain	101.2	71.2	-30%
UK	161.7	107.7	-33%
Italy	142.7	100.7	-29%
France	33.4	25.6	-23%

Source: NAPs, Cheuvreux

In all, we have identified Spain, Austria, Italy and the UK as the countries with the tightest constraints on the emissions of regulated sectors.

### Auctioning: a new bite into power sector allocation

Beginning in Phase II, countries can auction up to 10% of the total amount of allowances they receive from the EC instead of allocating them for free to regulated installations.

Only seven countries have chosen to implement this option so far. Among them, Germany, the UK and Italy will auction 8.8%, 7% and 6.1%, respectively, of the total amount of their allowances. Auctioned allowances have mostly been withdrawn from allowances initially granted to large electricity producers.

Auctioning is limited so far... but will impact allocations to operators in Germany, the UK and Italy



**Auctioning**

	<b>Emissions allowances to be auctioned (millions, average p.a.)</b>	<b>As a % of total allowances</b>
Germany	40	8.8%
UK	17	7.0%
Italy	12	6.1%

Source: Cheuvreux, European Commission, NAPs

**The benchmark methodology (compared to grandfathering) penalises low fuel efficiency and lignite-fired plants.**

**Benchmark allocation methodologies in Germany and the UK penalise the oldest and lignite-fired power plants**

Some countries (e.g. the UK and Germany) opted for a specific allocation methodology for the power sector, based on a benchmark by type of fuel instead of historical emissions. This tends to penalise groups that operate the oldest/dirtiest plants (low fuel efficiency) and dirtiest technologies (lignite).

In the UK and Germany, lignite and coal-fired power plants are covered by the same benchmark.

**Benchmark allocation in Germany and the UK**

	<b>Germany</b>	<b>UK</b>
NAP I (2005-2007)	Grandfathering system (based on historic emissions)	
NAP II (2008-2012)	Specific emissions benchmarks (750kg CO <sub>2</sub> /MWh for hard coal and lignite; 365kg CO <sub>2</sub> /MWh for gas); full load hours based on historic utilisation of the plant (avg. 2000-2005); a penalty factor	Benchmarks using fuel and technology-specific emissions factors; category average load factors (2000-2003); lower load factor retained for coal plants that opted out of the LCPD

Source: RWE, European Commission

The Large Combustion Plant Directive (LCPD) and the benchmark methodology are expected to result in accelerated closure/replacement of the oldest running coal-fired plants in Europe.

**New power stations are set to be sufficiently allocated, but legal rules are still unclear**

**Poor transparency on allocation to new power plants**

Allocation rules for new installations are not harmonised across the EU. There is a general lack of transparency on rules for new entrants/closures.

In Germany, the "14" rule, which ensured a 100% free-of-charge allocation for new power plants for the first 14 years of operation based on the best available coal and gas technologies (BAT), has been abandoned for Phase II. New units coming on stream over the period 2008-2012 will still be allocated based on emissions benchmarks and standard load factors (7,500 hours p.a. for hard coal and gas; 8,250 hours p.a. for lignite).

**New Entrant Reserves and allocation rules**

	Germany	UK	France	Spain	Italy
Size of the NER (in mtCO <sub>2</sub> )	25	16.3	3.94	7.8	15.84 to LEP (10.3 to coal)
Size of the NER (as a % of total allowances)	5.5%	6.60%	2.6%	5.40%	
Allocation methodology	"14" rule is abandoned; emissions benchmarks, standard utilisation load factors	Allocation in line with incumbents (benchmarks based on fuel and technology); 100% to Good Quality CHP	BAT, should be based on benchmarks	Same as for incumbents; benchmark; gas min. operating hours: 3,000 p.a.	
Transfer/closure rule		No allowances after closure		No allowances after closure	
CDM/JI limit for electricity sector	22%	9.30%	14%	42% (proposal)	
Replenishment of the New Entrant Reserve			State buys on the market	Open issue	

Source: National Allocation Plans, European Commission, RWE

**A key new parameter: access to Kyoto credits**

**Kyoto credits: THE new parameter...**

Caps on the use of Kyoto credits, which are generated from Clean Development Mechanisms and Joint Implementation projects, are set by each country and range from 0% (Estonia) to 22% (e.g. Germany).

The caps on the use of JI/CDM credits (half as expensive as European credits) have been modulated according to the level of the constraint on regulated sectors.

These caps are expressed as a percentage of the amounts allocated to installations. This ratio is particularly important in evaluating the cost of compliance for electricity companies depending on the portion of Kyoto credits vs. European credits used to meet their substantial quota deficit. In its revised plan, Spain has notably proposed to set a more accommodating cap of 42% for its power plants, compared to the average cap for the country of 20%. We believe this proposal has little chance of being accepted by the European Commission.

**Allocations and caps on the use of Kyoto credits for Phase II**

	Cap on use of Kyoto credits
Austria	10.0%
Belgium	10.0%
Denmark	19.0%
Finland	12.0%
France	13.5%
Germany	22.0%
Greece	9.0%
Ireland	22.0%
Italy	20.0%
Luxembourg	10.0%
Netherlands	10.0%
Portugal	10.0%
Spain	20.0%*
Sweden	10.0%
UK	9.3%
<b>EU-15</b>	<b>15.6%</b>

\* 42% for power plants (proposal)

Source: European Commission, Cheuvreux

## What's next? Moving towards the "polluter pays" principle for Phase III

### *The carbon constraint will be even stricter in Phase III*

The European Union has pledged to cut greenhouse gas emissions by at least 20% by 2020 (based on 1990 emissions), pushing this target to 30% if a common agreement is reached with other industrialised countries.

The current carbon constraint aims at achieving Kyoto targets: an 8% cut in EU-27 GHG emissions vs. 1990 levels. There is thus no doubt that the constraint is set to last and even intensify in the future. However, we believe that the additional reduction burden will be better shared by EU ETS-regulated sectors and other sectors such as transportation and buildings with diffuse CO<sub>2</sub> emissions.

### *Review of the EU ETS: towards the polluter pays principle*

The EU ETS system is currently being reviewed by the European Commission.

#### **More auctioning expected**

Increased auctioning is firmly backed by the European Commission and has been pushed by the EU Council of Environment Ministers as a solution to curb the windfall profits generated over Phase I by large emitters of CO<sub>2</sub>. The door is also open for a benchmark system, but the two systems are not mutually exclusive.

Environmental NGOs are also pushing for a post-2012 EU-wide cap and full auctioning of CO<sub>2</sub> emissions allowances.

We believe it is reasonable to think that from 2013, at least 50% of allowances for the power sector will be auctioned, with the rest being handed out for free through a benchmark allocation methodology.

#### **An EU-wide cap**

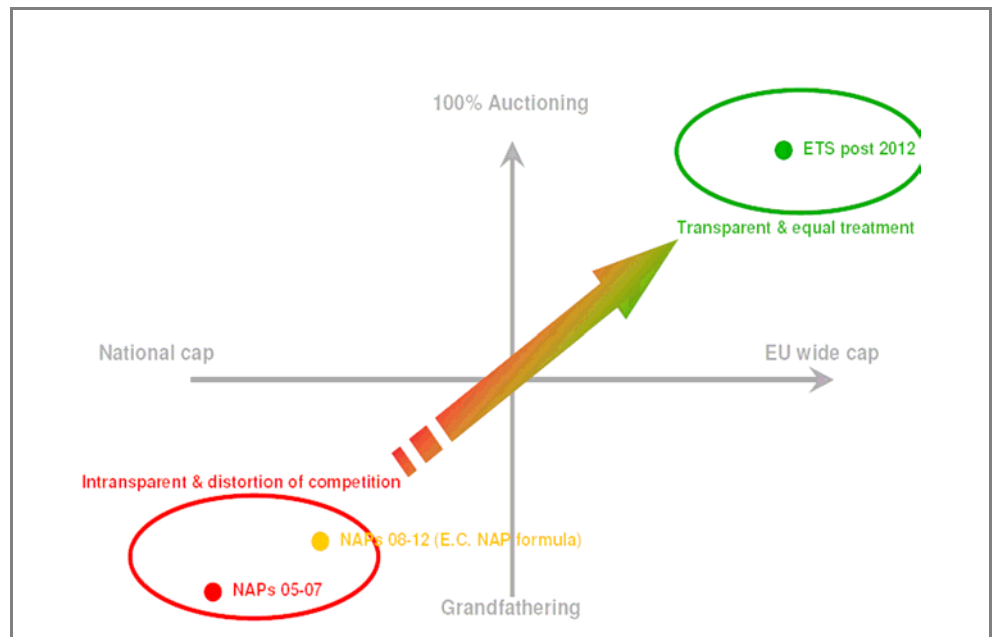
Opting for an EU-wide cap and an allocation process managed by the European Commission should avoid time delays, and increase the transparency of the system and equal treatment of regulated players. This view is backed by environmental NGOs and EU regulators (the EC, Council of Environment Ministers). We believe it is the most likely scenario for the Phase III of the EU ETS starting in 2013.

**The EU has committed to a minimum 20% cut in GHG emissions by 2020**

**Auctioning is backed by regulators and NGOs**

**An EU-wide cap for further harmonisation**

## Charting the future of the EU ETS



Source: Climate Action Network

## CO<sub>2</sub> price: high volatility and a EUR18-25 range expected

Giving a price for CO<sub>2</sub> per tonne for Phase II consists of estimating the supply/demand balance in emissions allowances, and thus comparing the amounts allocated by the member states, the projections for regulated emissions up to 2012, as well as the limits for using Kyoto credits (CERs/ERUs).

We expect an EU CO<sub>2</sub> price (EUA) in a range of EUR18 to EUR25, which is high enough to trigger the switch from coal-fired to gas-fired power generation during the summer. Indeed, we believe that the inflow of Kyoto credits will be sufficient to cover the bulk of the emissions allowance deficit in the EU ETS, while summer coal-to-gas fuel switching will provide the remaining emissions abatement needed, thus setting the price of CO<sub>2</sub> over the period.

Moreover, the possibility of borrowing and banking emissions allowances is likely to smooth the price over the period.

### The European carbon price corridor

Insofar as certified emissions are only reported once yearly, we can expect strong changes in the price of CO<sub>2</sub> when these reports are issued (each April), trending towards one of the benchmark prices determined in the following table.

**Benchmark prices for carbon in Europe ranging from EUR8 to EUR45**

**Benchmark prices for carbon (2008-2012) in Europe**

Scenario*	Carbon price	Benchmark	Parameters
Growth in EU-25 emissions >1.6% p.a. + limited recourse to CER/ERU credits + certainty on inclusion of airlines + Phase II-Phase III banking rules	EUR40-45	Trigger CO <sub>2</sub> price for coal-gas switch in winter	Zeebrugge gas fwdW08 and CIF ARA coal fwd for 2008 of EUR47-48/t
<b>Growth in EU-25 emissions &gt;1.6% p.a. + limited recourse to CER/ERU credits. Significant emissions reduction requirements (&gt;35mtCO<sub>2</sub> p.a.) in Europe, i.e. after recourse to CER/ERU credits.</b>	<b>EUR25-26</b>	<b>Trigger price for a coal-gas switch in continental Europe in the summer</b>	<b>Zeebrugge gas fwdS08 of GBp34.5/therm;and CIF ARA coal fwd for 2008 of EUR47-48/t</b>
<b>Growth in EU-25 emissions of 1% to 1.6% p.a. Recourse to Kyoto credits: 75-90% of the authorised limit. Reduction required in Europe but &lt;35mtCO<sub>2</sub> p.a.</b>	<b>EUR17-20</b>	<b>Trigger price for a coal-gas switch in the UK in the summer</b>	<b>NBP gas fwdS08 of GBp30-31/therm, and CIF ARA coal fwd for 2008 of EUR47-48/t</b>
Growth <1% and significant recourse to CER/ERU credits for CDM/JI projects by European industrial players sufficient to compensate for the deficit of European quotas (EUA)	EUR12	Price of a CER on the secondary market	Resistance at this price, as sellers of carbon credits try to protect their margins
Growth in emissions <1% and excess amount of CER/ERU carbon credits (floor price)	EUR8-9	Price of a CER at origination	Floor price set by the Chinese government

\* Our central scenarios are indicated in bold.

Source: Cheuvreux

**An estimated quotas deficit of around 290mtCO<sub>2</sub> p.a....**

In our scenario, while Phase I (2005-2007) was overallocated in terms of emissions quotas, we estimate the average internal deficit p.a. over the period 2008-2012 at around 290 million tonnes of CO<sub>2</sub>.

**...which should be mostly offset by CER/ERU credits**

This will have to be offset by: 1) the use of CER/ERU credits attesting to the reduction in emissions realised via CDM/JI projects in emerging or transition markets; and 2) emissions cuts in Europe, for which the coal-gas switch constitutes the most flexible lever.

The emissions growth assumption used in our model corresponds to the growth rates observed between 2000 and 2004 in regulated sectors (UNFCCC data) in the various European countries. We think that these growth rates are pertinent for most countries. For countries whose energy mix is set to change significantly between now and 2012 (growth of gas in Germany, Italy and Spain; a decrease in nuclear capacities in Germany and the UK), our estimates reflect this change in types of capacity. We calculate average growth of 1.23% p.a. for the EU-15 and 3.2% for the EU-10.

**Expected carbon balance in the EU-27, 2008-2012**

(million tonnes of CO <sub>2</sub> )	2008E	2009E	2010E	2011E	2012E	Total 2008-2012
EU-27 emissions	2,272.2	2,310.8	2,350.9	2,392.4	2,435.5	11,761.9
EU-27 emissions cap	2,009.4	2,057.7	2,057.7	2,057.7	2,106.1	10,288.7
Internal deficit	-262.8	-253.1	-293.2	-334.7	-329.5	-1,473.2
Authorised use of Kyoto credits	283.7	290.6	290.6	290.6	297.4	1,452.8
Expected actual use of CERs/ERUs (penetration rate 90%)	255.4	261.5	261.5	261.5	267.6	1,307.5
Deficit/surplus of EUAs (need for internal abatement measures)	-7.4	8.4	-31.7	-73.2	-61.8	-165.7

Source: Cheuvreux

However, as shown in the table above, the use of these Kyoto credits is not expected to offset the deficit in emissions allocations in Europe, and we estimate the need for internal abatement in the EU-27 at 166 million tonnes of CO<sub>2</sub> over the period, i.e. pressure of 33 million tonnes of CO<sub>2</sub> p.a. on average.

In this context, the price of CO<sub>2</sub> for Phase II is likely to range from EUR18 to EUR25 per tonne, which would encourage a low-cost coal-gas switch (possible in the summer); see our price assumptions for gas and coal in the table above.

In addition, the figure of 33 million tonnes of CO<sub>2</sub> is within the range of fundamental climate fluctuations in Europe (+/-40-50 million tonnes of CO<sub>2</sub> from one year to the next). Thus, particularly mild weather throughout the year, along with good levels of precipitation, could erase the need for internal abatement. In this scenario, the price of the EUA would trend towards the price of a CER on the secondary market (EUR12). An inverse scenario would imply a need for internal abatement, the first valve of which is the coal-gas switch.

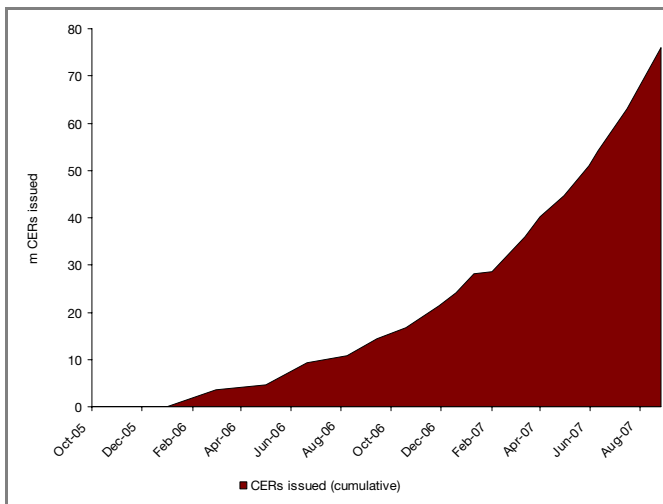
**Using Kyoto credits: more flexible than initially expected**

Despite the uncertainty surrounding international talks on a post-Kyoto system for the period after 2012, the trend in CDM and JI projects has recently gathered pace. The momentum on the challenge of climate change now appears to ensure demand from local or regional carbon markets (e.g. EU ETS, RGGI and California) for the period after 2012. All indications for the supply of CERs out to 2012 are upbeat:

- A record number of projects in July 2007, with 186 new projects registered;
- A rather stable average level of credits per project (500,000-800,000 CERs per project) despite the lack of potential for new significant HFC and N<sub>2</sub>O projects;
- An improvement in the project success rate, which rose to 88.4% in August (cumulative) from 76.3% in February;
- Hiring by the committee in charge of approving projects (the Bonn Executive Committee) should accelerate the project approval process.

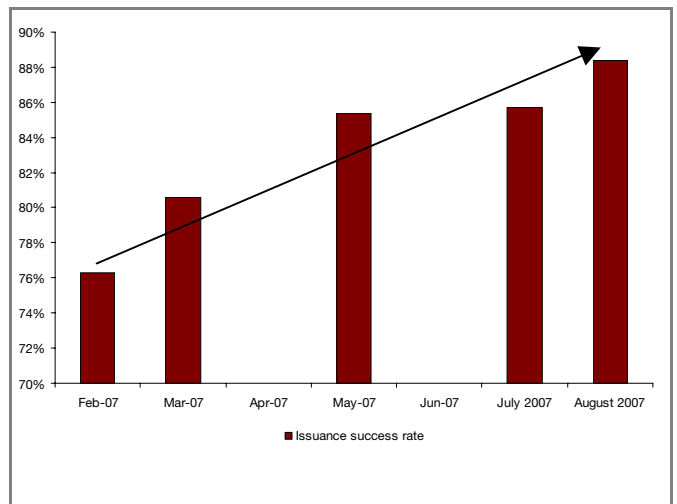
**An increasingly significant Kyoto credit offer (CERs/ERUs)...**

**CER credits issued (in million tonnes CO<sub>2</sub>-eq.)**



Source: UNEP, Cheuvreux

**Issuance success rate (issued vs. requested CERs)**



Source: UNEP, Cheuvreux

**...and access  
facilitated for  
regulated  
companies**

**Ratification of the  
Directive including  
airlines in the EU  
ETS would drive the  
price of carbon up**

Until Canada confirms its commitment to keeping its Kyoto targets, the scenario of a supply bubble cannot be ruled out.

In addition, our recent discussions with the European Commission have led us to revise up our estimate of the penetration rate of Kyoto credits in the EU system (from 75% to 90%, i.e. the actual utilisation rate / authorised limit). The cap on using credits (290 million tonnes of CO<sub>2</sub> p.a., i.e. 14.1% of total allocations) applies to the entire period. Thus, an installation that was unable to use its maximum cap one year is likely to be authorised to make up the difference the following year.

However, we highlight that booming voluntary carbon markets (i.e. non-compliance markets) show an increasing appetite for UN-dubbed Kyoto credits. Competition between buyers is likely to rise as a result.

#### **Upward signals to come: inclusion of airlines**

However, CO<sub>2</sub> prices are likely to be bolstered by news flow on the inclusion of airlines as from 2011 and on what the post-2012 carbon constraint for EU ETS regulated sectors will look like.

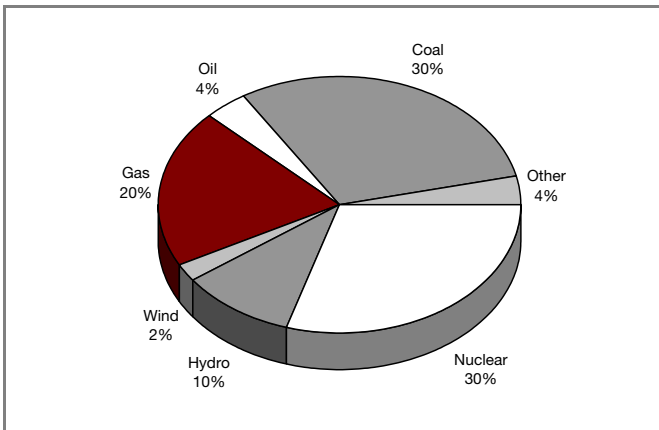
Confirmation that the airline sector would be integrated in the EU ETS in 2011 and 2012 would result in additional pressure of 76 million tonnes of CO<sub>2</sub> in the system, which would be a strong inflationary signal for the price of carbon (see our report entitled "Carbon Impact on Airlines", 23 January 2007).



## II – TODAY'S INVESTMENTS WILL SET THE LONG-TERM CARBON CONSTRAINT

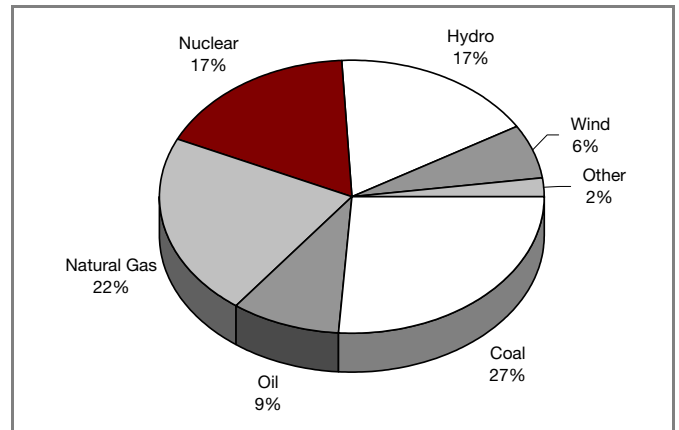
The carbon constraint does indeed exist, and is set to continue and strengthen in the future. This section reviews the solutions that power generators can implement in order to lower compliance costs and the effects of regulation of their CO<sub>2</sub> emissions.

**Energy mix in the EU-27 - Generation**



Source: Cheuvreux

**Energy mix in the EU-19 - Capacity**

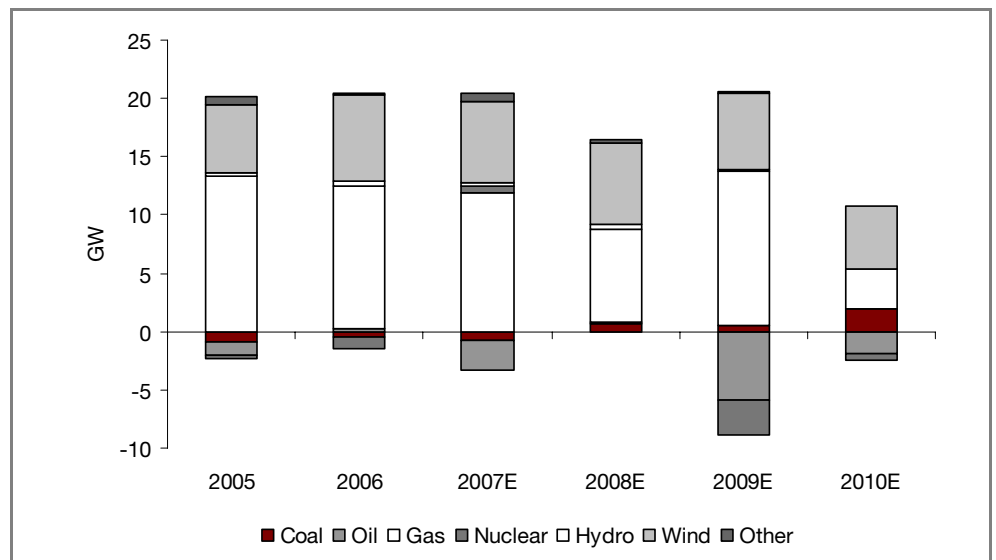


Source: Cheuvreux

### Mostly gas and renewable capacities until 2010

Inexpensive gas and attractive incentive policies for electricity production from renewable energy sources have resulted in numerous gas and renewable energy projects (mainly wind power).

**Trend in power capacity by type in the EU-15, 2005-2010E**



Source: Cheuvreux

## Comparative GHG footprint of available technologies

The GHG emissions profiles of fossil fuel-fired power plants depend on the carbon content of the fuel used (coal, oil, natural gas or biomass) and the thermal efficiency of the power plant.

### On-site emissions of various technologies

The various fuel types have different emissions factors, and therefore have different implications for competitiveness in terms of emissions trading. The principle is to penalise the more polluting fuels, such as lignite and coal, while promoting energy sources with zero emission factors, such as nuclear or renewable sources. However, note that biomass energy actually releases CO<sub>2</sub> emissions, but as biomass production absorbs carbon dioxide from the atmosphere, it is a completely CO<sub>2</sub>-neutral energy source, so its emissions do not need to be backed by allowances.

**Carbon content of fuels and on-site CO<sub>2</sub> emissions of power plants**

Source	Emission factor tonnes of CO <sub>2</sub> /TJ	Typical efficiency	kg/MWh
Renewable	0	-	-
Nuclear	0	-	-
Gas	56-63	50%	400
Oil	73	} 35%	800
Coal	94-96		900
Lignite	101		920-1,200

Source: EC Directive for monitoring and reporting GHGs, 2004

In addition, these emission factors will vary depending on the efficiency of the power plant, resulting in even higher emissions, on average around 400kg/MWh for gas and 900kg/MWh for coal-fired power plants.

**Life-cycle analysis**

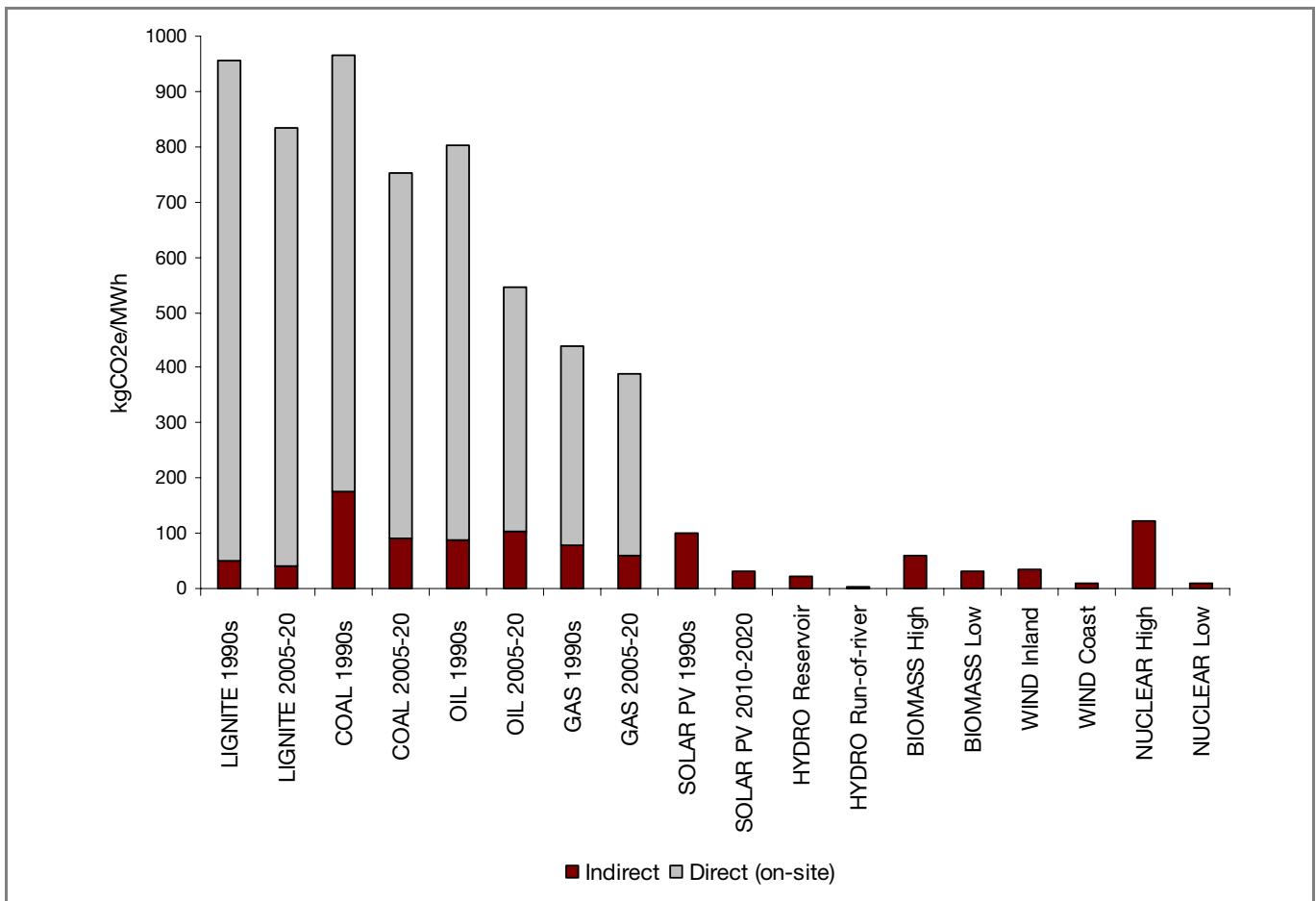
However, direct (end-of-pipe) emissions may be just the visible part of the iceberg. Life-cycle analyses enable assessment of all greenhouse gas emissions, from plant construction to end-of-pipe combustion-related emissions. The table below presents the results of the main studies published so far using LCA methodologies.

**Comparative greenhouse gas emissions of power generation technologies (life-cycle analysis)**

(kg of CO <sub>2</sub> per MWh)	Coal	Gas thermal	Gas combined cycle	Solar photovoltaic	Wind	Nuclear	Hydro	Biomass
Relative emissions – kg CO <sub>2</sub> /MWh – range from public studies	755-990	653	385-472	50-95	6-37	6-122	3-18	29-62

Source: ISA - University of Sydney, Oxford Research Institute, Cheuvreux

**Comparative greenhouse gas emissions of power generation technologies (life-cycle analysis)**



Source: IAEA 2000, Oxford Research Institute

We draw **three main conclusions** from these figures:

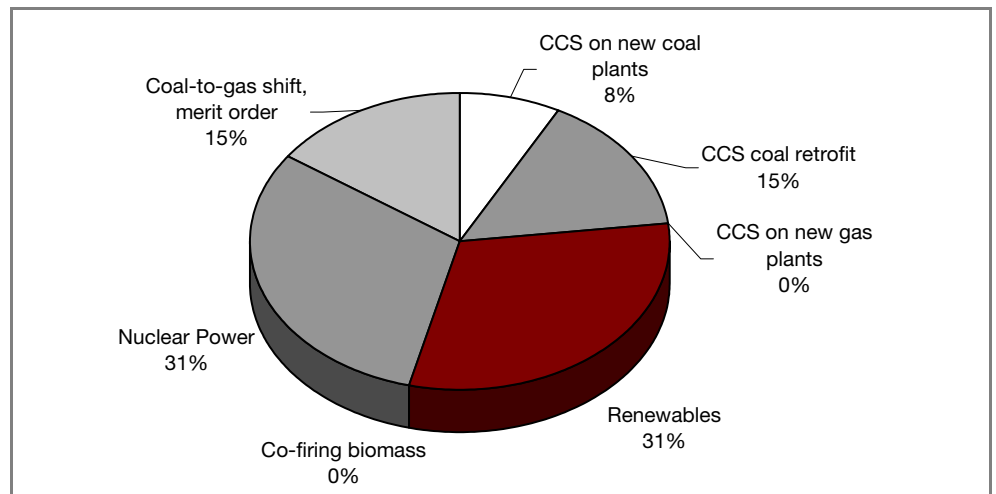
- 1 - High-quality power plants may generate more carbon emissions during the construction and decommissioning phases, but the overall balance is positive thanks to higher thermal efficiency resulting in lower combustion-related emissions. This is important in assessing the direct emissions of capital goods players.
- 2 - The second strong conclusion is that lignite-fired power plants using BAT and potentially equipped with CCS equipment storing 95% of CO<sub>2</sub> emitted could have an overall carbon balance comparable to nuclear power plants (in a worst-case scenario).
- 3 - The carbon footprint of the best available coal technologies are 22% better than technologies developed in the 1990s.

Thermoelectric capacity cannot be erased from the power production landscape, as it is and will remain necessary to handle peak-load demand. Renewable technologies deliver intermittent power to the grid, and efficient power storage systems have yet to be found to lift this obstacle.

## Abatement potential of various technologies in the power sector

The graph below is taken from an analysis carried out by Vattenfall on the CO<sub>2</sub> emissions abatement potential of power production technologies. Note that the greatest potential (not shown in the table) consists of reducing demand for electricity.

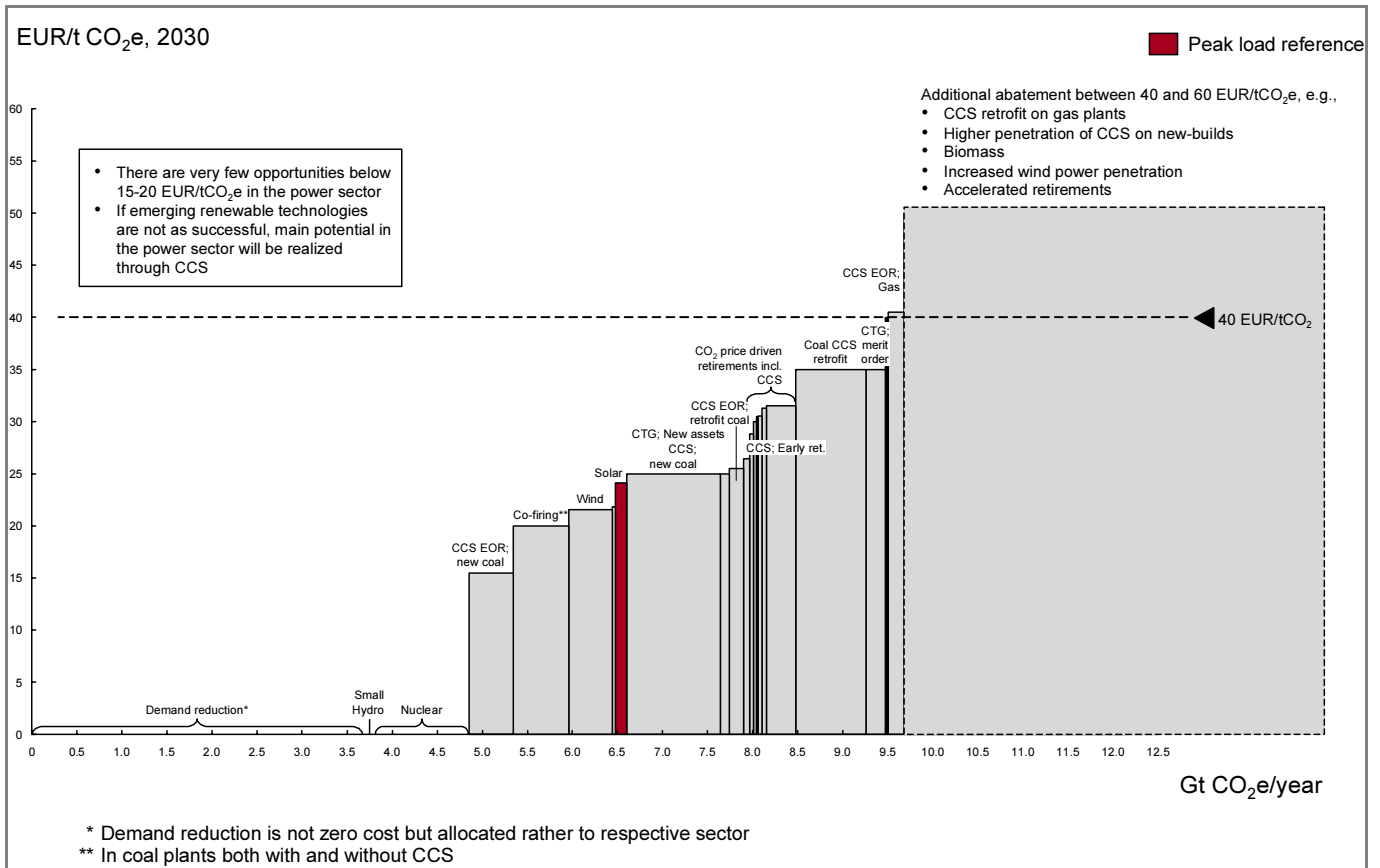
### Worldwide abatement opportunities in the power sector by 2020 (1.3GtCO<sub>2</sub>-eq.)



Source: Vattenfall, Cheuvreux

However, these abatement opportunities are relatively costly and would require a CO<sub>2</sub> price signal of at least EUR25-30 to trigger investment decisions. The chart below represents the marginal CO<sub>2</sub> emissions abatement cost curve for the power sector out to 2030. The various levels correspond to the required CO<sub>2</sub> price signal by technology. Wind power is already virtually competitive at a carbon price of EUR20 per tonne, but other technologies such as carbon capture and storage are economically viable only with a carbon price of more than EUR30 per tonne.

Marginal abatement cost curve for the power sector out to 2030



Source: Vattenfall

**Clean coal: replacing ageing coal-fired plants with more efficient technology**

30% of power in Europe is generated by coal-fired plants. Despite its high carbon intensity, this fuel is strategic for Europe's energy supply security, as important reserves remain in Germany, the UK, Spain and Poland. Coal extraction is even backed by State subsidies that will last until at least 2010.

**Ageing capacities in Europe to be replaced**

A significant portion of coal-fired capacity in Europe has been in operation since the 1950s and uses old technologies with poor thermal efficiency ratios. Consequently, ageing plants can show CO<sub>2</sub> intensities of more than 1,200kg of CO<sub>2</sub> per MWh. On the other hand, this can be viewed as strong potential for energy efficiency improvements and CO<sub>2</sub> emission abatement. Replacing each unit reaching its technical lifespan with Best Available Technology (coal) would allow savings of 38, 68 and 84 million tonnes of CO<sub>2</sub>, respectively, by 2010, 2020 and 2030, according to a study conducted by Okolnstitute.

**Planned coal-fired power stations**

However, the need to replace ageing coal and lignite-fired power plants in Europe (in Germany, the UK, etc.) and energy security issues involving gas imports from Russia are likely to make coal technologies part of investment choices (replacing old coal-fired plants with new ones).

## Planned coal-fired capacity

(MW)	2010E	2011E	2012E	2013E	2014E	Date TBA
Germany	2,850	5,925	6,280		1,550	2,050
Netherlands		1,200	3,460	800		
UK			1,600	1,600		

Source: Reuters

To deal with the climate change issue, coal-fired plants with higher energy efficiency coupled with CO<sub>2</sub> capture and storage technology are seen as the solution for maintaining the share of coal in the EU energy mix in a climate-friendly way.

Coal-fired plants using technologies that enable higher thermal efficiency rates are available on the market (BAT – Best Available Technologies). Some technologies are commercially available, while others are still in the demonstration stages.

#### Prospects for 'clean coal technologies': IGCC is a card to play

PCC is the favoured technology due to its low potential operating risk. Plants with super and ultra-critical cycles offer good prospects (high efficiency and low risk). Despite its advantages (low emissions, use of low-grade coal, etc.), we believe that FBC technology will be developed moderately. Finally, it may be possible for extensive work to be carried out to develop IGCC technology (high fuel flexibility, low emissions, CO<sub>2</sub> capture, etc.) due to interesting prospects related to efficient integration with CCS technology.

**PCC, or pulverised coal combustion:** Standard technology, with sub or supercritical steam driving a turbine. The average efficiency of larger existing plants (subcritical boiler) burning higher-quality coal is just 35-36% (according to the IEA), which could be increased to 43-45% with new plants with supercritical steam. Higher thermal efficiency means lower variable costs (less coal consumed) and lower CO<sub>2</sub> emissions. A net efficiency of 50% could be achievable with PCC technology, but considerable R&D needs to be done to achieve such a ratio.

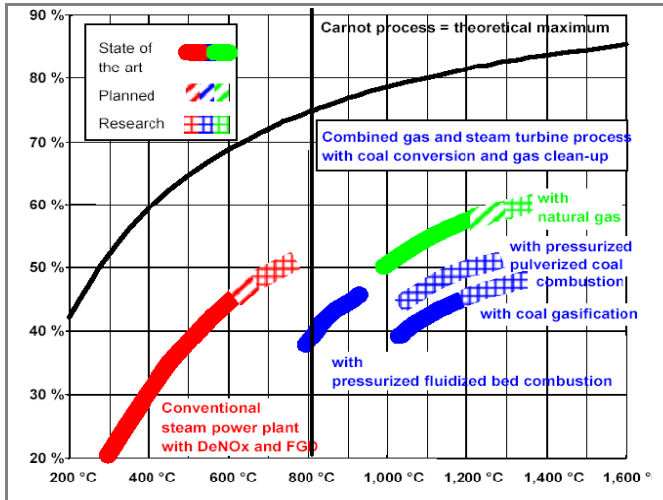
**CHP:** The increased flexibility of steam turbines to generate either power or heat (or both simultaneously) leads to higher energy efficiency. Power production from CHP remains marginal (<10%). It is more developed in the Nordic countries and eastern Europe, where long winters ensure demand for heat. Development of this technology is subsidised in Europe (via feed-in tariffs). However, gas is often the preferred fuel.

#### Technologies in the development stages with higher thermal efficiency methods

**IGCC, or integrated gasification combined cycle:** Produces a syngas. Demonstration units in Europe are subsidised. Unit size is technically limited to around 300MWe due to transportation difficulties. Efficiency of over 40% (up to 45%) is expected. This technology better meets CCS requirements.

**FBC, or atmospheric pressure fluidised bed combustion, and PFBC, or pressurised fluidised bed combustion:** Potentially useful for low-grade coal. Demonstration units are all about 80MWe, but capacities of up to 360MWe are feasible. This technology is intended to achieve efficiency of more than 45%.

**Comparative thermal efficiencies of thermal technologies**



Source: WEC (World Energy Council)

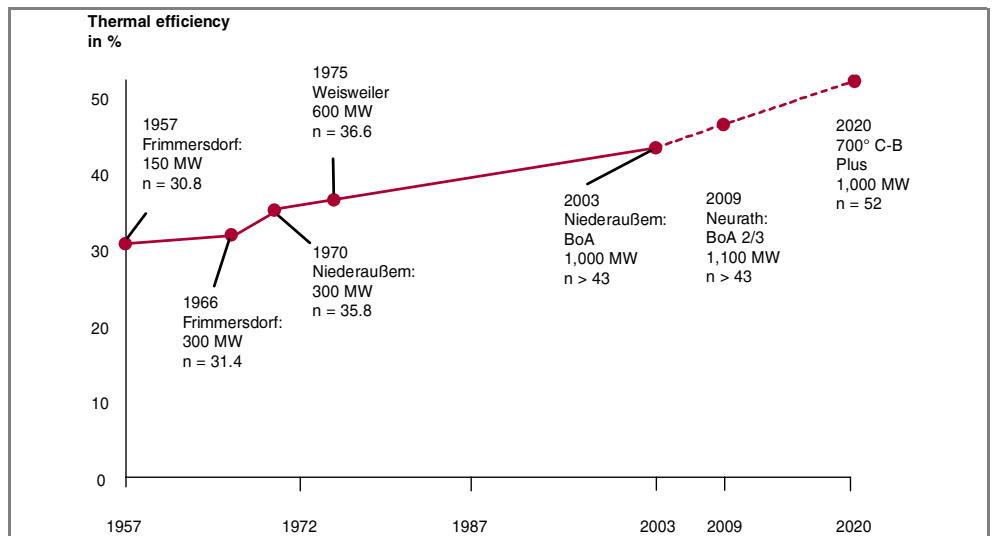
**Comparative economics of coal technologies**

Development stage	Unit size (MWe)	Available efficiency	Potential future efficiency	Invest. cost (EUR/kW)
PCC	Mature 200-1,300	45%	53%	≈ 1,000
CFBC	Mature 200-600	40%	44%	≈ 1,000
PFBC	Late demonstration stage 80-360	40%	47%	≈ 1,500
IGCC	Early commercial stage 100-400	45%	52%	≈ 1,500-2,000
PPCC	Early pilot stage 1		55%	

Source: IEA, Decon

**Lignite:** RWE is investing in R&D to develop lignite-fired power generation plants with efficiency expected to reach about 45% (2009 Neurath BoA 2/3 1.1GW) and up to 52% by 2020.

**Illustration of gains in energy efficiency in lignite-fired power plants**



Source: RWE

**Carbon capture and storage (CCS): a promising technology, but far from ready**

Carbon capture and storage can be described as the three-part process of capturing CO<sub>2</sub> from a single source (e.g. a power plant), pressurising it and finally injecting it into the ground. R&D efforts are concentrated on three different solutions:

- 1 - Post-combustion CO<sub>2</sub> capture (PCC plants);
- 2 - Oxyfuel: CO<sub>2</sub> capture after concentration in the flue gas;
- 3 - Pre-combustion.



Although the concept is promising with regards to potential CO<sub>2</sub> emissions abatement, many obstacles, including cost and environmental and health safety, must still be circumvented.

**A costly technology**

The technology faces many barriers, the greatest of which being that the technology is extremely costly and thus presents a financing challenge.

In a perspective of widespread use of integrated coal-fired plants with CO<sub>2</sub> capture and storage, IGCC is the most favourable option in terms of energy and cost.

However, we believe that technologies integrated with PCC plants are likely to continue to gain the support of increased R&D, as these processes may enable retrofitting (CO<sub>2</sub> scrubbing). RWE nPower has an R&D programme to develop such technology.

**Total costs for CO<sub>2</sub> capture and storage**

Power plant performance and cost parameters	PCC	IGCC
<i>Reference plant without CCS</i>		
Cost of electricity (USD/kWh)	0.043-0.052	0.041-0.061
<i>Power plant with CCS</i>		
Increased fuel required (%)	24-40	14-25
CO <sub>2</sub> captured (kg/kWh)	0.82-0.97	0.67-0.94
CO <sub>2</sub> avoided (kg/kWh)	0.62-0.70	0.59-0.73
% CO <sub>2</sub> avoided	81-88	81-91
<i>Power plant with capture and geological storage</i>		
Cost of electricity (USD/kWh)	0.063-0.099	0.055-0.091
Cost of CCS (USD/kWh)	0.019-0.047	0.010-0.032
% increase in cost of electricity	43-91	21-78
<b>Mitigation cost (USD/tCO<sub>2</sub> avoided)</b>	<b>30-71</b>	<b>14-53</b>
<i>Power plant with capture and enhanced oil recovery</i>		
Cost of electricity (USD/kWh)	0.049-0.081	0.040-0.075
Cost of CCS (USD/kWh)	0.005-0.0029	(-0.005)-0.019
% increase in cost of electricity	12-57	(-10)-46
Mitigation cost (USD/tCO <sub>2</sub> avoided)	9-44	(-7)-31

Source: IPCC Special Report on CCS, 2005

Obviously, a profitable storage solution is preferable (Enhanced Oil Recovery or Coal-Bed Methane Recovery). However, the implantation of the coal-fired plant and storage projects often do not correspond. This means that the choice will be made according to technical and financial parameters.

Most experts agree on a competitive price of around USD20-40 per tonne of CO<sub>2</sub>.

**Question mark on storage sustainability**

So far, there is little or no experience of burying large volumes of CO<sub>2</sub> under the ground, which clearly raises questions on the sustainability and stability of this process.

Environmental and health security must be ensured in order to gain acceptance by society.

**A stable legal framework: the first step**

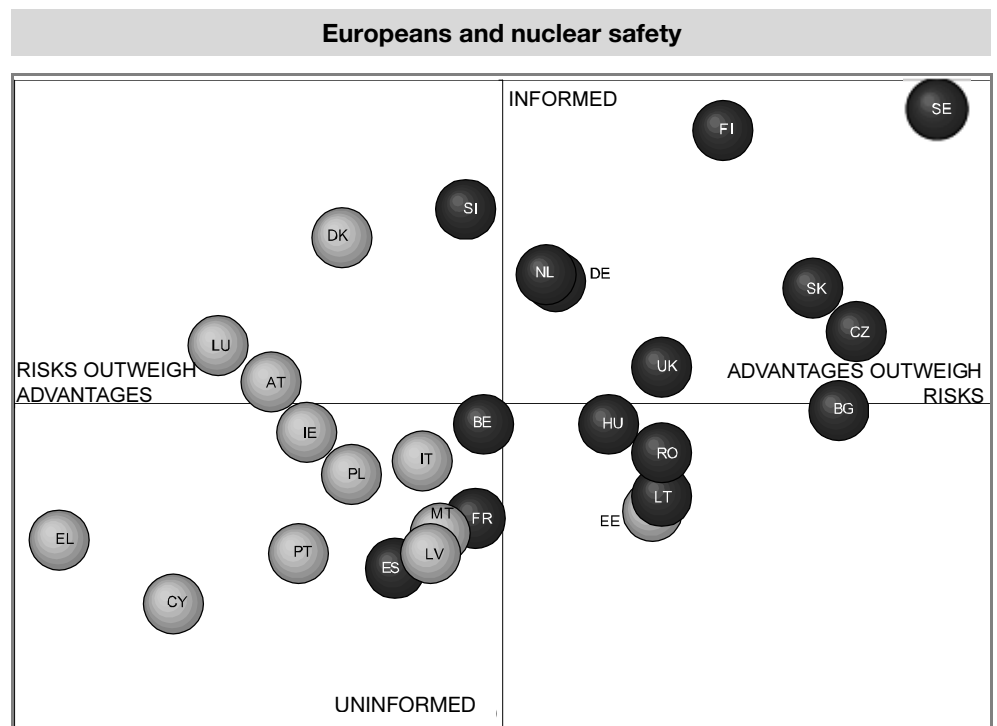
A regulatory framework must be implemented if the technology is to be commercialised. The European Commission launched a public consultation, and proposes to require that any new planned coal-fired power capacity be CCS-ready.

The question of the liability of stored emissions is still open. The European Commission must still give its view on how the technology would be handled under the EU ETS. In practical terms, buried emissions could be treated as carbon sinks in forestry projects, which are granted a special type of temporary certified emission reduction.

***Nuclear: a revival in Europe, but investment costs and perceived risks are still high***

Belgium, Germany, Italy and Sweden have decided to phase out nuclear energy. However, we believe that this stance might change given the positive role nuclear energy can play in the fight against climate change.

Moreover, the latest Eurobarometer poll on the nuclear issue conducted across Europe showed that just 46% of EU-25 citizens agree that nuclear energy helps limit global warming. Interestingly, a majority (51%) of German citizens back this idea. Overall, as shown in the mapping below, the more people are informed about the pros and cons of nuclear power, the more they consider that the advantages of this technology outweighs its inherent risks.



Source: Eurobarometer 2007

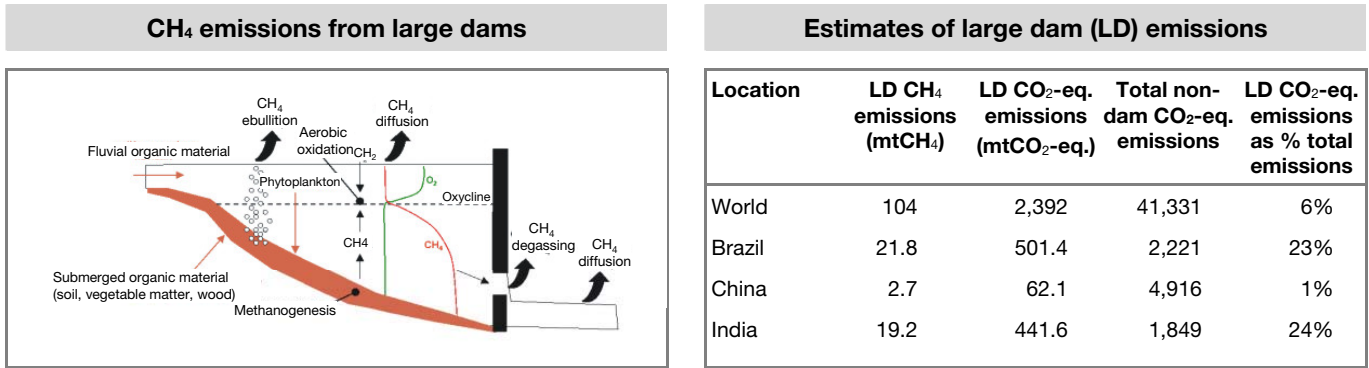
***Hydroelectricity: dams be damned!***

The environmental and sociological impact of large hydroelectric dams is already controversial due to biodiversity losses and forced relocation of populations due to land immersion.

The footprint on the climate is also controversial, as recent studies have shown that large dams emit significant quantities of methane in tropical countries.

Methane is created at the bottom of the reservoir (and the thermal, chemical and biological conditions in tropical reservoirs enhance emissions), therefore a small portion of emissions takes place at the surface of the lake and the main part of emissions is mainly located downstream from the turbines (previously, this event was often underestimated).

The following chart shows how CH<sub>4</sub> emissions are released by large dams, and the table presents best estimates of dam emissions depending on their location.



Source: EPOC

Source: IRN

EDP plans to invest EUR2.5bn in hydroelectric power by 2016, increasing capacity to 6.67GW in 2016 (vs. 2.25GW in 2006). By 2010, more than 50% of the group's electricity production will come from renewable energy sources.

## Flexible Kyoto mechanisms

Under Phase II of the EU ETS, regulated installations can now use either Kyoto credits or EUAs for compliance with their emission caps. This is an important new parameter for groups linked with the start of the Kyoto commitment period. However, member states have set limits to the use of credits generated by UN-designed Clean Development Mechanisms and Joint Implementation projects. These limits, which vary from 0% to 25%, are set as a percentage of total allowances granted for free to installations. CO<sub>2</sub> emissions allowances must be surrendered every year. At the group level, internal transfers allow the use of various emissions rights to be optimised.

### ***Flexmex: a flexible and cheap solution***

This solution can provide short-term emissions reductions for groups with a capital-intensive activity and an installed base of power plants that can only be changed in the very long term.

Kyoto credits can be acquired through direct participation in CDM/JI projects or by investing in carbon funds (e.g. KfW, Natsource or the Spanish Carbon Fund). Electrical utilities are in direct competition with carbon credit aggregators (carbon funds, companies like EcoSecurities or Trading Emissions Plc), governments and Japanese companies to source cheap Kyoto credits. We believe that this competition will intensify as voluntary offset markets tend to rely increasingly on UN-labelled credits instead of "tainted" VERs.

**Technical hurdles to be overcome**

UN and EU officials have stated that trading links between the UN and EU carbon registries should be completed in November. The long-awaited link-up between the two carbon registries will allow groups with installations covered by the EU Emission Trading Scheme to import Kyoto credits generated by UN-sponsored CDM/JI projects in developing countries.

However, the link-up is still dependent on the success of two planned technical tests scheduled in October and early November.

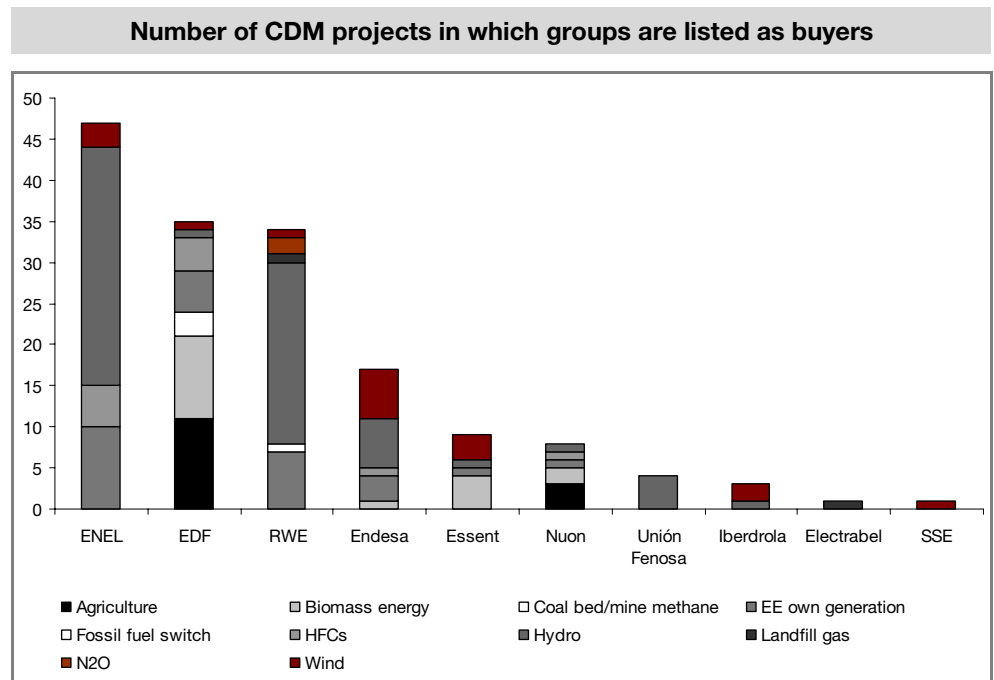
Moreover, in addition to the technical infrastructure, countries must demonstrate that they have systems in place for calculating their emissions and tracking the results of their emissions trading before they can trade in Kyoto credits. Germany's eligibility for using Kyoto credits will be particularly crucial, as it represents 33% of the total import potential of Kyoto credits under the EU ETS.

**Contesting environmental benefits**

Apart from HFC projects, for which it is now more or less clear that abuse occurs to the detriment of the ozone layer, and even though control and monitoring of some projects could certainly be improved, in particular with regard to the "additionality" issue, we do not believe that the continuation of flexible mechanisms defined under the Kyoto Protocol is fundamentally at risk.

**Groups sourcing Certified Emission Reductions (CERs)**

The chart below presents direct participation of EU electric utilities in CDM projects (at least at the validation stage in July 2007).



Source: UNEP RISOE July 2007, Cheuvreux

ENEL is clearly the most involved in terms of the number of projects and the group has stopped signing new ERPAs (Emission Reduction Purchase Agreements), as the current portfolio is likely to be more than enough to maximise the use of this type of credit (limit lower than expected following review by the European Commission). EDF Trading owns a more diversified portfolio.

E.On has not directly signed ERPAs, but the group is expected to acquire Kyoto credits through participation in two carbon funds. We believe that E.On is likely to increase its budget, as RWE did after the rise in the limit of CDM/JI credits from 8% to 22% following Germany's NAP review process.

### III – CARBON WINDFALL PROFITS

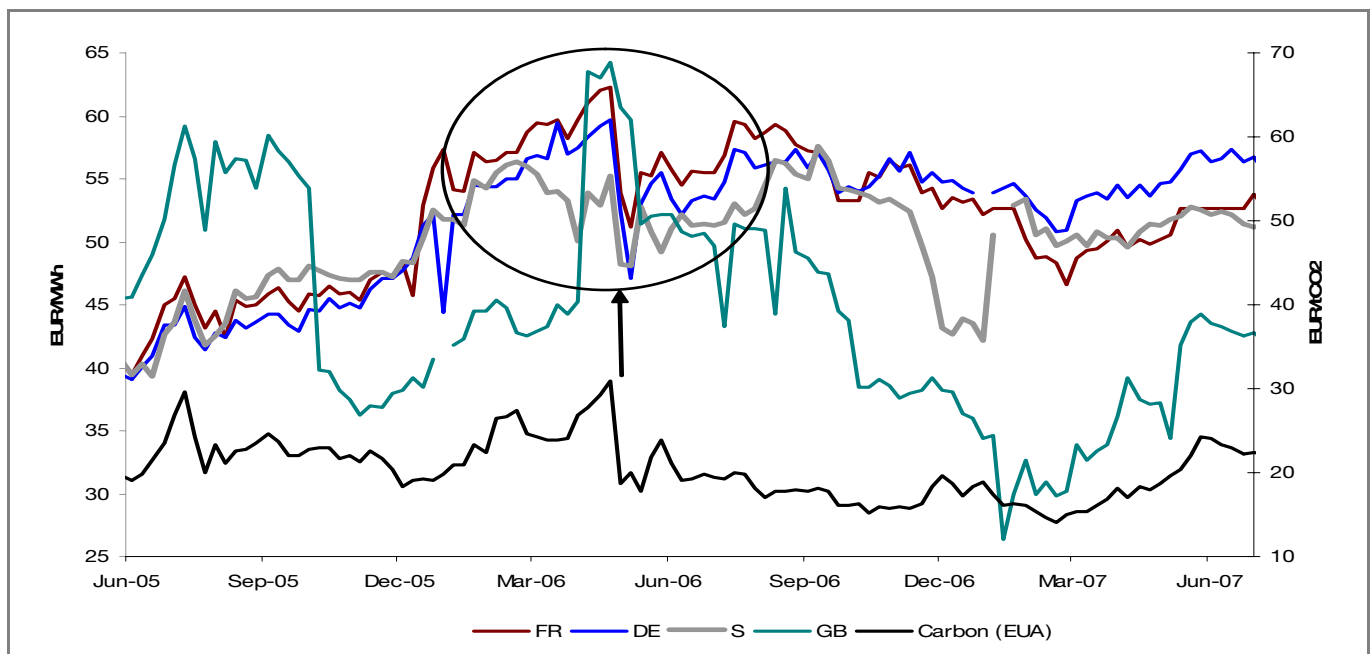
#### Evidence so far: carbon prices have been integrated into wholesale electricity prices

##### *Statistical evidence on wholesale markets*

Since the establishment of the EU Emissions Trading Scheme (EU ETS), power companies have added the cost of acquiring carbon allowances to electricity prices. Nevertheless, electricity prices are based on the marginal cost (generally determined by a fossil fuel-fired power plant) and include the cost of CO<sub>2</sub>. Thus, regardless of the origin of electricity (renewable energy, carbon neutral, etc.), the price is the same and windfall profits are generated.

While bullish energy prices (oil, natural gas, coal) have contributed to the hike in wholesale power prices in Europe from 2005, ex post analysis clearly shows that CO<sub>2</sub> opportunity costs have been integrated into wholesale electricity prices.

**A clear correlation between CO<sub>2</sub> (EUA) and wholesale electricity prices in Europe**



Source: Reuters, Cheuvreux

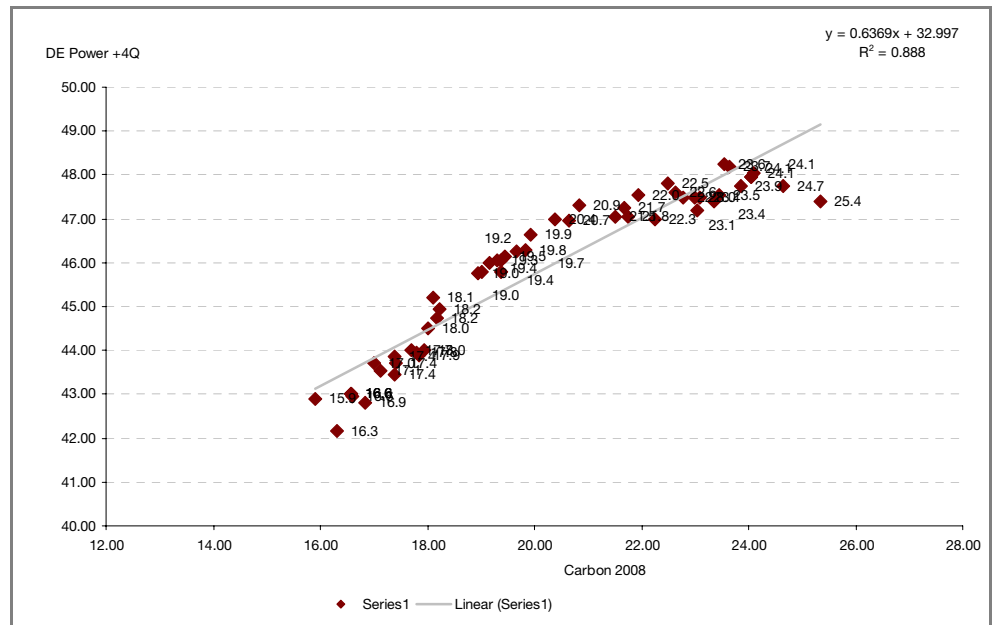
The carbon component factored into electricity prices differs across Europe, however, depending on the price-setting technology (power plant running at the margin).

While the EC is working to develop a single electricity market in Europe, there are still distinct regional electricity markets in Europe, with different energy mixes and different price-setting mechanisms.

- **Continental Europe (France, Netherlands, Belgium, Germany and Austria):** The price-setting technology is coal most of the time (and gas the rest of the time) in Germany. Over a one-year period, we assume on average that 70% of the CO<sub>2</sub> price is reflected in power prices.
- **The UK:** Gas turbines operate most of the time to ensure marginal power generation (price-setting technology).

- **The Iberian market (Spain and Portugal):** Gas is the price-setting technology.
- **Italy:** Electricity prices are set by gas, meaning that around 40% of the CO<sub>2</sub> price is likely to be integrated into wholesale electricity prices.
- **The Nordpool (Norway, Sweden, Denmark, Finland):** Electricity prices depend on the level of hydro reservoirs. Coal and gas produce the marginal MWh for the market, and we assume that 50% of the CO<sub>2</sub> price is integrated into Nordpool electricity prices.

### Around 70% of the CO<sub>2</sub> price integrated into German electricity prices



Source: Cheuvreux, Reuters

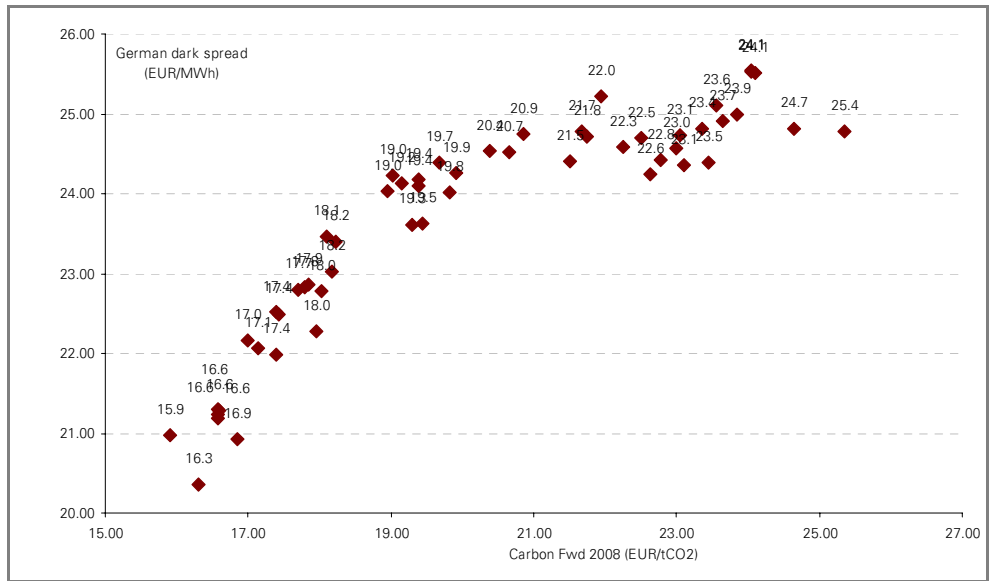
### A limit to the pass-through? The German example

The following analysis was conducted over the period April-June 2007, when the price of CO<sub>2</sub> rallied. It shows that the correlation between CO<sub>2</sub> prices and the German dark spread ended when the carbon price overshot the EUR21 per tonne resistance level.

At EUR21 per tonne of CO<sub>2</sub>, the fuel switching arbitrage level was reached (clean spark spread = clean dark spread). This led to arbitrage in favour of gas capacities, and a decrease in the percentage of the CO<sub>2</sub> price integrated into power prices (from 90% coal to 40% gas).



Analysis of a cap on the dark spread in Germany



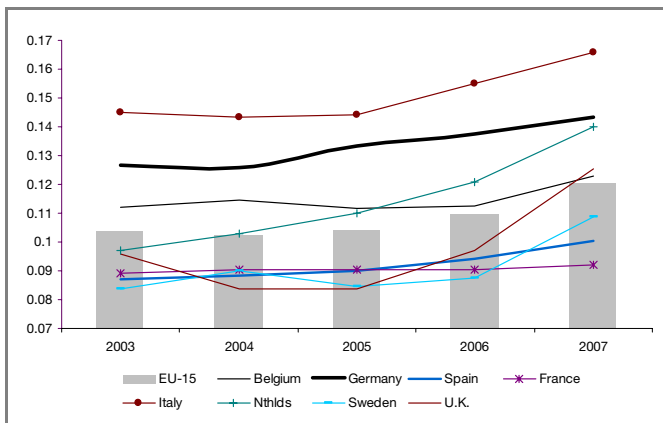
Source: Cheuvreux

**Impact on retail markets: the opening up of markets in Europe increasingly exposes retail markets to price hikes**

**Persistent price controls and regulated tariffs in Europe have thus far prevented the full CO<sub>2</sub> charge from being passed on to retail clients**

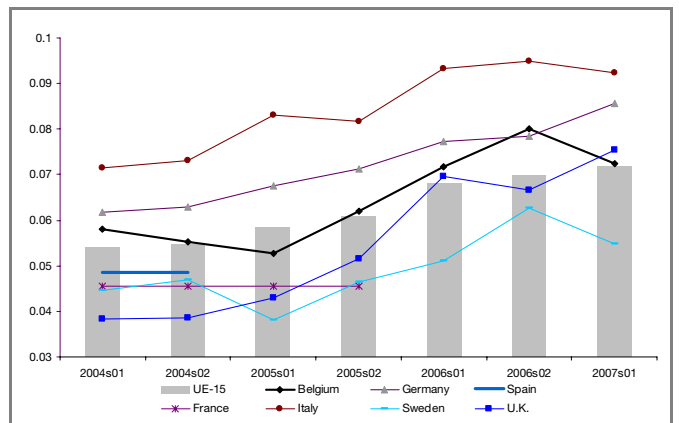
Retail prices have generally followed this upward trend.

Electricity prices for household consumers



Source: Cheuvreux, Eurostat

Electricity prices for large industrial consumers



Source: Cheuvreux, Eurostat

However, the capacity of electrical utilities to pass the full carbon opportunity cost on to retail segments mainly depends on:

– **The level of price deregulation and the persistence of regulated tariffs:**

Despite the deregulation trend in the energy market in Europe driven by the European Commission, electricity price controls persist. Countries such as France and Italy only opened up the household market to competition in July 2007. In several countries (e.g. France, Spain and Italy), consumers can still choose to opt for regulated or market prices. As regulated prices have recently been lower than market prices, few customers have switched to market prices in these countries.

– **Current concentration / competitiveness of the electricity market:**

Customer switching, as reported in the right-hand table below, should be understood as the extent to which customers have chosen to change their electricity suppliers or have renegotiated their contract with the existing supplier. This is a good indicator of the degree of openness of the electricity market.

Electricity price controls in EU countries			
	Industrial users	Small commercial	Household users
Belgium	No	No	Yes
Finland	No	No	No
France	Yes	Yes	Yes
Germany	No	Yes	Yes
Italy	Yes	Yes	Yes
Netherlands	No	No	No
Portugal	Yes	Yes	Yes
Spain	Yes	Yes	Yes
Sweden	No	No	No
UK	No	No	No

Source: Cheuvreux

Volume of electricity having switched (cumulative since market opening)			
	Large industrials	SMEs	Very small businesses and households
Belgium	20%	20%	10%
Finland	>50%	82%	30%
France	15%	15%	Not before July 2007
Germany	41%	7%	5%
Italy	60%	60%	Not before July 2007
Netherlands			11%
Spain	25%	22%	19%
Sweden	>50%		29%
UK	>50%	>50%	48%

Source: European Commission

The main problem is due to the fact that price deregulation most frequently precedes the arrival of new entrants on the market. This is the case in Germany, and partly in Finland, where some customers still have no real choice.

**Electricity markets and the deregulation process in Europe**

Country	Electricity prices	Market liberalisation	Market overview	Unbundling	Wholesale market
France	Most customers are subject to the regulated price, but have the possibility to switch to market prices	Non-household customers: July 2004 Household customers: 1 July 2007	Highly concentrated market. Alternative suppliers not very integrated (in July 2006 supply of 4.8%). Regulated tariffs are low	TSOs are legally unbundled (100% subsidiaries of vertically integrated groups). But EDF is involved in generation (87%), owns the TSO, and is DSO (95% of customers)	Prices are correlated to German and UK prices on the EEX
Germany	Electricity end-user prices for households will continue to be regulated until 1 July 2007	Market fully opened up to competition in 1998	Competitive sector with a high degree of vertical and horizontal integration. Industry domination by four large companies. Switching rates are 41% for large industrial customers, 7% for commercial customers and 5% for households	Most of the large electricity and gas network operators are already legally and functionally unbundled	EEX is the benchmark price on the wholesale market
United Kingdom	No price controls since 1998	Liberalisation began in the 1980s and the market was fully opened up in 1998	Market concentration is relatively low and competition is considered effective. 50% of customers have changed from their incumbent supplier.	TSOs are fully ownership unbundled, while in the case of DSOs, some distribution systems are full ownership unbundled, while others are part of vertically integrated groups	Wholesale prices between the UK and France are relatively highly correlated
Italy	Customers can still buy electricity at regulated tariffs (41.5% of consumption is bought on the open market)	Since July 2007, households can choose their supplier	Concentration has generally been high; it has fallen following the divestment of three companies previously owned by the former State-owned vertically-integrated monopoly, Enel. 60% of consumption has switched suppliers	Legal unbundling has been implemented. Terna, the electricity TSO, is also ownership unbundled and owns transmission assets. Functional unbundling of DSOs is questionable, however	Active participation of demand in the IPEX (the Power Exchange) bidding system
Spain	A large percentage of customers have opted for regulated tariffs (below the open market price)	Electricity and gas markets have been fully open to competition since 2003.	The regulatory framework generally does not allow for effective competition to develop. The market is almost fully controlled by the incumbents, which represented about 90% of supply in 2005. Since market opening, around 20-25% of customers have switched.	At the transmission level, ownership unbundling is in place but incomplete as the TSOs are involved in energy trading. At the distribution level, functional unbundling has not been implemented	The wholesale electricity market is integrated with that of Portugal in an Iberian regional market (MIBEL)
Portugal	A dual market structure (regulated and free market running in parallel)	The process of liberalisation of the former monopolistic power sector held by the Portuguese State began in July 1995 and the market is now fully opened up to competition (2006)	The Portuguese electricity market still has a long way to go towards a fully competitive status (low regulated tariffs, long-term power purchase agreements, etc.). Due to the existence of favourable regulated tariffs, only 11% of national consumption is supplied on the competitive market	Transmission has been ownership unbundled, while DSOs are legally unbundled	The wholesale electricity market is integrated with that of Spain in an Iberian regional market (MIBEL)
Nordic (Denmark, Finland, Sweden and Norway)	Electricity prices are unregulated and are significantly below the EU averages	The electricity market was gradually opened up between 1995 and 2000	The retail electricity market is considered to be among the most competitive in the EU, as demonstrated by the relatively high customer switching rates	The TSO is unbundled in terms of ownership, whereas the distribution companies are required to unbundle in legal and functional terms	The wholesale market is considered competitive and included in the regional Nordic market
Belgium	Electricity prices are unregulated and have generally exceeded the European average. However, price controls for households continue	The electricity market has been fully open to competition since July 2003 (in Flanders), while in other regions, almost all non-household customers became eligible to choose gas and electricity suppliers in July 2004	The electricity industry is highly concentrated. At the production level, the three largest generators account for almost all capacity. The regulator, however, expects competition will increase (eight new supply permits). Switching rates are low (20% for large and 10% for small customers)	The transmission and distribution network system operators are legally separated from production and supply	The wholesale market is not strongly developed and trade with other countries is limited

Electricity markets and the deregulation process in Europe

Country	Electricity prices	Market liberalisation	Market overview	Unbundling	Wholesale market
Netherlands	Electricity prices for end-users are no longer regulated, and after increases in recent years, they generally exceed European averages	The Dutch electricity markets have been fully open to competition since July 2004	Competition for end-users in the Netherlands functions rather well. Since market opening, 11% of households (by volume) have changed electricity suppliers	The electricity TSOs have been subject to ownership unbundling and own transmission assets. Up to now, the Netherlands has conditionally decided not to separate the ownership of the distribution networks from production and supply	The wholesale market in the Netherlands is very expensive compared to neighbouring countries. This is because a large share of the generation capacity is gas-fuelled (and gas is expensive)

Source: European Commission

### Windfall profits: an inconvenient truth

Since the implementation of the EU ETS in 2005, large electricity producers have generated huge profits by pricing CO<sub>2</sub> opportunity cost into a portion of their power sales, thus increasing revenues at a faster pace than actual costs.

Under the general category of "windfall profits", we see three distinct issues that should be addressed separately.

#### Violation of the "polluter pays" principle

Large emitters of CO<sub>2</sub> have received the bulk of their needs in CO<sub>2</sub> emission allowances for free under the EU ETS, but at the same time charge a "fictitious" opportunity cost that has a favourable impact on their revenues. This issue was particularly exacerbated in Phase I, when lax allocation plans in Germany, for example, left a company like RWE – the largest emitter of carbon dioxide in Europe – with less than a 10% shortage of emission allowances.

**EC position:** The European Commission and the EU Council of environmental ministers back the idea of increased auctioning in order to curb "windfall profits" generated over the Phase I of the EU ETS by high-polluting electricity utilities.

**Local actions:** Only a few governments (the UK, Italy, Germany, etc.) have opted for the possibility of auctioning up to 10% of the national amount of CO<sub>2</sub> emissions allowances in Phase II.

#### Wealth transfer and the nuclear risk

In countries such as France and Finland, a large share of electricity is generated by nuclear plants. There is a social issue in requiring clients to pay the carbon cost on electricity produced mainly from CO<sub>2</sub>-free energy sources, while at the same time they assume the nuclear risk. A public debate has consequently arisen in Sweden and Finland, leading the governments of those countries to consider the implementation of a tax on power generated by CO<sub>2</sub>-free energy sources and sold at a market price factoring in a CO<sub>2</sub> opportunity cost.

**EC position:** The European Commission clearly aims at creating an EU-wide power market along the lines of that in the UK.

**Local actions: Sweden:** The previous Socialist government in Sweden was in favour of windfall taxes. The opposition at the time (one year ago) said that it was opposed to such taxation, and that should it gain a majority, it would reverse these taxes. Last autumn, the centre/right opposition party won the general elections, but little has been heard on this issue since then. It is believed that the taxes will remain in place given the current political interest for ecology. **Finland:** In Finland, there was an election in March this year, but the new government was very similar to the former one, hence the support for windfall taxation remains. Not only is the government building a new nuclear plant (due to come on stream in 2011E), but is also planning to build yet another one (ready by 2020-2025E), given its preference for: 1) covering its current power deficit (other Nordic markets are in a surplus), and hence increasing its independence; and 2) expanding its non-CO<sub>2</sub> emitting power generation base. **Germany:** Increased auctioning was a first step, and authorities are also considering how to better control electricity prices and the carbon component factored into them.

### ***High electricity prices and competitiveness of electro-intensive industries***

High electricity prices pose competitiveness issues for electro-intensive industries in Europe, as the amount of CO<sub>2</sub> price factored into market prices differ significantly by member state depending on the price-setting technology (gas or coal).

**EC position:** European Commissioner Andris Pielbags acknowledges that the EC strategy is likely to result in a 5% hike in electricity prices for end-users. The transfer of the CO<sub>2</sub> price signal in electricity prices is a pillar of the energy strategy of the European Commission. This aims at triggering energy savings measures and better control the power consumption (in line with the target of cutting EU energy consumption by 20% by 2020).

**Local actions:** Higher electricity prices hamper the competitiveness of local electro-intensive industries. In Italy, the government has warned electricity utilities about passing the carbon surcharge on to customers given the already high electricity prices compared to other EU countries.

#### **Local reactions to windfall profits**

Country	Type of intervention	Details	Implementation
Alliance of Power-Intensive Industries	Wholesale price regulation	Opportunity costs of CO <sub>2</sub>	Proposed in several position papers
Ireland	1) Wholesale price regulation	Regulation of allowable revenue of dominant generator	In force
	2) Revenue "recycling"	Additional levy on generators used to subsidise transmission charge	Shelved for the time being
Spain	1) Regulation of retail prices	Electricity rate increase limited to <2%	In force
	2) Allocation/transfer reduction	CTC (stranded cost) payments or allocations to be reduced	Proposed in recent White Paper
France	Special "industry tariffs"	Long-term discounted electricity contracts facilitated by government	Announced, not implemented
Germany	"Industry tariffs"? Regulation of pricing?	Competition authority investigating pass-through of opportunity costs	No action taken yet
Sweden, Finland, etc.	"Windfall profit" taxes	-	In force

Source: NERA, Cheuvreux

## COMPANY PROFILES

EDF

EDP

Endesa

ENEL

E.On

Fortum

Iberdrola

RWE

Scottish & Southern Energy

Suez

Union Fendosa



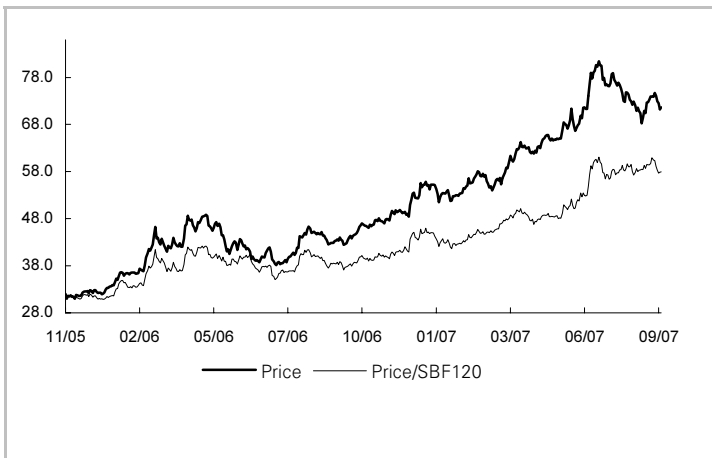
# EDF (EUR71.64)

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +20.0% EUR86

Benoit Trochu, Damien De Saint-Germain

To 31/12 (EUR) - IFRS	2005E	2006E	2007E	2008E
Sales (m)	51,047.0	58,932.0	58,630.6	59,655.2
Net att. profit, rest. (m)	3,230.0	4,227.0	4,550.0	5,043.5
Free Cash Flow (m)	7,090.0	6,411.0	5,717.7	5,491.7
EBITDA margin (%)	25.3	25.7	27.7	28.8
Clean EPS	1.97	2.32	2.50	2.77
Reported EPS	1.97	3.08	2.50	2.77
P/E (x)	16.3	23.8	28.7	25.9
Attrib. FCF yield (%)	11.6	6.1	4.2	4.0
EV/EBITDA (x)	8.8	9.9	11.1	10.4
EV/EBIT (x)	14.2	16.0	18.7	17.2
ROCE (%)	9.4	11.0	11.2	11.8
ROE (%)	18.4	27.3	19.4	19.4
P/BV (x)	3.3	4.7	5.6	5.0
Net debt/EBITDA (x)	1.4	1.0	0.8	0.6
Net dividend	0.79	1.16	1.25	1.38
Yield (%)	2.5	2.1	1.7	1.9



Market capitalisation	EUR13,0540m	SBF120	4069.6		1 month	3 months	12 months
No. of shares, adjusted	1822.171m	Reuters	EDF.PA	Absolute perf.	-1.7%	7.5%	68.0%
Daily volume	EUR97.42m	Bloomberg	EDF FP	Relative perf.	-2.6%	15.4%	52.8%

Shareholders: French State 87.0%, Free float 13.0%

## The ultimate "CO<sub>2</sub> free" player

### A nuclear power predominance

**Energy mix:** Very low carbon intensity of 123kgCO<sub>2</sub>/MWh over the period 2002-2007 thanks to an energy mix that is heavily dominated by non-CO<sub>2</sub> emitting power generation (nuclear represents 74% and hydro at 9%). **Country exposure:** In France, the group is 95% exposed to nuclear and hydro power, making CO<sub>2</sub> a non-issue. In Germany, EnBW (33TWh consolidated) is mainly exposed to thermal power (61%). In Italy, Edison (23TWh consolidated) has 90% thermal power generation, and, in the UK, EDF Energy (23TWh) 100% thermal power. **Capacity to charge carbon costs:** In France, nuclear power predominance and the proportion of the production subject to regulation (55%) make the issue non material. The German situation allows EnBW to pass through part of the cost while, in the UK, EDF Energy faces stiff competition on the national market which prevents it from passing full carbon opportunity costs on to clients.

### Major developments in renewables

**Capex:** Through its subsidiary EDF Energies Nouvelles, EDF will develop 3,000MW of wind and solar power plants by 2011. EDF has committed R&D to develop dispatched energy (photovoltaic and heat pumps) on a large scale. **Support for energy efficiency:** EDF will continue to develop its commercial offer in term of energy efficiency, which is linked to the creation in 2006 of the blank certificates market.

**Recommendation:** Our target price (EUR86) reflects: 1) our central scenario whereby EDF would sell its electricity at EUR46 per MWh by 2016 to reflect the development cost of one EPR; and 2) a more aggressive scenario with EDF selling its electricity at market prices (EUR55 per MWh), which is consistent with the current views of the European Commission. We consider that the value creation generated by full deregulation might be allocated to financing other issues (such as pension funding shortfalls), either through dividends or with a specific tax on nuclear power. Short term, given the strong exposure to nuclear power, CO<sub>2</sub> emissions and prices are not an issue for EDF. Long term, an increase in market electricity prices as a result of growing carbon prices might be favourable for EDF if full deregulation occurs on the French market. The present government stated it would not agree to a price hike above the increase in costs.



## Company profile

EDF is a balanced player, with sales of EUR58.9bn and EBITDA of EUR13.9bn in 2006. EBITDA in France (64% of the total) is evenly balanced between regulated businesses (transmission and distribution) and non-regulated activities (generation and supply). With a virtual monopoly in the generation and supply of electricity in France, EDF also benefits from a natural monopoly in its regulated activities. Via EDF Energy, Edison and EnBW, EDF is the only European player with a significant presence on the major European markets.

It has the leading power generation network in Europe. With installed capacity of 125GW, EDF is the No.1 European electricity producer. The group has the largest nuclear power network in the world (74% of its production). Combined with its significant exposure to hydro power (9% of its production), EDF's network has very low sensitivity to trends in the price of fuel and CO<sub>2</sub>.

Excellent visibility on regulated activities. The businesses covered by the regulatory framework offer a 7.25% pre-tax return on the transmission and distribution activities.

## Investment case

In November 2006, the Constitutional Council considered that regulated tariffs are possible, for a transitional period, as long as the population concerned is decreasing.

Furthermore, growing pressure from the European Commission to improve competition in Europe will probably oblige the French government to gradually deregulate the market, especially after the end of the current Public Service Contract in 2010.

Short term catalysts could come from the release of the next phase of Altitude at the beginning of 2008 and the outcome of negotiations on regulated activities. In the long term, we consider that EDF will benefit from key drivers like the development of interconnections, the nuclear revival in and outside Europe and further need for electricity capacity.

## Valuation

Our EUR86 target price is a mix of two scenarios:

- For 50%, the base case scenario (EUR79) which reflects an average electricity price at EUR46/MWh on the French market, except on VPP and wholesale, where EDF sells electricity at close to the market prices. This EUR46/MWh price would enable EDF to cover the overall cost of one EPR. EDF would then benefit from the scale effect on the renewal of all its nuclear plants;
- For 50%, the deregulation scenario (EUR93) where we consider that EDF would sell all its electricity production at EUR55/MWh. This deregulation scenario is pushed by the EC, which wants to improve competition on the French market: it has initiated three procedures or inquiries against long-term contracts or restricted access to new entrants.

## Carbon SWOT analysis

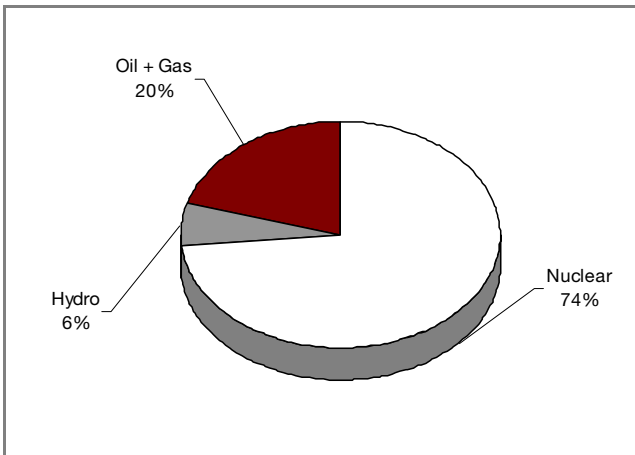
**Strengths.** Minimal exposure to CO<sub>2</sub> emissions due to the predominance of nuclear power in its energy mix.

**Weaknesses** EDF is currently not fully capturing the benefits of its nuclear portfolio, as most of its clients benefit from regulated tariffs (which do not factor in CO<sub>2</sub> prices).

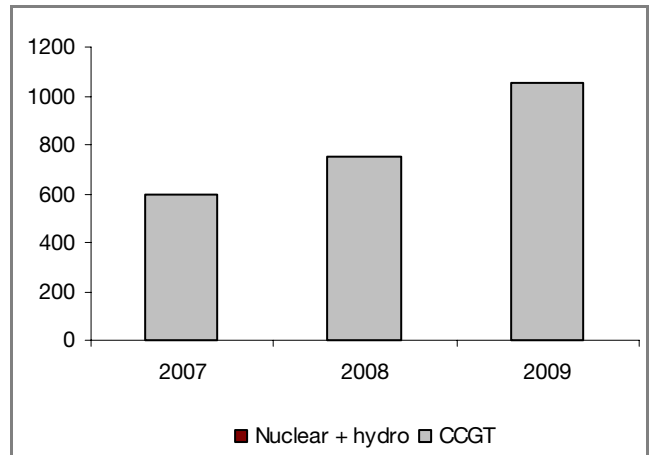
**Opportunities.** Possible lifetime extension of nuclear power plants in France. Nuclear revival in the UK.

**Threats** In France, as EDF is currently mainly exposed to base-load production, it will rebalance its generation mix going forward with more thermal units. Therefore CO<sub>2</sub> emissions in France are set to increase. In Germany, the phase out in nuclear power could deteriorate the EnBW's carbon factor.

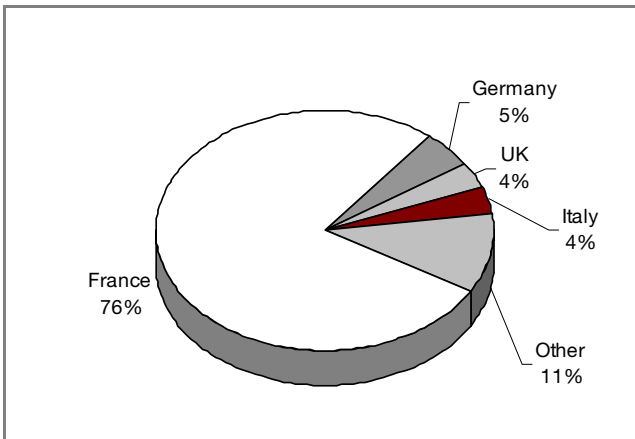
**Energy mix – power generation (2006)**



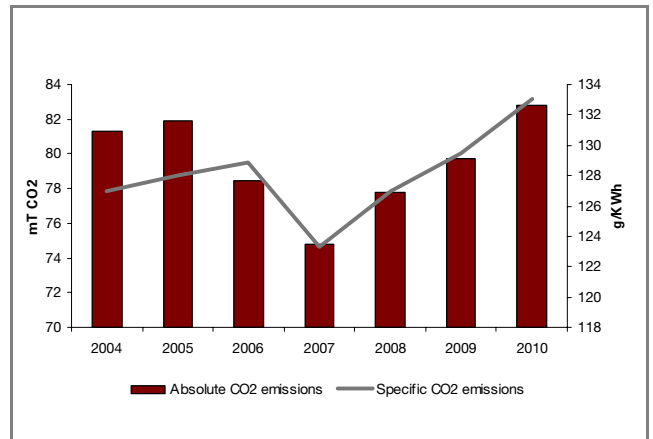
**Investment plan – Power capacities (MW)**



**Country breakdown (GWh generated)**



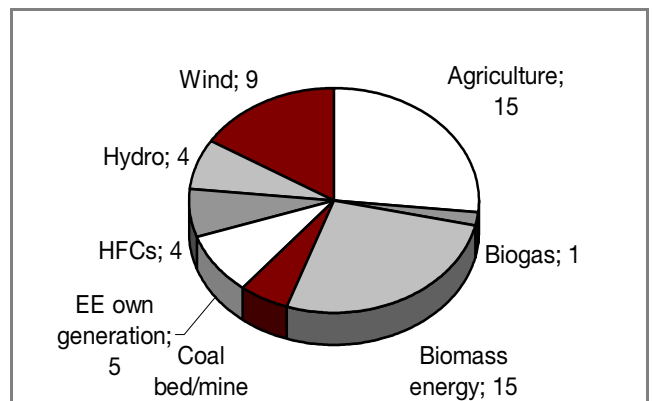
**Trend in absolute/specific emissions (2004-2010E)**



**Emission allowances vs. absolute emissions (2005-2012E)**

The group does not communicate on the post-2007 quota position

**Listed buyer in numerous CDM projects (no. of projects)**



EDF	IFRS							
	FY to 31/12 (Euro m)	2003	2004	2004	2005E	2006E	2007E	2008E
<b>Profit &amp; Loss Account</b>								
<b>Sales</b>	<b>44 919.0</b>	<b>46 928.0</b>	<b>46 150.0</b>	<b>51 047.0</b>	<b>58 932.0</b>	<b>58 630.6</b>	<b>59 655.2</b>	
% Change		4.5%		10.6%	15.4%	-0.5%	1.7%	
Staff costs	(9 509.0)	(9 596.0)	(9 045.0)	(9 834.0)	(9 709.0)	(9 655.6)	(9 504.0)	
Other costs	(24 384.0)	(25 205.0)	(24 547.0)	(28 307.0)	(35 293.0)	(34 076.5)	(34 301.0)	
<b>EBITDA</b>	<b>11 026.0</b>	<b>12 127.0</b>	<b>12 558.0</b>	<b>12 906.0</b>	<b>13 930.0</b>	<b>14 898.5</b>	<b>15 850.2</b>	
% Change		10.0%		2.8%	7.9%	7.0%	6.4%	
Depreciation	(4 193.0)	(6 479.0)	(6 405.0)	(4 913.0)	(4 574.0)	(5 270.1)	(5 427.9)	
<b>EBITA</b>	<b>6 833.0</b>	<b>5 648.0</b>	<b>6 153.0</b>	<b>7 993.0</b>	<b>9 356.0</b>	<b>9 628.4</b>	<b>10 422.3</b>	
% Change		-17.3%		29.9%	17.1%	2.9%	8.2%	
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
<b>EBIT</b>	<b>6 833.0</b>	<b>5 648.0</b>	<b>6 153.0</b>	<b>7 993.0</b>	<b>9 356.0</b>	<b>9 628.4</b>	<b>10 422.3</b>	
Net financial items	(3 513.0)	(2 185.0)	(3 057.0)	(3 415.0)	(2 701.0)	(2 770.2)	(2 812.6)	
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other exceptional items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tax	(1 567.0)	(1 494.0)	(1 605.0)	(1 445.0)	(1 146.0)	(2 263.2)	(2 511.2)	
Associates [contribution]	26.0	68.0	103.0	190.0	268.0	105.0	105.0	
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Goodwill amortisation	(844.0)	(710.0)	0.0	0.0	0.0	0.0	0.0	
<b>Net profit [loss] before minorities</b>	<b>935.0</b>	<b>1 327.0</b>	<b>1 594.0</b>	<b>3 323.0</b>	<b>5 777.0</b>	<b>4 700.0</b>	<b>5 203.5</b>	
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Minorities	(78.0)	14.0	13.0	(93.0)	(172.0)	(150.0)	(160.0)	
<b>Net attributable profit [loss]</b>	<b>857.0</b>	<b>1 341.0</b>	<b>1 607.0</b>	<b>3 230.0</b>	<b>5 605.0</b>	<b>4 550.0</b>	<b>5 043.5</b>	
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Adj. for exceptional items	0.0	0.0	0.0	0.0	(1 378.0)	0.0	0.0	
<b>Net attrib. profit [loss], restated</b>	<b>1 701.0</b>	<b>2 051.0</b>	<b>1 607.0</b>	<b>3 230.0</b>	<b>4 227.0</b>	<b>4 550.0</b>	<b>5 043.5</b>	
% Change		20.6%		101.0%	30.9%	7.6%	10.8%	
<b>Cash flow</b>	<b>6 679.0</b>	<b>7 428.0</b>	<b>7 443.0</b>	<b>10 887.0</b>	<b>11 692.0</b>	<b>12 225.6</b>	<b>12 896.9</b>	
<b>Balance Sheet</b>								
Shareholders' equity [group share]	18 924.0	17 567.0	8 133.0	19 161.0	23 309.0	25 745.5	28 513.9	
Minority interests	915.0	893.0	899.0	979.0	1 490.0	1 590.0	1 700.0	
Net debt [cash]	24 009.0	19 668.0	19 744.0	18 156.0	14 560.0	12 355.7	9 539.1	
Gearing [%]	121.0	106.5	218.6	90.1	58.7	45.2	31.6	
<b>Per Share Data (at 6/9/2007)</b>								
EPS before goodwill	1.05	1.26	0.99	1.97	2.32	2.50	2.77	
EPS, reported	0.53	0.83	0.99	1.97	3.08	2.50	2.77	
Goodwill per share	0.52	0.44	0.00	0.00	0.00	0.00	0.00	
Dividend per share	0.10	0.15	0.00	0.79	1.16	1.25	1.38	
Cash flow per share	4.11	4.57	4.58	6.63	6.42	6.71	7.08	
Book value per share	11.5	10.7	5.0	9.7	11.6	12.9	14.3	
No. of shares, adjusted	1625.800	1625.800	1625.800	1822.171	1822.171	1822.171	1822.171	
Latest price	-	-	-	31.98	55.20	71.64	71.64	
Market capitalisation	0.0	0.0	0.0	58 600.2	100 583.8	130 540.3	130 540.3	
Enterprise value	49 129.0	44 634.0	53 778.0	113 889.8	149 393.8	179 699.8	179 198.6	
<b>Valuation</b>								
P/E	NS	NS	NS	16.3	23.8	28.7	25.9	
P/E before goodwill	NS	NS	NS	16.3	23.8	28.7	25.9	
P/CF	NS	NS	NS	4.8	8.6	10.7	10.1	
Attrib. FCF yield [%]	NS	NS	NS	11.6	6.1	4.2	4.0	
P/BV	NS	NS	NS	3.3	4.7	5.6	5.0	
Enterprise value / Op CE	0.6	0.5	0.7	1.3	1.8	2.1	1.9	
Yield [%]	0.0	0.0	0.0	2.5	2.1	1.7	1.9	
EV/EBITDA, restated	4.5	3.7	4.3	8.8	9.9	11.1	10.4	
EV/EBITA, restated	7.2	7.9	8.7	14.2	16.0	18.7	17.2	
EV/Sales	1.09	0.95	1.17	2.23	2.54	3.07	3.00	
EV/Debt-adjusted cash flow	5.8	5.1	6.0	8.4	10.4	12.4	11.8	
<b>Return [%]</b>								
Pre-tax RoCE	7.9	6.9	7.6	9.4	11.0	11.2	11.8	
ROE [%]	4.6	7.9	21.9	18.4	27.3	19.4	19.4	
Return on equity, restated	4.6	7.9	21.9	18.4	19.9	19.4	19.4	

**EDP (EUR4.00)**

Electricity Utilities - 6 September 2007

Rating: 3/Underperform - Target price: -17.5% EUR3.3

José Ramon Ocina

To 31/12 (EUR)	2005E	2006E	2007E	2008E
Sales (m)	9,677.0	10,999.0	11,744.9	12,288.9
Net att. profit, rest. (m)	1,071.1	796.5	926.5	989.1
Free Cash Flow (m)	61.7	415.0	177.8	(171.7)
EBITDA margin (%)	21.1	20.8	22.6	23.1
Clean EPS	0.29	0.22	0.25	0.27
Reported EPS	0.29	0.22	0.25	0.27
P/E (x)	8.9	17.6	15.8	14.8
Attrib. FCF yield (%)	0.6	2.8	1.1	NS
EV/EBITDA (x)	10.0	11.2	9.9	9.5
EV/EBIT (x)	17.4	18.3	15.4	14.7
ROCE (%)	6.7	7.8	9.2	9.2
ROE (%)	25.0	16.5	17.6	17.2
P/BV (x)	2.1	2.9	2.8	2.5
Net debt/EBITDA (x)	4.8	4.2	3.7	3.7
Net dividend	0.10	0.11	0.12	0.13
Yield (%)	3.8	2.9	3.0	3.3



Market capitalisation	EUR14,624m	PSI 20	12728.15	1 month	3 months	12 months
No. of shares, adjusted	3656m	Reuters	EDP.LS	Absolute perf.	-2.7%	-2.9%
Daily volume	EUR51.09m	Bloomberg	EDP.PL	Relative perf.	0.5%	-2.3%
					12 months	29.0%
						1.2%

Shareholders: Free float 54.3%, Portuguese Government 20.5%, Iberdrola 9.5%, Cajastur 5.5%, Caixa Geral 5.1%, Millenniumbcp 5.1%

**Capacity expansion focused on low-carbon technologies (wind and CCGT)**

**Coal dominates the energy mix for now, and carbon constraint in Spain is set to increase**

**Energy mix:** EDP group's CO<sub>2</sub>-intensity in 2006 was 499kgCO<sub>2</sub>/MWh and around 557kgCO<sub>2</sub>/MWh for the Iberian part, which was higher than the EU average. This can be explained by a predominance of coal (41%) in the energy mix, before hydro (29%). **Country exposure:** The European Commission has yet to review Portugal's NAPII. If accepted in its proposed form (19% cut in phase I allowances), emission caps could create a 1.2mtCO<sub>2</sub> annual shortage in Portugal. Capacities in Spain (mainly coal; local CO<sub>2</sub>-intensity of 943kgCO<sub>2</sub>/MWh) are more exposed to further cuts in their CO<sub>2</sub> emission allowances, and we expect an average annual shortage of around 6MtCO<sub>2</sub> from 2008E (2.6mtCO<sub>2</sub>/23% short already in 2006). **Capacity to charge carbon costs:** We see no CO<sub>2</sub> risk in Portugal since most of the generation output is sold under long-term PPAs with REN, thus ensuring the pass-through of CO<sub>2</sub> emission costs (regulated system). Only 25% of electricity generated by EDP in Portugal was market traded in 2006. On the wholesale market, with gas being the main price-setting technology in the Iberian power market, wholesale prices integrate around 40% of the CO<sub>2</sub> price. A large part of the retail market is still protected by regulated tariffs though, and the level of competition is very low. In Spain, prices for households (before tax) are 12% higher (+EUR10/KWh) in 2007 than in 2005. The group's presence in Brazil is quite an opportunity with regard to development of internal Clean Development Mechanisms.

**Investment planned in CCGT and wind capacities will reduce exposure to the CO<sub>2</sub> constraint**

EDP is targeting a 38% reduction in the carbon intensity of its Iberian generation to 360kgCO<sub>2</sub>/MWh produced by 2012. **Capex:** To achieve this objective, EDP plans to invest EUR4.5bn-5bn in 5,700MW of new capacities by 2012, representing a 35% increase in generation capacity in Spain/Portugal. This is likely to include 2,800MW of new renewable capacities and 2,900MW CCGT plant capacity. Installed wind capacities are set to reach 4.2GW in the EU by 2010E, of which 2.8GW in Spain. 46% of electricity generated in 2010E is expected to come from green energy, while the share of thermal should decrease by 15pp. The acquisition of US wind player Horizon Wind Energy is likely to precipitate this switch to a greener portfolio. **R&D:** participation in an R&D project on membrane technologies for capturing CO<sub>2</sub> (post-combustion). Silnes power station should serve as a test plant. **Kyoto credits:** EDP through investments in carbon funds (Natsource and the World Bank Carbon Fund) have secured some **five million CERs up to 2012**. In addition, the group is developing five internal CDM projects (four mini-hydroelectric) in Brazil, registration of which by the UN is still in progress to generate 900kCERs by 2012. **We believe that the regulated part of the business in Portugal is fully protected from CO<sub>2</sub> risk. In Spain, we believe that higher CO<sub>2</sub> prices could negatively impact the business since higher compliance costs are more difficult to pass on to customers.**

## Company profile

In Portugal, EDP has market shares of 75% in generation and 99% in distribution. In Spain, it has market shares of 6% and 3% in generation and distribution respectively through Hidrocantábrico, and a 10% share of the gas market. In Brazil it is the fifth biggest generator (1% market share) and the third largest distributor (8% market share), through Energias do Brasil.

Generation accounted for 48% of 2005 EBITDA, distribution 22%, renewables 6%, gas 6% and Brazil 18%. Portugal represented 55% of 2005 EBITDA, Spain 25% and Brazil 20%. We expect to see a CAGR 05-08E of 11% for EBITDA and capex of EUR5.6bn.

The main shareholders are: Portuguese government (20.5%), Iberdrola (9.5%), Cajastur (5.5%), Caixa Geral (5.1%).

## Investment case

Following the H1-07 results, we reiterated our 3/Underperform rating on the stock.

**Compliance costs from 2008 to 2012 should be around EUR150m per year, based on an estimated 8mtCO<sub>2</sub> shortage.** (Assumptions: EUA=EUR20 per tonne; CER/ERU= EUR10 per tonne)

**Pricing power environment:** We believe EDP should recover its ETS compliance costs through electricity tariffs under PPAs in Portugal, but continued low regulated prices in Spain and Portugal prevent the group from generating significant windfall profits. Increased exposure to the deregulated market would be positive for pricing CO<sub>2</sub>.

## Valuation

Our sum-of-the-parts valuation yields a target price of EUR3.30 p.s., 17% lower than current share prices.

Generation, sales and marketing: EUR11.2bn; Distribution: EUR4.7bn; Renewables: EUR2.7bn; Gas: EUR1.2bn; and Electricity business in Brazil: (EUR2.8bn), the equity portfolio at EUR1.1bn and Net debt EUR10bn.

If emission allowances trade at around EUR20 per tonne, then in 2008-2012, the negative impact on net profit (that is, after taxes) for EDP would be around EUR100m (around 10% of the total) if they are not able to pass on the cost to consumers (worst case scenario).

Based on the same assumptions, if the cost is fully passed on to clients, then the positive impact on net profit would (due to windfall profits) be around EUR230m, or around 23% of the total.

Post 2012, in the event no free rights are allocated, the net negative impact on net profit would be EUR300bn p.a. if the cost is not passed on to clients. If it is fully passed on, the net positive impact would be EUR120m p.a.

Impact on the target price: around a negative EUR1 per share if the cost is not passed on to clients; a positive EUR0.4 per share impact if it is.

## Carbon SWOT analysis

### Strengths

- A balanced portfolio of power generation capacities composed of gas, coal/biomass, hydro and wind.
- ETS compliance risk of power stations under PPAs (65% of Iberian capacity) managed by REN.
- Presence in Brazil facilitates implementation of internal CDM projects (900kCERs expected by 2012)

### Weaknesses

- Continued low regulated prices in the electricity market in Spain and Portugal prevent the group from benefiting from windfall profits.

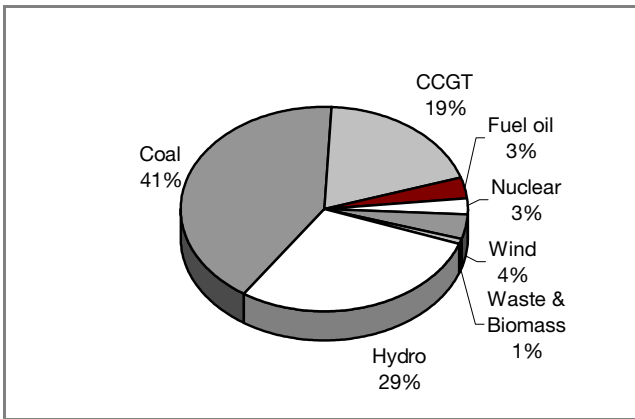
### Opportunities

- Development of renewable energies: repowering of hydro capacities and investments in wind generation capacities.
- Deregulation process of electricity markets driven by the European Commission should increase customer base charged on the basis of wholesale prices integrating the CO<sub>2</sub> opportunity cost (gas).

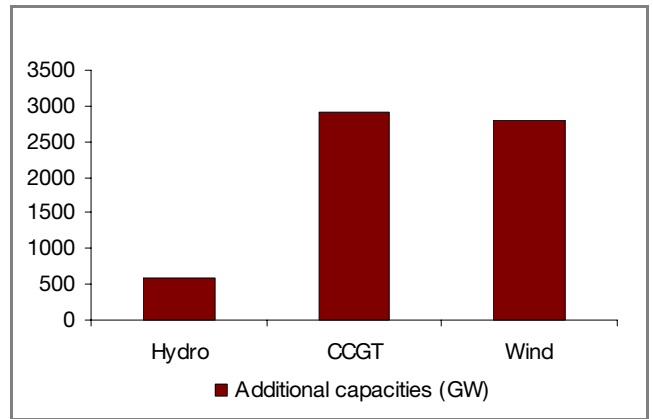
### Threat

- Increase in gas prices would reduce profitability.

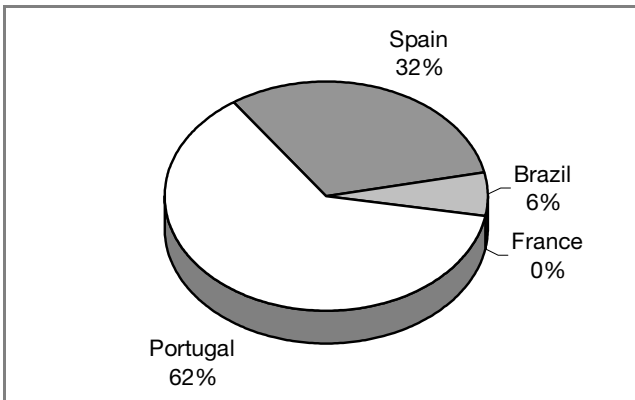
Energy mix – power generation (2006)



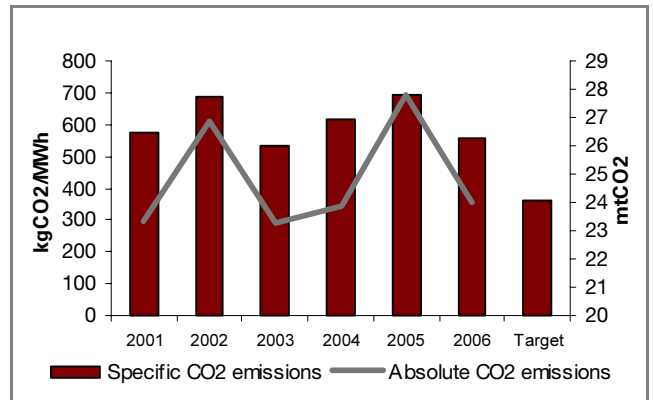
Additional capacities in Iberia by 2012



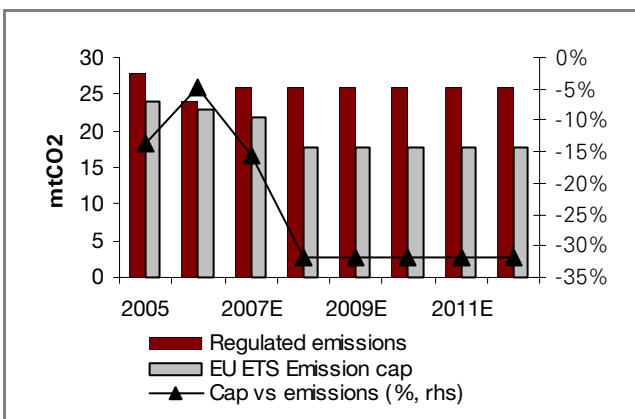
Country breakdown (GWh generated)



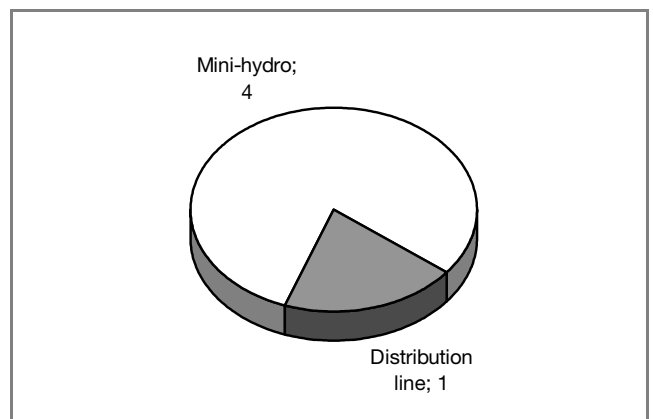
Trend in absolute/specific emissions in the EU (2001-2006)



Emission allowances vs. absolute emissions (2005-2012E)



Direct participation in Kyoto projects: 900kCERs expected by 2012E



EDP								
FY to 31/12 (Euro m)	2001	2002	2003	2004	2005E	2006E	2007E	2008E
<b>Profit &amp; Loss Account</b>								
<b>Sales</b>	<b>5 650.1</b>	<b>6 381.5</b>	<b>6 977.7</b>	<b>7 310.7</b>	<b>9 677.0</b>	<b>10 999.0</b>	<b>11 744.9</b>	<b>12 288.9</b>
% Change	46.9%	12.9%	9.3%	4.8%	32.4%	13.7%	6.8%	4.6%
Staff costs	(592.0)	(624.8)	(646.6)	(527.7)	(546.0)	(627.9)	(703.2)	(727.9)
Other costs	(3 604.1)	(4 272.3)	(4 503.9)	(5 390.9)	(7 090.2)	(8 082.0)	(8 384.4)	(8 716.4)
<b>EBITDA</b>	<b>1 454.0</b>	<b>1 484.4</b>	<b>1 827.2</b>	<b>1 392.1</b>	<b>2 040.8</b>	<b>2 289.1</b>	<b>2 657.3</b>	<b>2 844.6</b>
% Change	8.7%	2.1%	23.1%	-23.8%	46.6%	12.2%	16.1%	7.0%
Depreciation	(780.7)	(839.2)	(921.2)	(705.4)	(861.3)	(888.0)	(942.9)	(1 015.0)
<b>EBITA</b>	<b>673.3</b>	<b>645.2</b>	<b>906.0</b>	<b>686.7</b>	<b>1 179.5</b>	<b>1 401.1</b>	<b>1 714.4</b>	<b>1 829.6</b>
% Change	-7.1%	-4.2%	40.4%	-24.2%	71.8%	18.8%	22.4%	6.7%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>673.3</b>	<b>645.2</b>	<b>906.0</b>	<b>686.7</b>	<b>1 179.5</b>	<b>1 401.1</b>	<b>1 714.4</b>	<b>1 829.6</b>
Net financial items	(205.4)	(218.9)	(359.0)	(295.2)	(400.1)	(229.1)	(344.0)	(379.9)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	126.0	(179.8)	(14.4)	0.0	486.3	10.0	0.0	0.0
Tax	(203.0)	(173.2)	(195.5)	(103.2)	(152.2)	(323.8)	(376.4)	(399.0)
Associates [contribution]	11.6	14.6	21.7	30.5	36.1	33.2	35.8	38.7
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	(49.6)	(56.7)	(89.5)	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>510.1</b>	<b>598.7</b>	<b>425.1</b>	<b>274.8</b>	<b>1 112.0</b>	<b>853.8</b>	<b>992.3</b>	<b>1 051.8</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(59.6)	(262.7)	(44.0)	(3.3)	(40.9)	(57.3)	(65.8)	(62.7)
<b>Net attributable profit [loss]</b>	<b>450.5</b>	<b>336.0</b>	<b>381.1</b>	<b>271.5</b>	<b>1 071.1</b>	<b>796.5</b>	<b>926.5</b>	<b>989.1</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>500.1</b>	<b>392.7</b>	<b>470.6</b>	<b>271.5</b>	<b>1 071.1</b>	<b>796.5</b>	<b>926.5</b>	<b>989.1</b>
% Change	-8.9%	-21.5%	19.8%	-42.3%	NS	-25.6%	16.3%	6.8%
<b>Cash flow</b>	<b>991.2</b>	<b>893.7</b>	<b>1 084.0</b>	<b>993.7</b>	<b>1 974.8</b>	<b>1 746.2</b>	<b>1 937.0</b>	<b>2 065.7</b>
<b>Balance Sheet</b>								
Shareholders' equity [group share]	6 096.8	5 494.2	5 298.0	4 037.8	4 823.4	5 225.0	5 725.1	6 253.6
Minority interests	240.7	65.2	236.5	743.9	1 287.8	1 345.1	1 410.9	1 473.6
Net debt [cash]	5 764.7	7 780.1	7 205.2	8 870.9	9 723.1	9 703.0	9 951.6	10 584.0
Gearing [%]	91.0	139.9	130.2	185.5	159.1	147.7	139.5	137.0
<b>Per Share Data (at 6/9/2007)</b>								
EPS before goodwill	0.17	0.13	0.16	0.07	0.29	0.22	0.25	0.27
EPS, reported	0.15	0.11	0.13	0.07	0.29	0.22	0.25	0.27
Goodwill per share	0.02	0.02	0.03	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.14	0.11	0.09	0.09	0.10	0.11	0.12	0.13
Cash flow per share	0.33	0.30	0.36	0.27	0.54	0.48	0.53	0.57
Book value per share	1.9	1.7	1.7	1.0	1.2	1.3	1.4	1.6
No. of shares, adjusted	3000.000	3000.000	3000.000	3656.000	3656.000	3656.000	3656.000	3656.000
Latest price	2.44	1.59	2.09	2.23	2.60	3.84	4.00	4.00
Market capitalisation	7 320.0	4 770.0	6 270.0	6 690.0	9 508.2	14 039.0	14 624.0	14 624.0
Enterprise value	11 777.8	15 038.5	13 200.9	16 126.2	20 492.7	25 613.1	26 436.1	26 929.8
<b>Valuation</b>								
P/E	16.2	14.2	16.5	30.0	8.9	17.6	15.8	14.8
P/E before goodwill	14.6	12.1	13.3	30.0	8.9	17.6	15.8	14.8
P/CF	7.4	5.3	5.8	8.2	4.8	8.0	7.6	7.1
Attrib. FCF yield [%]	NS	NS	6.9	11.3	0.6	2.8	1.1	NS
P/BV	1.3	0.9	1.2	2.2	2.1	2.9	2.8	2.5
Enterprise value / Op CE	1.1	1.2	1.0	1.1	1.2	1.4	1.3	1.3
Yield [%]	5.7	6.9	4.3	4.0	3.8	2.9	3.0	3.3
EV/EBITDA, restated	8.1	10.1	7.2	11.6	10.0	11.2	9.9	9.5
EV/EBITA, restated	17.5	23.3	14.6	23.5	17.4	18.3	15.4	14.7
EV/Sales	2.09	2.36	1.89	2.21	2.12	2.33	2.25	2.19
EV/Debt-adjusted cash flow	9.0	10.2	8.6	12.4	8.5	12.5	11.1	10.6
<b>Return [%]</b>								
Pre-tax RoCE	6.5	5.1	7.0	4.6	6.7	7.8	9.2	9.2
ROE [%]	7.7	6.3	7.5	7.0	25.0	16.5	17.6	17.2
Return on equity, restated	7.7	6.3	7.5	7.0	25.0	16.5	17.6	17.2



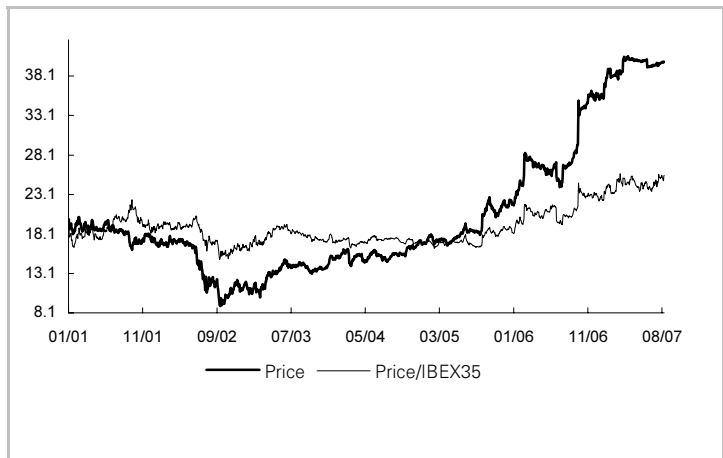
**Endesa (EUR39.89)**

Electricity Utilities - 6 September 2007

Rating: 3/Underperform - Target price: +0.7% EUR40.16

Fernando Lafuente, José Ramon Ocina

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	20,580.0	20,586.0	21,996.0	24,126.0
Net att. profit, rest. (m)	2,527.0	2,415.0	2,560.0	2,775.0
Free Cash Flow (m)	1,354.0	2,203.0	2,081.0	2,678.0
EBITDA margin (%)	34.7	36.3	35.7	34.8
Clean EPS	2.39	2.28	2.42	2.62
Reported EPS	2.80	2.38	2.51	2.72
P/E (x)	15.0	17.5	16.5	15.2
Attrib. FCF yield (%)	3.1	4.3	4.2	5.3
EV/EBITDA (x)	8.8	9.4	8.8	8.2
EV/EBIT (x)	11.9	13.0	12.2	11.3
ROCE (%)	12.7	12.4	12.6	13.1
ROE (%)	30.3	23.4	23.3	23.6
P/BV (x)	4.0	4.1	3.9	3.6
Net debt/EBITDA (x)	2.8	2.8	2.7	2.4
Net dividend	1.61	1.70	1.79	1.89
Yield (%)	4.5	4.3	4.5	4.7



Market capitalisation	EUR42,244m	IBEX35	14198.4		1 month	3 months	12 months
No. of shares, adjusted	1,059m	Reuters	ELE.MC	Absolute perf.	0.7%	-0.1%	44.0%
Daily volume	EUR137.94m	Bloomberg	ELE SM	Relative perf.	2.3%	5.1%	22.7%

Shareholders: Free float 36.7%, Enel 22.0%, Acciona 21.0%, Caja Madrid 9.9%, AXA 5.3%, Sepi 3.0%, La Caixa 2.0%

**Tougher carbon times set to precede deregulation****High exposure to tough CO<sub>2</sub> emission caps and low cost pass-through to clients**

**Energy mix:** The specific emissions for Endesa were around 530 Kg/MWh, an improvement compared with 2005, thanks mainly to a generation mix improvement, with an increasing proportion of thermal plants, CCGTs and wind farms. Nevertheless, the group's energy mix remained classic, with a large share of thermal plants. **Country exposure:** the generation business is mostly exposed to the Emission Trading Scheme in Europe, but the position in Latin America (33% of the power output) is a strategic plus in order to implement UN-sponsored CDM projects and acquire cheap CERs (Kyoto carbon credits). Endesa was short of CO<sub>2</sub> emission allowances by 44% (~29mtCO<sub>2</sub>) in 2006 due to tough allocation in Spain and Italy. The group does not communicate on potential shortage from 2008 but we expect an additional 10mt shortage. **Capacity to charge carbon costs:** A large share of the retail market in Spain and Portugal is still under regulated tariffs and we do not expect this situation to radically change before 2010. The CO<sub>2</sub> price signal is poorly transferred to electricity prices in Spain.

**Active strategy in CDM projects and development of CCGT capacities to limit carbon exposure**

**Investment plan aimed at reducing carbon emissions by 2009:** Endesa just achieved a plan that allowed it to reduce by 35% its CO<sub>2</sub> emissions per MWh generated in the 1990-2007 period. Endesa aims to further lower its CO<sub>2</sub> emissions by 2009 thanks to a new capacity program involving the construction of generation facilities and the conversion of the thermal power plant of As Pontes to imported coal, which will bring about a significant reduction in CO<sub>2</sub> emissions. **Capex:** Investment planned in new combined cycle gas plants by 2009 (CCGT 4.8GW planned capacity in 2009) to diversify the energy mix. Endesa will also increase its renewable energy capacities from 1,600MW in 2006 to 2,900MW in 2009. The proportion of renewables in the energy mix will remain low (from 3% to 5% of total capacities in 2009). Additional renewable capacities will be mostly wind, but the group also aims to develop 100MW of new solar plants in the next 5 years. As part of this programme, the group is to build Spain's biggest solar photovoltaic plant (20.1MW). **Involvement in CDM projects:** Endesa plans to buy carbon credits; it will also buy 15 million tonnes of emissions up to 2012. In 2006, the group signed agreements for CDM projects involving 108mtCO<sub>2</sub> and 104mtCO<sub>2</sub> committed to projects still under negotiation. Endesa set up 45 CDM projects, including 6 projects in hydro and 9 wind plants.

**Recommendation:** Endesa's active strategy to source cheap Kyoto credits will limit the negative impact of further stringent emission allowances allocation in Spain and Italy from 2008. For now, the risk is low since the government allows utilities to securitise the revenue shortfall, and they eventually receive this money. The process of deregulating Iberian electricity markets should improve the CO<sub>2</sub> power pricing environment in the mid-term.



## Company profile

Endesa is the **biggest electricity company in Spain**, with a 36% market share in generation and 40% in distribution, with a balanced generation mix, (40% coal, 25% nuclear, 10% hydro, 15% fuel-oil and 10% CCGT). It also has a presence in Europe (Italy and France) and in LatAm (mainly in Chile, Colombia and Brazil) both in the generation and distribution business.

The domestic generation business represents 37% of EBITDA, distribution 16%, Europe 16% and LatAm 31%. We estimate an EBITDA CAGR 05-08E of 9%.

**Financial structure:** In spite of the EUR14bn investment plan and dividends of EUR7.9bn in 2005-08, we are expecting a Net debt/EBITDA 08E of 2.4x vs. 3.1x in 2005.

Since September 2005, when Gas Natural launched a bid for Endesa (at EUR21 per share), the battle for control has dragged on for more than a year.

**At the moment there are two bids for Endesa**, (E.On's bid at EUR35 and Gas Natural's bid at EUR23.4), both suspended pending the court decision. As a result, **we think that an outcome of the takeover bids** will take several months. In addition, Acciona, which owns 20% of Endesa, aims to increase its bid to 24.9% and is seeking to reach a blocking minority.

The main shareholders are Acciona (20%), Caja Madrid (9.9%), the Spanish government (3%) and La Caixa (2%).

## Investment case

Following the H1-07 results, we reiterated our 3/Underperform rating on the stock.

### Carbon case:

- Assuming carbon emission rights trade at around EUR20/t then in 2008-2012 the negative impact on net profit (after taxes) for Endesa would be around EUR500m (around 15-20% of the total) if it is not able to pass them on to consumers (worst case scenario).

- With the same assumptions, if they are fully passed on to clients, then the positive impact on net profit would be (due to windfall profits) around EUR700m, or around 25% of total.

- Post 2012, assuming no free rights allocation, the net negative impact on net profit would be EUR1.1bn p.a. if not passed on to clients. If fully passed on, the net positive impact would be EUR550m p.a.

## Valuation

We have a target price of EUR40.16.

- Impact on our target price: a negative ca. EUR11 per share if the group is not able to pass the costs on to clients; a positive EUR6 per share impact under the scenario of de-regulated electricity prices.

## SWOT analysis

### Strengths

- 1) Strong position in generation and distribution in Spain.
- 2) High-quality generation assets in Italy.
- 3) Broad supply client base in Spain.
- 4) Attractive shareholder remuneration policy.

### Weaknesses

- 1) Low exposure to renewables.
- 2) Imbalance between generation and distribution.
- 3) Higher exposure to oil prices than the sector.
- 4) Generation mix skewed towards coal.

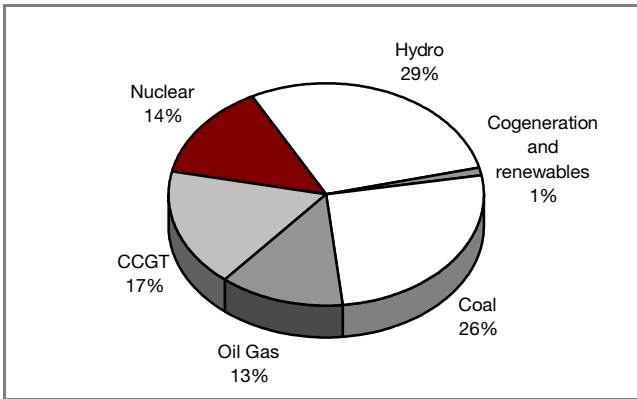
### Opportunities

- 1) Growth in Italy and France.
- 2) Growth in renewables.
- 3) Improved remuneration in distribution business in Spain.
- 4) Access to cheaper gas supplies.

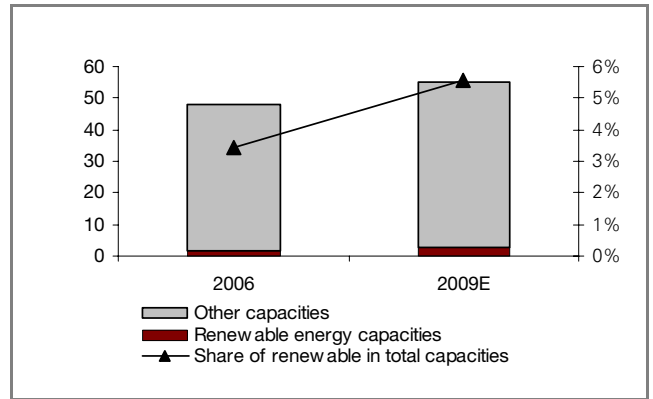
### Threats

- 1) Regulatory risk.
- 2) Political and forex risk in LatAm.
- 3) Possible shareholder instability (E.On vs. Acciona).
- 4) Acquisition risk.

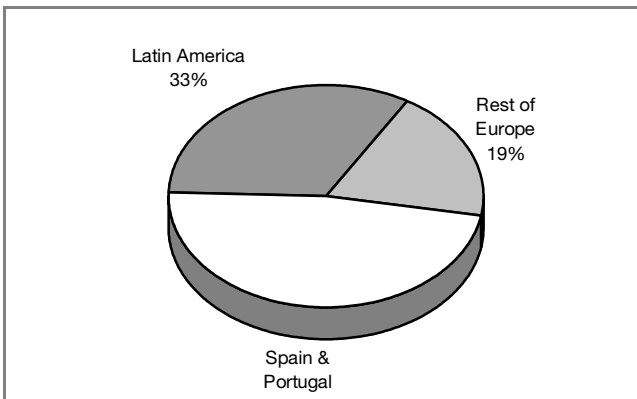
Energy mix – power generation (2006)



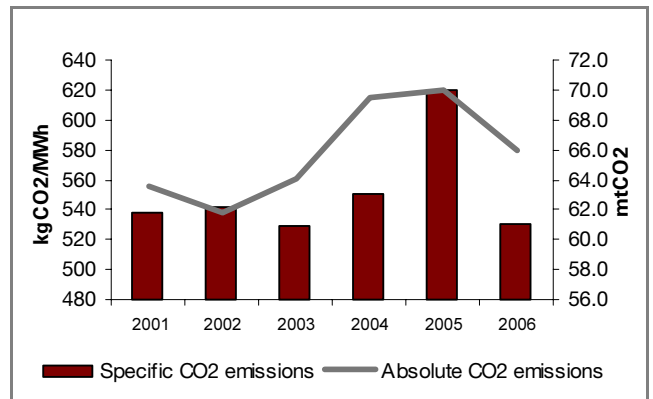
Investment plan – Renewables vs. Total capacities



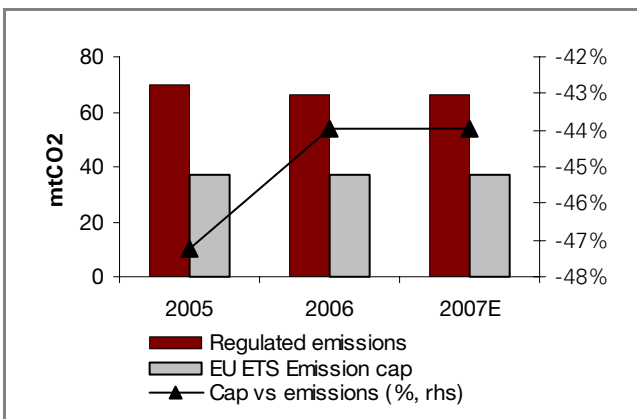
Country breakdown (GWh generated)



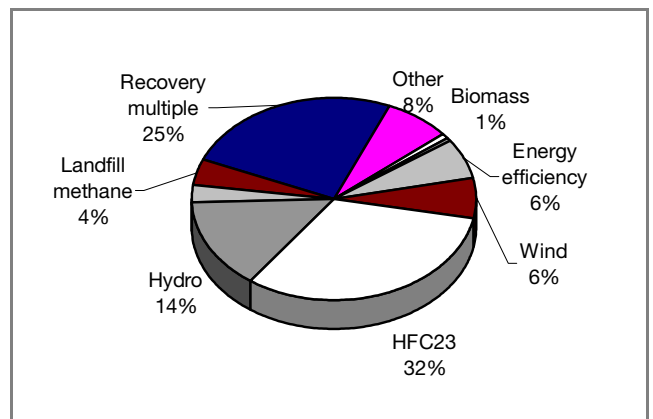
Absolute/specific emissions trends (2001-2006)



Emissions allowances vs. absolute emissions (2005-2012E)



CDM Projects by technology (CERs expected)



<b>Endesa</b>									
<b>FY to 31/12 (Euro m)</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007E</b>	<b>2008E</b>	<b>2009E</b>
<b>Profit &amp; Loss Account</b>									
<b>Sales</b>	<b>11,048.0</b>	<b>11,625.0</b>	<b>11,297.0</b>	<b>13,665.0</b>	<b>18,229.0</b>	<b>20,580.0</b>	<b>20,586.0</b>	<b>21,996.0</b>	<b>24,126.0</b>
% Change	-0.4%	5.2%	-2.8%	21.0%	33.4%	12.9%	0.0%	6.8%	9.7%
Staff costs	(1,332.0)	(1,251.0)	(1,186.0)	(1,383.0)	(1,537.0)	(1,598.0)	(1,646.0)	(1,695.0)	(1,746.0)
Other costs	(4,712.0)	(5,096.0)	(5,361.0)	(7,761.0)	(10,672.0)	(11,843.0)	(11,461.0)	(12,438.0)	(13,981.0)
<b>EBITDA</b>	<b>5,004.0</b>	<b>5,278.0</b>	<b>4,750.0</b>	<b>4,521.0</b>	<b>6,020.0</b>	<b>7,139.0</b>	<b>7,479.0</b>	<b>7,863.0</b>	<b>8,399.0</b>
% Change	-1.7%	5.5%	-10.0%	-4.8%	33.2%	18.6%	4.8%	5.1%	6.8%
Depreciation	(1,829.0)	(1,696.0)	(1,606.0)	(1,675.0)	(1,776.0)	(1,900.0)	(2,070.0)	(2,205.0)	(2,351.0)
<b>EBITA</b>	<b>3,175.0</b>	<b>3,582.0</b>	<b>3,144.0</b>	<b>2,846.0</b>	<b>4,244.0</b>	<b>5,239.0</b>	<b>5,409.0</b>	<b>5,658.0</b>	<b>6,048.0</b>
% Change	3.7%	12.8%	-12.2%	-9.5%	49.1%	23.4%	3.2%	4.6%	6.9%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>3,175.0</b>	<b>3,582.0</b>	<b>3,144.0</b>	<b>2,846.0</b>	<b>4,244.0</b>	<b>5,239.0</b>	<b>5,409.0</b>	<b>5,658.0</b>	<b>6,048.0</b>
Net financial items	(1,722.0)	(1,634.0)	(735.0)	(1,147.0)	(1,252.0)	(939.0)	(1,123.0)	(1,112.0)	(1,075.0)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	579.0	71.0	277.0	235.0	1,488.0	442.0	100.0	100.0	100.0
Tax	(88.0)	(437.0)	(550.0)	(352.0)	(790.0)	(1,007.0)	(1,059.0)	(1,215.0)	(1,326.0)
Associates [contribution]	(118.0)	(93.0)	30.0	79.0	67.0	63.0	66.0	68.0	71.0
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	(289.0)	(355.0)	(289.0)	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>1,537.0</b>	<b>1,134.0</b>	<b>1,877.0</b>	<b>1,661.0</b>	<b>3,757.0</b>	<b>3,798.0</b>	<b>3,392.0</b>	<b>3,500.0</b>	<b>3,817.0</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(58.0)	136.0	(565.0)	(408.0)	(575.0)	(829.0)	(877.0)	(840.0)	(942.0)
<b>Net attributable profit [loss]</b>	<b>1,479.0</b>	<b>1,270.0</b>	<b>1,312.0</b>	<b>1,253.0</b>	<b>3,182.0</b>	<b>2,969.0</b>	<b>2,515.0</b>	<b>2,660.0</b>	<b>2,875.0</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	(579.0)	(71.0)	(277.0)	(235.0)	(1,488.0)	(442.0)	(100.0)	(100.0)	(100.0)
<b>Net attrib. profit [loss], restated</b>	<b>1,189.0</b>	<b>1,554.0</b>	<b>1,324.0</b>	<b>1,018.0</b>	<b>1,694.0</b>	<b>2,527.0</b>	<b>2,415.0</b>	<b>2,560.0</b>	<b>2,775.0</b>
% Change	55.2%	30.7%	-14.8%	-23.1%	66.4%	49.2%	-4.4%	6.0%	8.4%
<b>Cash flow</b>	<b>2,457.0</b>	<b>1,178.0</b>	<b>3,371.0</b>	<b>3,257.0</b>	<b>3,979.0</b>	<b>5,495.0</b>	<b>5,283.0</b>	<b>5,519.0</b>	<b>5,975.0</b>
<b>Balance Sheet</b>									
Shareholders' equity [group share]	8,656.0	8,043.0	8,801.0	8,536.0	11,590.0	11,291.0	12,006.0	12,766.0	13,641.0
Minority interests	3,762.0	3,175.0	3,445.0	3,831.0	4,737.0	4,645.0	5,522.0	6,362.0	7,304.0
Net debt [cash]	23,779.0	21,767.0	18,262.0	18,852.0	18,401.0	20,148.0	21,170.0	20,956.0	20,250.0
Gearing [%]	191.5	194.0	149.1	152.4	112.7	126.4	120.8	109.6	96.7
<b>Per Share Data (at 6/9/2007)</b>									
EPS before goodwill	1.12	1.47	1.25	0.96	1.60	2.39	2.28	2.42	2.62
EPS, reported	1.40	1.20	1.24	1.18	3.01	2.80	2.38	2.51	2.72
Goodwill per share	0.27	0.34	0.27	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.68	0.68	0.70	0.74	2.40	1.61	1.70	1.79	1.89
Cash flow per share	2.32	1.11	3.18	3.08	3.76	5.19	4.99	5.21	5.64
Book value per share	7.5	6.9	7.6	7.3	8.5	9.1	9.6	10.3	11.0
No. of shares, adjusted	1059.000	1059.000	1059.000	1059.000	1059.000	1059.000	1059.000	1059.000	1059.000
Latest price	17.57	11.15	15.25	17.29	22.22	35.83	39.89	39.89	39.89
Market capitalisation	18,602.3	11,805.1	16,146.0	18,305.8	23,525.5	37,944.0	42,243.5	42,243.5	42,243.5
Enterprise value	44,937.3	34,680.9	40,779.1	39,747.6	44,996.4	62,528.7	70,046.5	69,054.6	68,527.9
<b>Valuation</b>									
P/E	20.7	9.8	15.6	18.0	13.9	15.0	17.5	16.5	15.2
P/E before goodwill	15.6	7.6	12.2	18.0	13.9	15.0	17.5	16.5	15.2
P/CF	7.6	10.0	4.8	5.6	5.9	6.9	8.0	7.7	7.1
Attrib. FCF yield [%]	NS	NS	6.6	NS	NS	3.1	4.3	4.2	5.3
P/BV	2.3	1.6	2.0	2.4	2.6	4.0	4.1	3.9	3.6
Enterprise value / Op CE	1.2	1.0	1.2	1.1	1.1	1.5	1.6	1.5	1.5
Yield [%]	3.9	6.1	4.6	4.3	10.8	4.5	4.3	4.5	4.7
EV/EBITDA, restated	9.0	6.6	8.6	8.8	7.5	8.8	9.4	8.8	8.2
EV/EBITA, restated	14.2	9.7	13.0	14.0	10.6	11.9	13.0	12.2	11.3
EV/Sales	4.07	2.98	3.61	2.91	2.47	3.04	3.40	3.14	2.84
EV/Debt-adjusted cash flow	10.9	15.1	9.4	8.6	8.5	9.0	10.0	9.7	8.9
<b>Return [%]</b>									
Pre-tax RoCE	8.5	10.2	9.5	7.8	10.0	12.7	12.4	12.6	13.1
ROE [%]	18.7	17.1	16.1	15.8	31.8	30.3	23.4	23.3	23.6
Return on equity, restated	11.0	16.1	12.5	12.7	15.8	25.2	22.4	22.3	22.6

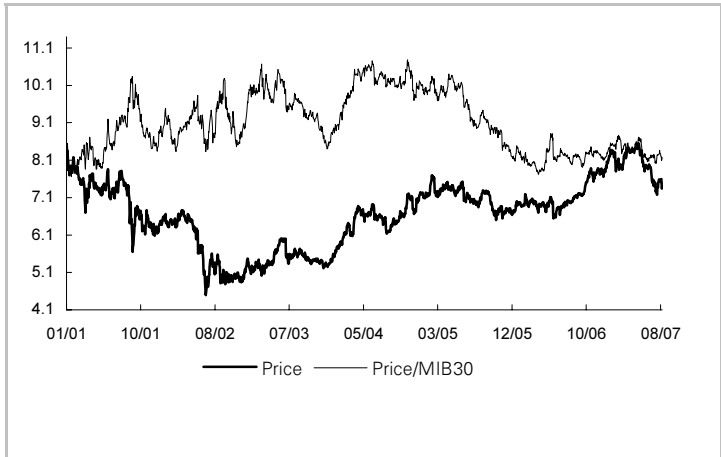
# ENEL (EUR7.42)

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +15.9% EUR8.6

Francesca Pezzoli

To 31/12 (EUR) - IFRS	2006	2007E	2008E	2009E
Sales (m)	38,481.0	39,999.0	40,761.0	41,745.0
Net att. profit, rest. (m)	3,383.0	3,204.0	3,288.0	3,418.0
Free Cash Flow (m)	3,675.0	2,486.0	2,802.0	3,615.0
EBITDA margin (%)	20.8	21.7	22.0	22.2
Clean EPS	0.55	0.52	0.54	0.56
Reported EPS	0.52	0.52	0.54	0.56
P/E (x)	14.1	14.2	13.8	13.3
Attrib. FCF yield (%)	7.1	4.8	5.4	7.0
EV/EBITDA (x)	8.0	7.3	7.1	6.8
EV/EBIT (x)	10.6	10.2	9.9	9.5
ROCE (%)	18.6	18.4	18.9	19.8
ROE (%)	19.2	19.1	19.3	19.7
P/BV (x)	3.1	3.0	2.9	2.9
Net debt/EBITDA (x)	1.5	1.4	1.4	1.3
Net dividend	0.49	0.49	0.50	0.51
Yield (%)	6.3	6.6	6.7	6.9



Market capitalisation	EUR45,440m	MIB30	39725		1 month	3 months	12 months
No. of shares, adjusted	6124m	Reuters	ENEL.MI	Absolute perf.	0.3%	-12.0%	6.1%
Daily volume	EUR293.05m	Bloomberg	ENEL IM	Relative perf.	-0.7%	-6.1%	1.3%

Shareholders: Free float 67.8%, Italian Treasury Minister 21.9%, Cassa Depositi e Prestiti 10.3%

## Mostly thermal generation, but good hedge against ETS compliance costs

### Neutral impact of the EU ETS: actual costs passed on in electricity prices

**Energy mix:** Median carbon intensity of ~515kgCO<sub>2</sub>/MWh over 2003-2007 thanks to a balanced fuel mix with hydro (23%), oil (20%), gas (15%), coal (29%) and marginal nuclear capacity (~8% since 2006). **Country exposure:** The group is mainly exposed to the Italian market (78% of power generation) and, since 2006, with the acquisition of Slovenske Elektrarne 15% of the electricity volumes come from Slovakia (~8mtCO<sub>2</sub> in 2006 and no shortage). **Capacity to pass on carbon costs:** We think that given the Italian market's size and low level of competition, ENEL can charge its customers actual ETS compliance costs. Bilateral contracts with deregulated customers state that ENEL's effective costs to comply with CO<sub>2</sub> constraints (only costs to cover the deficit) are included in prices. On the pool market, it is more difficult to measure to what extent ETS compliance costs are included in power prices, but it seems that the price decline in H1-07 was partly due to lower CO<sub>2</sub> prices. With gas setting the price, about 40% of the EUA price is integrated into wholesale electricity prices.

### Billions of euros to be invested in renewable capacities

**Target:** In 2000, ENEL announced a voluntary agreement to reduce by 20% its carbon intensity by 2006 to ~510kg/MWh, and this target was achieved. By 2008-09, ENEL will convert the old oil-fired Civitavecchia plant into a green-coal plant (additional 2GW). Overall, we estimate that this project will increase total emissions but maintain a stable carbon intensity of ~500kg/MWh. **Capex:** The additional coal capacity will be built with "clean-coal" technology, which has lower CO<sub>2</sub> emissions than coal plants (770kg/MWh vs. ~900kg/MWh). ENEL has a challenging capex plan in renewable energy in 2007-2011: it plans to invest EUR4.1bn in renewables o/w ~EUR1.6bn in Italy (400MW of additional capacity o/w, 220MW wind, 80MW mini-hydro and 100MW geothermal) and ~EUR2.5bn abroad (mainly France, Spain and North America), o/w 1,500MW wind, 100MW hydro, 100MW geothermal and in other innovation projects (i.e. recently announced EUR300m investment in solar power by 2010). ENEL produced ~1.8 TWh in incentives with green certificates. **Participation in CDM/JI projects:** ENEL acquired ~15m of CDM/JI credits per year at an average price lower than EUR10/tonne. In the period 2008-2012, only 15% of the credits can be used to comply with national constraints (~2.25m per year).

**Recommendation:** As the deficit of CO<sub>2</sub> emissions allowances is low (~14m tonnes of CO<sub>2</sub> per year in 2008-2012) and given the ability to pass costs onto industrial clients, we think that ENEL is not very sensitive to the CO<sub>2</sub> issue. CO<sub>2</sub> prices at EUR40/tonne vs. our assumption of EUR20/tonne would imply ~EUR140m in additional costs (~3% negative impact on 2008 EPS).

## Company profile

ENEL is the **leading electricity player in Italy**. Its **vertically integrated business model** means that it can cover the entire supply chain — from generation to distribution. It commands a ~35% market share in generation and ~80% in electricity distribution. Moreover, it is the second-largest player in the sale and distribution of gas in Italy (with a ~10% market share).

In July, ENEL launched a takeover bid on Endesa (EUR42bn market cap) at EUR40.16/share in collaboration with Spanish construction group in order to jointly control Endesa. The bid will be concluded by the end of September and the stake owned by ENEL will depend on the level of acceptance (max. 75%). The Endesa acquisition will imply a cash outlay of ~EUR27bn (for a 65% stake). After the disposal of ~EUR11bn in assets to E.On and the proportional consolidation of Endesa, we estimate that the Net debt/EBITDA multiple will rise to ~3.9x.

**ENEL's main shareholders are the Italian Finance Ministry, with a 21.87% stake, and Cassa Depositi e Prestiti (a government agency), with 10.35%.**

## Investment case

**We upgraded the stock to 2/Outperform on 6 September after H1-07 results, confirming our target price of EUR8.6.** The results were solid and the message from management was reassuring, as after the Endesa and Russian deals, international expansion will be halted and the focus will be on keeping debt under control (Net debt/EBITDA of 3.5x and credit rating A) and the DPS of EUR0.49 was confirmed as a floor.

After the share's recent underperformance we think it now offers an interesting buy opportunity, also considering the cheap multiples and high dividend yield (6.5%).

In addition, in the near term, there are catalysts that could support the stock, such as the presentation of the Endesa acquisition, synergies and expected cost of debt.

## Valuation

**We upgraded the stock from 3/Underperform to 2/Outperform on 6 September after H1-06 results and confirmed our target price of EUR8.6.**

**Our DCF valuation** is based on: & WACC of 6.5%, cost of debt of 5%, a 3.5% market premium, a leverage beta of 0.9 and 1.5% terminal value growth. We derive an enterprise value for ENEL of EUR73.4bn, after deducting net debt (EUR16.3bn), pension provisions (EUR2.7bn) and minorities (EUR1.6bn) and adding in the financial stakes, we arrive at a fair value of EUR53bn, which corresponds to **EUR8.6 per share**. Terminal EV/EBITDA multiple at 8.2x.

According to our estimates, the Endesa deal has a neutral impact on ENEL's valuation, despite being ~20% EPS accretive starting in 2008, as re-gearing and synergies will be counterbalanced by the premium paid on Endesa shares.

**Peer comparison. ENEL is quite cheap** compared to other European utilities. We estimate that, after the Endesa acquisition (assuming a 65% stake) ENEL will trade at a discount to peers on 2008E figures: 12.4x vs. 15x on P/E and 8x vs. 8.4x on EV/EBITDA.

## Carbon SWOT analysis

### Strengths

- Balanced portfolio of power generation capacities (gas, coal, hydro, nuclear and wind).

### Weaknesses

- Growing coal-generated electricity.
- Medium carbon intensity (~500kgCO<sub>2</sub>/MWh).
- Italy is far from reaching its Kyoto targets: relatively high CO<sub>2</sub> constraint on the power sector.

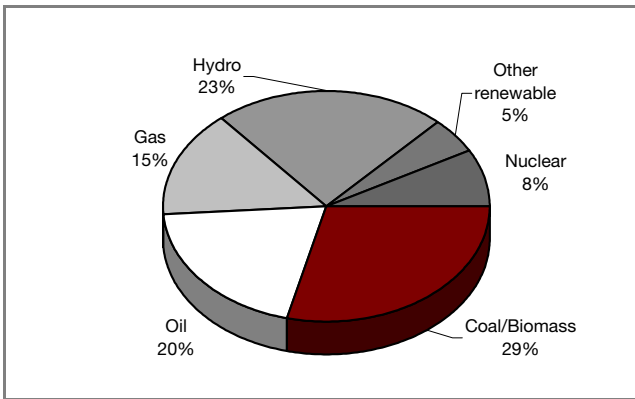
### Opportunities

- Strong investments in renewables in the coming years in Italy (EUR1.6bn 2007-2011).
- Short position of Italy in wind generation.

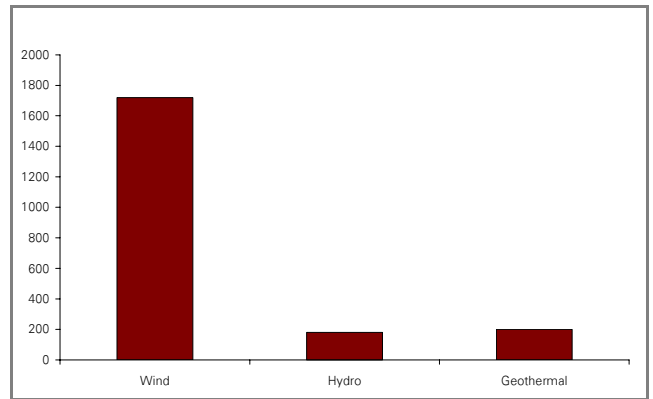
### Threats

- Growing competition in Italy could affect the capability to transfer costs on clients.
- Growing nuclear capacity in eastern Europe countries.

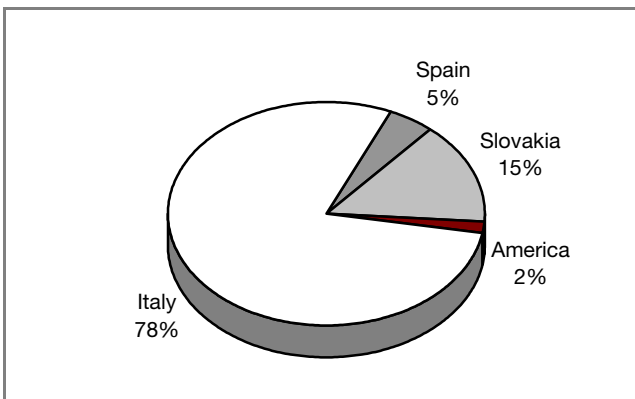
Energy mix – power generation (2006)



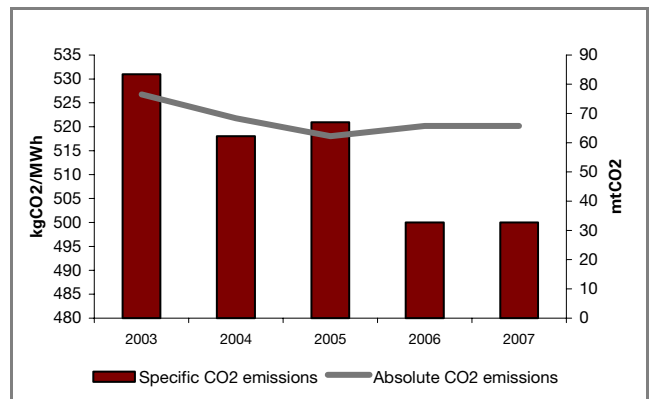
2007-2011 capex plan – Additional MW



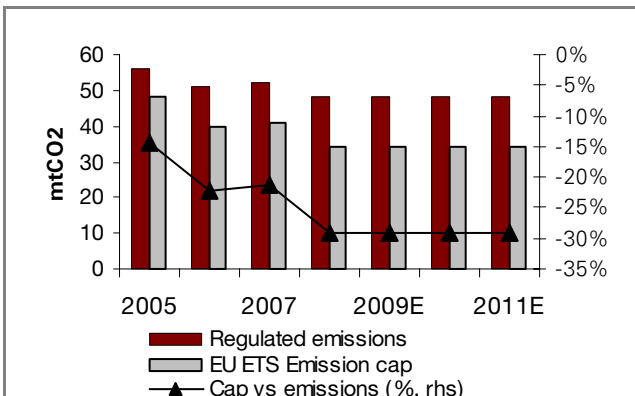
Country breakdown (GWh generated, 2006)



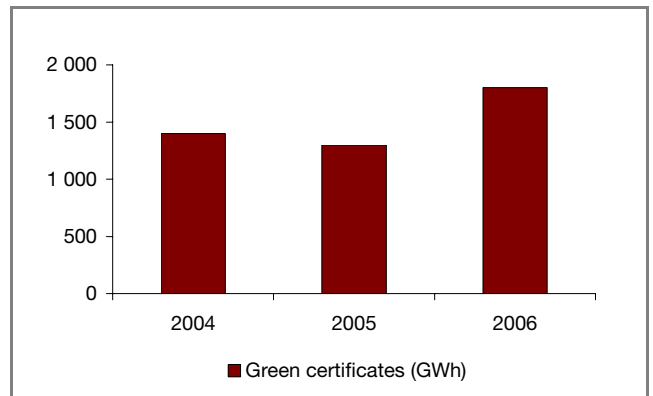
Trend in absolute/specific emissions (2000-2007E)



Emission allowances vs. absolute emissions in Italy (2005-2012E)



Green certificate production



ENEL	IFRS								
FY to 31/12 (Euro m)	2002	2003	2004	2004	2005	2006	2007E	2008E	2009E
<b>Profit &amp; Loss Account</b>									
<b>Sales</b>	<b>29,977.0</b>	<b>31,317.0</b>	<b>36,489.0</b>	<b>37,414.0</b>	<b>34,059.0</b>	<b>38,481.0</b>	<b>39,999.0</b>	<b>40,761.0</b>	<b>41,745.0</b>
% Change	4.2%	4.5%	16.5%		-9.0%	13.0%	3.9%	1.9%	2.4%
Staff costs	(3,589.0)	(3,440.0)	3,315.0	3,224.0	2,762.0	2,707.0	2,653.0	2,600.0	2,548.0
Other costs	(18,527.0)	(18,036.0)	(28,593.0)	(29,670.0)	(29,076.0)	(33,188.0)	(33,966.0)	(34,385.0)	(35,032.0)
<b>EBITDA</b>	<b>7,861.0</b>	<b>9,841.0</b>	<b>11,211.0</b>	<b>10,968.0</b>	<b>7,745.0</b>	<b>8,000.0</b>	<b>8,686.0</b>	<b>8,976.0</b>	<b>9,261.0</b>
% Change	-7.9%	25.2%	13.9%		-29.4%	3.3%	8.6%	3.3%	3.2%
Depreciation	(4,348.2)	(4,516.0)	(4,331.0)	(5,403.0)	(2,207.0)	(1,950.0)	(2,472.0)	(2,552.0)	(2,582.0)
<b>EBITA</b>	<b>3,512.8</b>	<b>5,325.0</b>	<b>6,880.0</b>	<b>5,565.0</b>	<b>5,538.0</b>	<b>6,050.0</b>	<b>6,214.0</b>	<b>6,424.0</b>	<b>6,679.0</b>
% Change	-8.3%	51.6%	29.2%		-0.5%	9.2%	2.7%	3.4%	4.0%
Goodwill amortisation before OP	(632.8)	(593.0)	(555.0)	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>2,880.0</b>	<b>4,732.0</b>	<b>6,325.0</b>	<b>5,565.0</b>	<b>5,538.0</b>	<b>6,050.0</b>	<b>6,214.0</b>	<b>6,424.0</b>	<b>6,679.0</b>
Net financial items	(1,237.0)	(1,203.0)	(1,142.0)	(1,320.0)	(744.0)	(610.0)	(610.0)	(600.0)	(575.0)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	736.0	(136.0)	(818.0)	0.0	0.0	0.0	0.0	0.0	0.0
Tax	(608.0)	(966.0)	(1,533.0)	(1,498.0)	(1,934.0)	(2,006.0)	(2,186.0)	(2,271.0)	(2,380.0)
Associates [contribution]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Discontinuing activities	0.0	0.0	0.0	0.0	1,272.0	0.0	0.0	0.0	0.0
Goodwill amortisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>1,771.0</b>	<b>2,427.0</b>	<b>2,832.0</b>	<b>2,747.0</b>	<b>4,132.0</b>	<b>3,318.0</b>	<b>3,419.0</b>	<b>3,553.0</b>	<b>3,723.0</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	237.0	82.0	(126.0)	(134.0)	(237.0)	(135.0)	(215.0)	(265.0)	(305.0)
<b>Net attributable profit [loss]</b>	<b>2,008.0</b>	<b>2,509.0</b>	<b>2,706.0</b>	<b>2,613.0</b>	<b>3,895.0</b>	<b>3,183.0</b>	<b>3,204.0</b>	<b>3,288.0</b>	<b>3,418.0</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	(547.9)	97.3	(877.0)	0.0	(1,153.0)	200.0	0.0	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>2,092.9</b>	<b>3,199.3</b>	<b>2,384.0</b>	<b>2,613.0</b>	<b>2,742.0</b>	<b>3,383.0</b>	<b>3,204.0</b>	<b>3,288.0</b>	<b>3,418.0</b>
% Change	-19.2%	52.9%	-25.5%		4.9%	23.4%	-5.3%	2.6%	4.0%
<b>Cash flow</b>	<b>6,752.0</b>	<b>7,536.0</b>	<b>5,392.0</b>	<b>5,392.0</b>	<b>5,693.0</b>	<b>6,075.0</b>	<b>6,686.0</b>	<b>7,102.0</b>	<b>7,315.0</b>
<b>Balance Sheet</b>									
Shareholders' equity [group share]	20,772.0	21,124.0	17,953.0	17,953.0	19,116.0	18,199.0	18,402.0	18,689.0	19,045.0
Minority interests	70.0	191.0	1,113.0	1,113.0	300.0	700.0	900.0	1,000.0	1,100.0
Net debt [cash]	25,712.0	24,174.0	24,296.0	24,514.0	12,312.0	11,706.0	12,432.0	12,380.0	11,577.0
Gearing [%]	123.4	113.4	127.4	128.6	63.4	61.9	64.4	62.9	57.5
<b>Per Share Data (at 6/9/2007)</b>									
EPS before goodwill	0.35	0.53	0.39	0.43	0.45	0.55	0.52	0.54	0.56
EPS, reported	0.33	0.41	0.45	0.43	0.64	0.52	0.52	0.54	0.56
Goodwill per share	0.10	0.10	0.09	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.36	0.36	0.69	0.63	0.63	0.49	0.49	0.50	0.51
Cash flow per share	1.11	1.24	0.89	0.89	0.93	0.99	1.09	1.16	1.19
Book value per share	3.1	3.1	2.3	2.3	2.5	2.5	2.5	2.6	2.6
No. of shares, adjusted	6063.075	6063.075	6063.000	6063.000	6124.000	6124.000	6124.000	6124.000	6124.000
Latest price	4.96	5.39	7.23	7.23	6.63	7.82	7.42	7.42	7.42
Market capitalisation	30,072.9	32,680.0	43,841.6	43,848.8	40,209.8	47,859.1	45,440.1	45,440.1	45,440.1
Enterprise value	57,690.6	56,657.1	73,736.0	73,470.6	58,680.3	63,905.2	63,118.5	63,586.3	63,314.4
<b>Valuation</b>									
P/E	20.6	12.5	24.0	16.8	14.8	14.1	14.2	13.8	13.3
P/E before goodwill	14.4	10.2	18.4	16.8	14.8	14.1	14.2	13.8	13.3
P/CF	4.5	4.3	8.1	8.1	7.1	7.9	6.8	6.4	6.2
Attrib. FCF yield [%]	NS	13.1	3.0	3.0	5.2	7.1	4.8	5.4	7.0
P/BV	1.6	1.7	3.2	3.1	2.7	3.1	3.0	2.9	2.9
Enterprise value / Op CE	1.1	1.1	1.6	1.6	1.8	2.0	1.9	2.0	2.0
Yield [%]	7.3	6.7	9.5	8.7	9.5	6.3	6.6	6.7	6.9
EV/EBITDA, restated	7.3	5.8	6.6	6.7	7.6	8.0	7.3	7.1	6.8
EV/EBITA, restated	16.4	10.6	10.7	13.2	10.6	10.6	10.2	9.9	9.5
EV/Sales	1.92	1.81	2.02	1.96	1.72	1.66	1.58	1.56	1.52
EV/Debt-adjusted cash flow	7.4	6.7	11.6	10.6	9.0	9.6	8.5	8.1	7.7
<b>Return [%]</b>									
Pre-tax RoCE	6.7	10.6	14.6	11.8	16.7	18.6	18.4	18.9	19.8
ROE [%]	10.2	12.6	16.3	15.7	22.7	19.2	19.1	19.3	19.7
Return on equity, restated	7.3	13.1	10.7	15.7	15.5	20.5	19.1	19.3	19.7



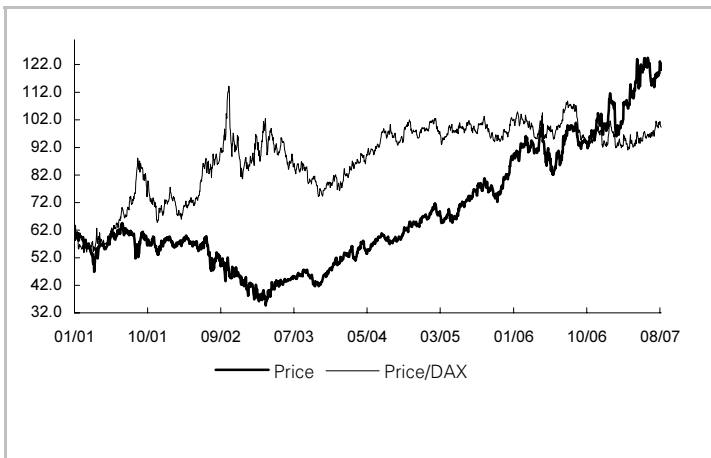
**E.ON (EUR120.30)**

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +11.4% EUR134

Sebastian Kauffmann

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	67,759.0	67,755.4	77,780.0	79,523.0
Net att. profit, rest. (m)	5,057.0	5,696.1	5,549.6	5,880.7
Free Cash Flow (m)	4,379.0	1,808.3	(7,845.8)	(591.5)
EBITDA margin (%)	16.8	17.5	18.2	18.9
Clean EPS	7.67	8.73	8.99	9.74
Reported EPS	7.67	8.73	8.99	9.74
P/E (x)	13.4	13.8	13.4	12.3
Attrib. FCF yield (%)	5.5	2.2	NS	NS
EV/EBITDA (x)	7.3	7.8	7.5	7.3
EV/EBIT (x)	10.2	10.4	9.9	9.6
ROCE (%)	11.6	11.8	11.6	11.5
ROE (%)	11.2	12.5	12.2	12.1
P/BV (x)	1.5	1.7	1.6	1.5
Net debt/EBITDA (x)	0.6	1.0	1.8	1.9
Net dividend	3.35	4.75	5.25	5.75
Yield (%)	3.3	3.9	4.4	4.8



Market capitalisation	EUR75,837m	DAX	7621.72	1 month	3 months	12 months
No. of shares, adjusted	630.4m	Reuters	EONG.DE	Absolute perf.	3.6%	3.3%
Daily volume	EUR549.98m	Bloomberg	EOA GR	Relative perf.	1.2%	4.8%
						22.9%
						-6.3%

Shareholders: Free float 89.2%, E.On 4.7%, Allianz 3.6%, State Of Bavaria 2.5%

**Still relatively low ETS compliance costs, but windfall profits are a major issue in Germany**

**Exposure to carbon constraint: negative impact of the EU ETS**

**Energy mix:** Medium carbon-intensity of around 500kgCO<sub>2</sub>/MWh due to a high 34% share of nuclear generation, but on the negative side hard coal capacity, which is responsible for 42% of 2007E generation. **Country exposure:** The group is fully exposed to stringent emission caps applied to German and UK operators. E.On expects a **shortage of CO<sub>2</sub> emission rights of 32mtCO<sub>2</sub> p.a. from 2008** (short by 38%). Part of this shortage can be covered by cheaper Kyoto credits and through government auctions/sales. **Capacity to charge carbon costs:** We think that the low level of competition on the German generation market enables E.On to largely pass on the carbon opportunity cost to retail clients. In the UK, the pass-through rate is lower due to: 1) gas technology determining wholesale prices for the most part (~40% of EUA price integrated vs. 90% in Germany); and 2) the higher level of competition on the electricity market.

**Strategy to reduce CO<sub>2</sub> emissions**

**Target: -26% carbon-intensity between 2006 and 2030:** The company aims to lower its CO<sub>2</sub> emissions between 2006 and 2030 from 490kg per MWh to 360kg per MWh, i.e. a cut by 26%. The drivers are strong expansion in the renewables portfolio, the initiation of nuclear projects and lifetime extensions, the build-up of highly efficient gas-fired plants and investment in cutting-edge R&D such as for clean coal. **Capex:** according to the company's capex plan, management will invest around EUR60bn between 2007 and 2010, of which EUR18bn is for maintenance, EUR10bn for the Endesa assets acquisition, EUR12bn for organic growth in power generation, EUR3bn for renewables and the remainder in upstream gas and other. E.On's major wind projects are currently in Germany, with 1,350MW in additional capacity until 2014 and in the UK with some extra 1,700 MW. **The group has been involved in CDM projects** and is particularly active in China, eastern Europe and Russia. E.On has also invested in carbon funds (KfW and Natsource) that hold stakes in respectively 15 and 11 diversified CDM projects. However, management has not yet given any indications with regard to possible volumes.

**Recommendation:** The company's relatively low exposure to CO<sub>2</sub> was viewed positively in the first half of this year by the market, which led to a performance very much in line with the major indices.



## Company profile

E.On is **Germany's largest electricity utility** in terms of market capitalisation and the second-largest producer of electricity in Germany.

In the past few years E.On has considerably strengthened its position in international electricity and gas markets via several acquisitions. At the same time, it has **radically cleared its business portfolio of non-core activities** (Degussa, Viterra and Ruhrgas Industries).

The company is active throughout the entire value chain with operations in central Europe, the UK and Nordic countries and to a smaller extent in the US Midwest. **The majority of sales derive from German customers (61% of total)**, followed by UK (17%) and eastern European customers (6%). US customers account for roughly 5% of total sales.

## Investment case

The fact that E.On is **significantly less exposed to CO<sub>2</sub>** and therefore also less exposed to political and regulatory decisions results in a lower risk premium than its main German competitor, RWE. Also, E.On is **well-balanced between electricity and gas** with the sales split being close to 50:50.

Moreover, the company has a **high 4.6% dividend yield** at a moderate 57% payout ratio, which makes the stock a safe haven particularly in times of volatile markets. Given E.On's stable operating cash flows, the payout ratio could even increase slightly in the future. Through the agreement with Enel and Acciona on the Endesa assets, E.On becomes a more **geographically diversified** generation mix.

In sum, our conservative valuation reveals upside of some 10%, hence our 2/Outperform rating. However, with the release of the new strategy as of end of May 2007, we do not see that many catalysts going forward and thus expect a gradual shift over time until the stock reaches our share price target.

**Carbon case:** Over 2008-2012, average annual ETS compliance costs should be around EUR500m p.a. (EUA: EUR20 per tonne; CER/ERU=EUR10 per tonne). Overall the CO<sub>2</sub> impact has been positive thanks to windfall profits. But this issue could trigger further auctioning decisions or more control on electricity prices.

## Valuation

We rate E.On a **2/Outperform** with a **target price of EUR134**.

We value E.On based on a DCF model for the European power generation business (WACC of 6.5% and growth of 1.5%) and peer group multiples for the remaining divisions. With regard to the multiple-based part of our valuation, we apply a **10% discount to the peer multiples** as we think European valuations are currently somewhat inflated by historical standards, particularly through M&A speculation.

For central Europe, we also apply a **further 10% discount** to reflect the **uncertainties of German politics and regulation**, i.e. we value central Europe at a 20% discount to the market.

E.On is among the **cheapest stocks in the European utilities universe**, trading at an average 24% discount to its peers. Moreover, the company's dividend yield of 4.6%, which is 17% above its peers, should attract investors and at the same time protect the shares from falling.

## SWOT analysis

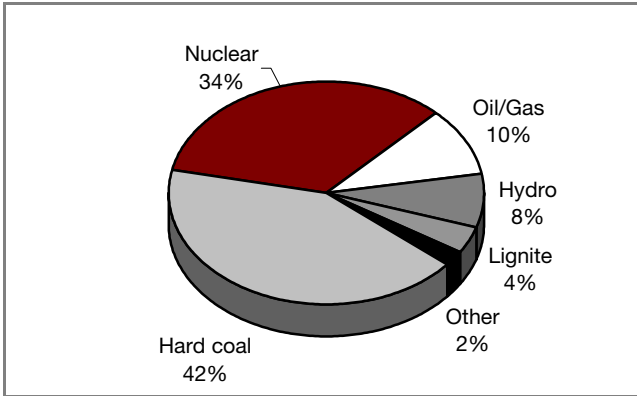
**Strengths:** Leading position in the German and European energy market; highest degree of vertical integration in the German gas market.

**Weaknesses:** E.On's own gas production sources (equity gas) represent only below 10% of its total supply volume.

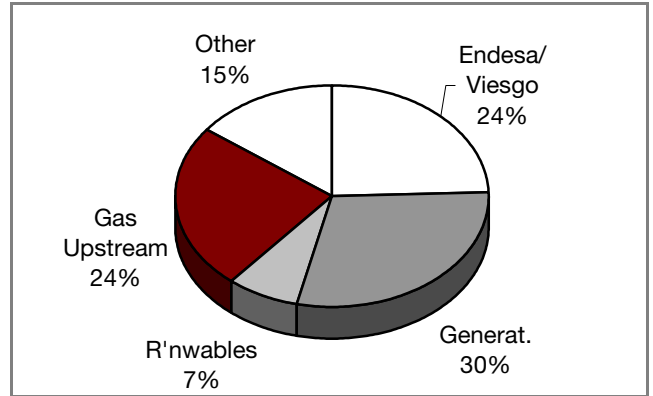
**Opportunities:** Rise in wholesale electricity prices; Prospective volume increases in equity gas; Sound financial structure.

**Threats:** Conflict between Russia and Ukraine over gas supply; squeezed margins in case of further rise in gas prices; pressure from drastic regulation of German power and gas grid charges.

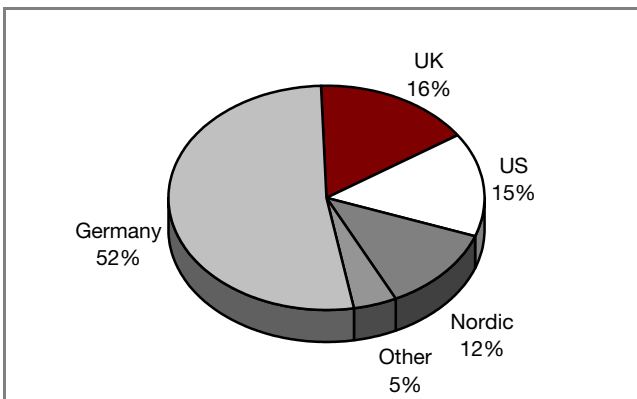
Energy mix – power generation (2006)



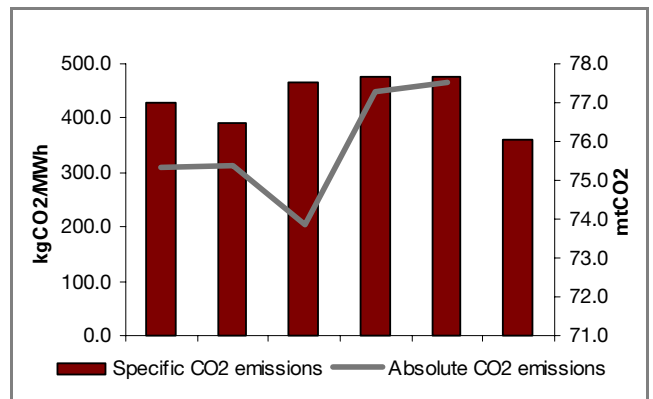
Investment plan



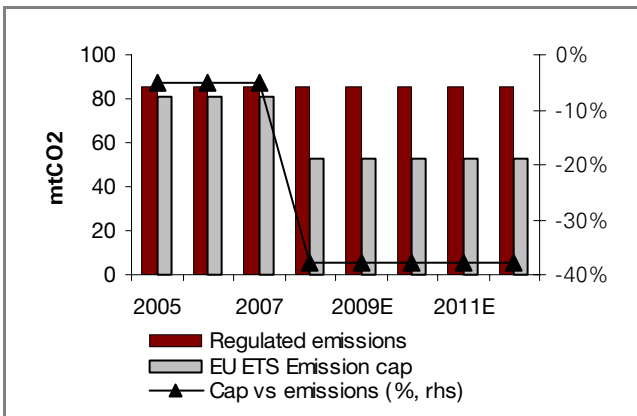
Country breakdown (GWh generated)



Trend in absolute/specific emissions in EU power generation (2001-2005)



Emission allowances vs. regulated emissions (2005-2012E)



Participation in Kyoto projects

No data disclosed by the company.

<b>E.ON</b>								
<b>FY to 31/12 (Euro m)</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007E</b>	<b>2008E</b>	<b>2009E</b>
<b>Profit &amp; Loss Account</b>								
<b>Sales</b>	<b>35 691.0</b>	<b>42 541.0</b>	<b>46 742.0</b>	<b>56 414.0</b>	<b>67 759.0</b>	<b>67 755.4</b>	<b>77 780.0</b>	<b>79 523.0</b>
% Change		19.2%	9.9%	20.7%	20.1%	0.0%	14.8%	2.2%
Staff costs	(6 465.0)	(4 906.0)	(4 192.0)	(4 232.0)	(4 573.0)	(4 700.5)	(4 832.3)	(4 968.6)
Other costs	(21 668.0)	(28 177.0)	(32 809.0)	(41 988.0)	(51 833.0)	(51 227.2)	(58 824.6)	(59 534.5)
<b>EBITDA</b>	<b>7 558.0</b>	<b>9 458.0</b>	<b>9 741.0</b>	<b>10 194.0</b>	<b>11 353.0</b>	<b>11 827.7</b>	<b>14 123.1</b>	<b>15 019.9</b>
% Change		25.1%	3.0%	4.7%	11.4%	4.2%	19.4%	6.3%
Depreciation	(2 909.0)	(3 230.0)	(2 954.0)	(2 901.0)	(3 203.0)	(3 017.9)	(3 417.4)	(3 520.0)
<b>EBITA</b>	<b>4 649.0</b>	<b>6 228.0</b>	<b>6 787.0</b>	<b>7 293.0</b>	<b>8 150.0</b>	<b>8 809.8</b>	<b>10 705.7</b>	<b>11 499.9</b>
% Change		34.0%	9.0%	7.5%	11.8%	8.1%	21.5%	7.4%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>4 649.0</b>	<b>6 228.0</b>	<b>6 787.0</b>	<b>7 293.0</b>	<b>8 150.0</b>	<b>8 809.8</b>	<b>10 705.7</b>	<b>11 499.9</b>
Net financial items	(372.0)	(1 107.0)	(1 031.0)	(1 027.0)	(1 081.0)	(1 128.3)	(1 963.2)	(2 230.1)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	(638.0)	366.0	159.0	3 302.0	(2 863.0)	(368.1)	(1 311.2)	(1 394.4)
Tax	662.0	(1 124.0)	(1 850.0)	(2 261.0)	323.0	(2 167.4)	(2 404.2)	(2 549.2)
Associates [contribution]	(901.0)	748.0	752.0	636.0	1 054.0	1 098.1	1 311.2	1 394.4
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>3 400.0</b>	<b>5 111.0</b>	<b>4 817.0</b>	<b>7 943.0</b>	<b>5 583.0</b>	<b>6 244.1</b>	<b>6 338.3</b>	<b>6 720.6</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(623.0)	(464.0)	(478.0)	(536.0)	(526.0)	(548.0)	(788.7)	(839.9)
<b>Net attributable profit [loss]</b>	<b>2 777.0</b>	<b>4 647.0</b>	<b>4 339.0</b>	<b>7 407.0</b>	<b>5 057.0</b>	<b>5 696.1</b>	<b>5 549.6</b>	<b>5 880.7</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>2 777.0</b>	<b>4 647.0</b>	<b>4 339.0</b>	<b>7 407.0</b>	<b>5 057.0</b>	<b>5 696.1</b>	<b>5 549.6</b>	<b>5 880.7</b>
% Change		67.3%	-6.6%	70.7%	-31.7%	12.6%	-2.6%	6.0%
<b>Cash flow</b>	<b>0.0</b>	<b>6 326.0</b>	<b>6 294.0</b>	<b>10 776.0</b>	<b>9 495.0</b>	<b>9 260.9</b>	<b>12 774.8</b>	<b>10 765.5</b>
<b>Balance Sheet</b>								
Shareholders' equity [group share]	25 653.0	29 774.0	33 560.0	44 484.0	47 845.0	48 320.6	48 172.7	51 382.2
Minority interests	6 511.0	4 625.0	4 144.0	4 734.0	4 917.0	4 975.9	4 967.6	5 310.3
Net debt [cash]	13 288.0	7 867.0	4 944.0	4 465.0	7 212.0	11 886.7	24 801.3	29 075.0
Gearing [%]	41.3	22.9	13.1	9.1	13.7	22.3	46.7	51.3
<b>Per Share Data (at 6/9/2007)</b>								
EPS before goodwill	4.26	7.11	6.61	11.24	7.67	8.73	8.99	9.74
EPS, reported	4.05	6.76	6.61	11.24	7.67	8.73	8.99	9.74
Goodwill per share	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	1.75	2.00	2.35	7.00	3.35	4.75	5.25	5.75
Cash flow per share	0.00	9.67	9.59	16.35	14.40	14.20	20.71	17.84
Book value per share	35.7	41.2	48.6	60.5	69.2	71.9	74.6	79.4
No. of shares, adjusted	685.000	689.000	659.200	659.200	659.600	630.400	603.500	603.500
Latest price	38.45	51.74	67.06	87.39	102.83	120.30	120.30	120.30
Market capitalisation	26 607.4	35 804.1	46 405.5	60 473.5	71 158.4	75 837.1	72 601.1	72 601.1
Enterprise value	54 905.9	52 504.3	72 694.0	74 199.4	82 786.8	92 042.6	105 795.2	110 283.3
<b>Valuation</b>								
P/E	9.0	7.3	10.1	7.8	13.4	13.8	13.4	12.3
P/E before goodwill	9.0	7.3	10.1	7.8	13.4	13.8	13.4	12.3
P/CF	NS	5.3	7.0	5.3	7.1	8.5	5.8	6.7
Attrib. FCF yield [%]	NS	19.2	5.2	NS	5.5	2.2	NS	NS
P/BV	1.1	1.3	1.4	1.4	1.5	1.7	1.6	1.5
Enterprise value / Op CE	0.9	0.9	1.2	1.1	1.2	1.2	1.2	1.2
Yield [%]	4.6	3.9	3.5	8.0	3.3	3.9	4.4	4.8
EV/EBITDA, restated	7.3	5.6	7.5	7.3	7.3	7.8	7.5	7.3
EV/EBITA, restated	11.8	8.4	10.7	10.2	10.2	10.4	9.9	9.6
EV/Sales	1.54	1.23	1.56	1.32	1.22	1.36	1.36	1.39
EV/Debt-adjusted cash flow	NS	6.7	9.5	6.0	7.0	8.3	6.6	7.9
<b>Return [%]</b>								
Pre-tax RoCE	7.4	10.6	11.4	10.7	11.6	11.8	11.6	11.5
ROE [%]	11.4	16.9	13.8	18.2	11.2	12.5	12.2	12.1
Return on equity, restated	11.4	16.9	13.8	18.2	11.2	12.5	12.2	12.1

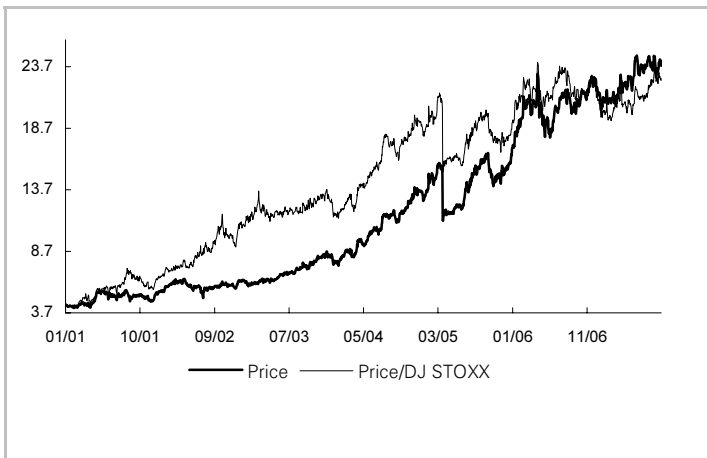
**Fortum (EUR23.80)**

Electricity Utilities - 6 September 2007

Rating: 3/Underperform - Target price: -17.0% EUR19.75

David Hallden

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	4,573.8	4,451.3	4,687.7	4,779.9
Net att. profit, rest. (m)	1,061.0	1,075.5	1,196.0	1,216.0
Free Cash Flow (m)	720.0	950.3	1,017.8	1,448.9
EBITDA margin (%)	40.7	42.5	44.5	44.8
Clean EPS	1.19	1.21	1.34	1.36
Reported EPS	1.21	1.23	1.37	1.39
P/E (x)	18.1	19.7	17.7	17.5
Attrib. FCF yield (%)	3.8	4.6	4.9	7.0
EV/EBITDA (x)	12.2	13.1	11.8	11.2
EV/EBIT (x)	15.8	17.4	15.2	14.4
ROCE (%)	14.2	14.0	15.5	16.4
ROE (%)	14.4	14.6	15.4	14.8
P/BV (x)	2.8	2.9	2.7	2.6
Net debt/EBITDA (x)	1.9	2.0	1.7	1.4
Net dividend	1.26	0.80	0.85	0.90
Yield (%)	5.8	3.4	3.6	3.8



Market capitalisation	EUR20,832m	DJ STOXX	373.84	1 month	3 months	12 months
No. of shares, adjusted	875.29m	Reuters	FUM1V.HE	Absolute perf.	1.7%	1.9%
Daily volume	EUR57.46m	Bloomberg	FUM1V.FH	Relative perf.	0.3%	6.4%
					6.1%	19.1%

Shareholders: Government of Finland 51.7%, Nominee Registered 20.0%

**A pure winner of the ETS, now exposed to a tax on windfall profits**

**A ~90% CO<sub>2</sub>-free energy mix and one of the lowest carbon-intensities in the EU (80-130kgCO<sub>2</sub>/MWh)**

**Energy mix:** Fortum is a very low emitter of CO<sub>2</sub> thanks to an energy mix mostly based on nuclear power (46% of its power generation in 2006) and hydroelectricity (37%). Biomass and peat represent 5%, while coal capacities in Finland handle peak demand on dry and cold years. Y-o-y volatility of regulated emissions is therefore high (+81% in 2006), making it more difficult to hedge an ETS compliance position with forward CO<sub>2</sub> contracts. **Country exposure:** About three-quarters of regulated emissions are in Finland, which is allowed to allocate 18% less emission allowances than in phase I. We expect an average **shortage of only ~ 3mtCO<sub>2</sub> p.a. over 2008-2012** (35% short of allowances). **Capacity to charge carbon costs:** the Nordic wholesale market is liquid and competitive and integrates the carbon price in electricity prices (we assume 50%). Price controls on the retail local markets have mostly disappeared allowing a high pass-through of wholesale prices to retail prices, enhanced by the existence of captive customers in some areas (real choice of power supplier minimal). We believe that Fortum (Markets BU) is able to sell most of the electricity at wholesale prices (including CO<sub>2</sub> component), thus fully benefiting from windfall profits. A tax on these profits implemented by the Swedish and Finnish governments (negative impact of EUR60m-70m p.a.) and increasing competition could now start to put margins under pressure.

**Further investment in hydro and nuclear to push CO<sub>2</sub>-intensity down to 80kgCO<sub>2</sub>/MWh by 2020**

The group recently revised its previous 120kgCO<sub>2</sub>/MWh target to an ambitious 80kgCO<sub>2</sub>/MWh by 2020 (five-year average). To meet this target, capacity investments of ~EUR3bn in 1,300MW in new power generation capacities are planned (at end H1-07). The project pipeline includes +650MW in nuclear capacity, +150MW for hydro; +440MW of electricity for CHP, and a potential 300MW peak gas turbine. Fuel conversion in existing plants is regularly assessed. These additional capacities should result in a ~10TWh increase (o/w 9TWh from CO<sub>2</sub>-free energy sources). **Participation in CDM/JI projects:** expected Kyoto credits through the investments of USD6m and EUR2m in carbon funds are estimated to be only 1-1.5MtCO<sub>2</sub> cumulatively. Joint Implementation projects with Russia's largest utility have been referred to by PointCarbon (carbon market news provider), but the regulatory framework for such projects has yet to be set in this country.

**Fortum is a perfect CO<sub>2</sub> play:** In our view, the group's share already integrates the windfall profits effect and should continue to be positively correlated to the price of CO<sub>2</sub>. The CO<sub>2</sub> component in the Nordpool electricity price is already visible in forward 2008 prices. However, we believe political momentum on windfall profits and the associated tax could surge again in 2008 while CO<sub>2</sub> prices reach high 2005-2006 levels. Increasing competition in the Nordic electricity markets could also alter Fortum's pricing power and erode the Markets BU's margins.

**Company profile**

Fortum is the second largest Nordic generator and supplier of power. The biggest company is Vattenfall, owned by the government of Sweden. Its activities cover the generation, distribution and sale of electricity and heat, the operation and maintenance of power plants as well as energy-related services. The main products are electricity, heat and steam. Fortum's competitiveness in the power and heat business is based on a pan-Nordic concept which is characterised by a high level of operational efficiency and a broad customer base. Its goal is to be the leading Nordic energy company. The Group's financial target is to reach 3.0x Net debt/EBITDA medium-term, and maintain 50-60% payout ratio.

**Valuation**

We value the shares at EUR19.75 (21.25). DCF valuation supports these levels, with EUR19.57 in value, using a 7.61% WACC, and 2.5% terminal growth. Peer valuation assumes that Fortum deserves to trade at premium to its peers due to its cleaner profile, but it's noteworthy that peer group multiples are somewhat boosted by consolidation. Notwithstanding that, the shares are trading at 37%, 43% and 35% premium to peers on EV/EBITDA FY-06, FY-07E and FY-08E, at 12.2x, 13.2x, and 11.9x respectively. On P/CF the premium is substantially wider, at 57%, 60% and 51% for the same years.

**Our valuation is based on a CO<sub>2</sub> price of EUR20 per tonne and a electricity price of EUR45/MWh. An increase in the CO<sub>2</sub> price to EUR30 per tonne, would have a 17% positive impact on EBIT.**

Carbon price (EUR/t)	Electricity price (EUR/MWh)	EBIT impact (EUR m)	(%)
12	41	-220	-13.60%
20	45	0	0%
30	50	275	17%
40	55	550	34%

**Investment case**

Our 3/Underperform rating is based upon: 1) earnings risk for 2007, from collapsing power prices, and only modest downgrade by consensus, and 2) questioning the long-term supply/demand balance, since the last three years of very high prices have triggered massive supply growth AND demand erosion (switching to heat pumps, improved efficiency etc).

-- **Impact: compliance costs:**

**With an average estimated 3mtCO<sub>2</sub> shortage p.a. in 2008-2012, we expect ETS compliance costs to amount only to around EUR60m p.a.**

(Assumptions: EUA = EUR20 per tonne; CER/ERU= EUR10 per tonne)

**In a post-2012 full auctioning scenario: compliance costs could represent up to EUR275m** (i.e. the group buys as many CO<sub>2</sub> allowances as it emits); at EUR30 per tonne.

-- **Pricing power environment:** Markets (Fortum's marketing/sales business) buys power on Nordpool and sells electricity based on wholesale electricity prices (CO<sub>2</sub> opportunity cost included). Increasing competition is likely to erode pricing power.

**Carbon SWOT analysis**

**Strengths**

- ~90% CO<sub>2</sub>-free power generation portfolio, and one of the lowest CO<sub>2</sub> intensities in Europe (80-140kgCO<sub>2</sub>/MWh produced).

**Weaknesses**

- Coal capacities manage peak demand when Nordic hydro reservoirs are low. High y-o-y volatility of CO<sub>2</sub> emissions may imply a more difficult forward hedging position.

**Opportunities**

- Development of nuclear capacities (upgrades + 25% share in a fifth nuclear unit).

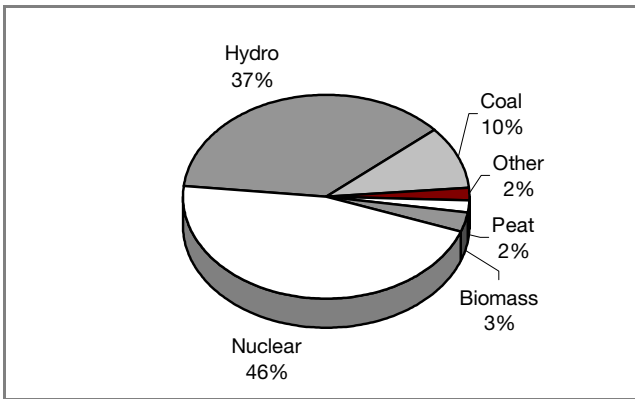
- Refurbishment of hydro capacities.

**Threats**

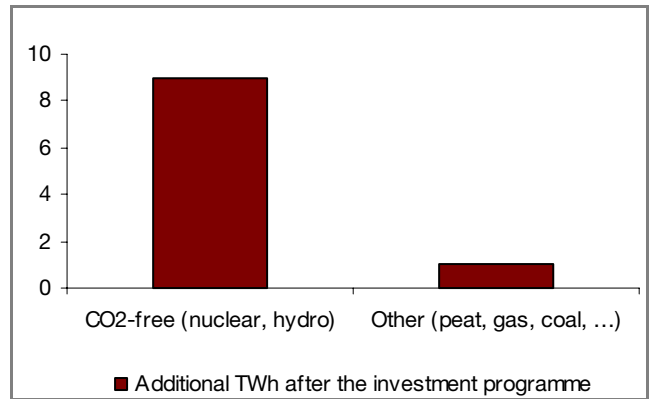
- New momentum and windfall profits and the associated tax in Finland and Sweden from 2008.

- Nuclear phase-out political decision in Sweden (unlikely in our view).

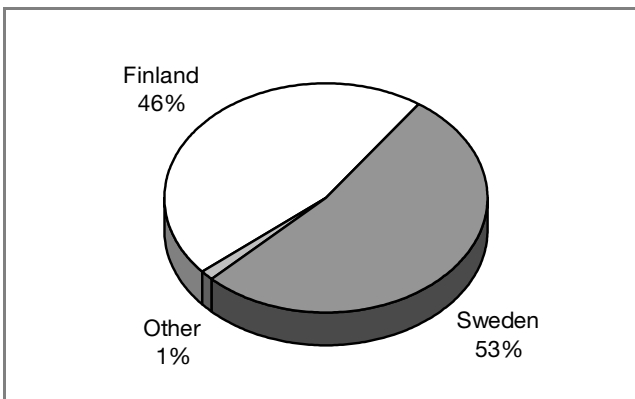
Energy mix – power generation (2006)



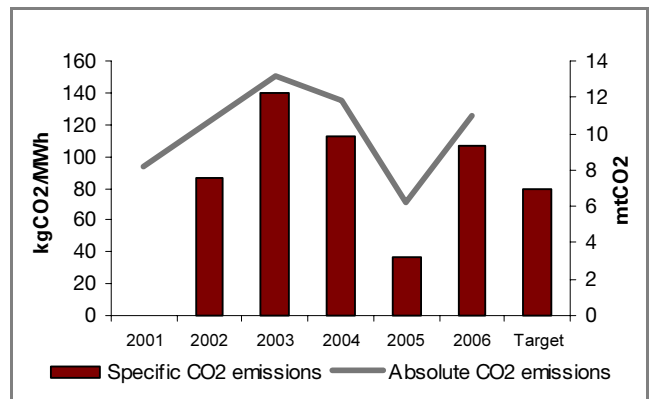
Investment plan – power capacities



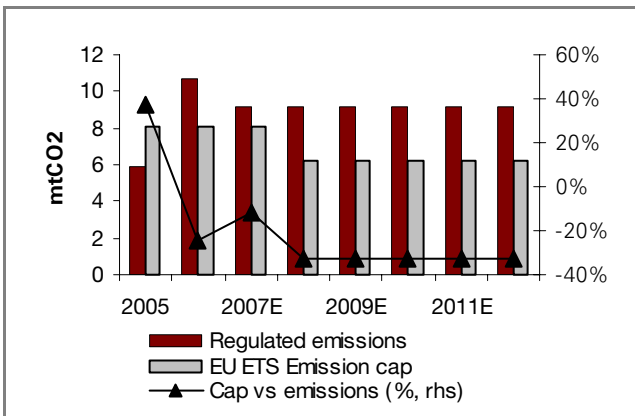
Country breakdown (GW installed)



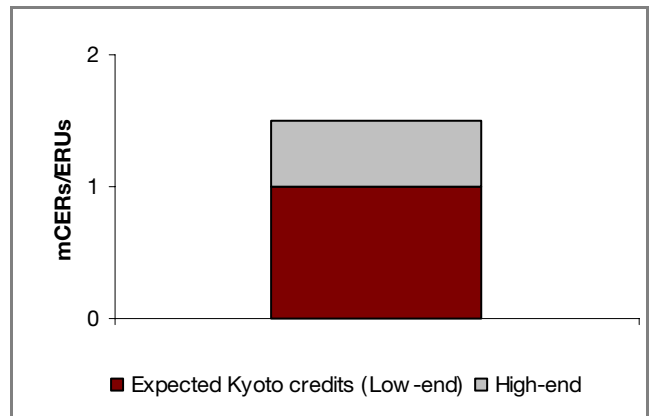
Trend in absolute/specific emissions (2001-2006)



Emission allowances vs. absolute emissions (2005-2012E)



Expected Kyoto credits through shares in carbon funds (cumulative)



<b>Fortum</b>									
<b>FY to 31/12 (Euro m)</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007E</b>	<b>2008E</b>	<b>2009E</b>
<b>Profit &amp; Loss Account</b>									
<b>Sales</b>	<b>10 410.0</b>	<b>11 894.0</b>	<b>11 553.0</b>	<b>11 535.4</b>	<b>3 877.0</b>	<b>4 573.8</b>	<b>4 451.3</b>	<b>4 687.7</b>	<b>4 779.9</b>
% Change	-1.9%	14.3%	-2.9%	-0.2%	-66.4%	18.0%	-2.7%	5.3%	2.0%
Staff costs	(683.0)	(674.0)	(654.0)	(654.0)	(675.0)	(700.6)	(727.1)	(754.5)	0.0
Other costs	(8 225.6)	(9 267.8)	(8 982.0)	(8 433.0)	(1 446.0)	(2 013.7)	(1 831.1)	(1 846.0)	(2 636.4)
<b>EBITDA</b>	<b>1 501.4</b>	<b>1 952.2</b>	<b>1 917.0</b>	<b>2 448.4</b>	<b>1 756.0</b>	<b>1 859.5</b>	<b>1 893.1</b>	<b>2 087.2</b>	<b>2 143.5</b>
% Change	9.6%	30.0%	-1.8%	27.7%	-28.3%	5.9%	1.8%	10.3%	2.7%
Depreciation	(584.4)	(656.2)	(518.0)	(512.0)	(409.0)	(428.0)	(464.0)	(468.0)	(468.0)
<b>EBITA</b>	<b>917.0</b>	<b>1 296.0</b>	<b>1 399.0</b>	<b>1 936.4</b>	<b>1 347.0</b>	<b>1 431.5</b>	<b>1 429.1</b>	<b>1 619.2</b>	<b>1 675.5</b>
% Change	9.2%	41.3%	7.9%	38.4%	-30.4%	6.3%	-0.2%	13.3%	3.5%
Goodwill amortisation before OP	(39.0)	(38.0)	(20.0)	(10.0)	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>878.0</b>	<b>1 258.0</b>	<b>1 379.0</b>	<b>1 926.4</b>	<b>1 347.0</b>	<b>1 431.5</b>	<b>1 429.1</b>	<b>1 619.2</b>	<b>1 675.5</b>
Net financial items	(212.0)	(280.5)	(236.0)	(259.0)	(135.0)	(94.0)	(98.0)	(110.0)	(140.0)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Associates [contribution]	36.0	31.0	41.0	70.0	55.0	85.0	85.0	85.0	85.0
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(83.0)	(73.0)	(90.0)	(31.0)	0.0	0.0	0.0	0.0	0.0
<b>Profit before tax [Nordic]</b>	<b>619.0</b>	<b>935.5</b>	<b>1 094.0</b>	<b>1 706.4</b>	<b>1 267.0</b>	<b>1 422.5</b>	<b>1 416.1</b>	<b>1 594.2</b>	<b>1 620.5</b>
% Change	17.7%	51.1%	16.9%	56.0%	-25.8%	12.3%	-0.4%	12.6%	1.6%
Tax	(160.0)	(269.0)	(325.0)	(427.5)	(331.0)	(361.4)	(340.7)	(398.2)	(404.5)
<b>Net attributable profit [loss]</b>	<b>459.0</b>	<b>666.5</b>	<b>769.0</b>	<b>1 278.9</b>	<b>936.0</b>	<b>1 061.0</b>	<b>1 075.5</b>	<b>1 196.0</b>	<b>1 216.0</b>
% Change	6.0%	45.2%	15.4%	66.3%	-26.8%	13.4%	1.4%	11.2%	1.7%
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	(35.6)	(230.0)	(42.2)	(72.7)	0.0	0.0	0.0	0.0	0.0
<b>Net attrib. profit [loss], restated *</b>	<b>462.4</b>	<b>474.5</b>	<b>746.8</b>	<b>1 216.2</b>	<b>936.0</b>	<b>1 061.0</b>	<b>1 075.5</b>	<b>1 196.0</b>	<b>1 216.0</b>
% Change	-1.5%	2.6%	57.4%	62.9%	-23.0%	13.4%	1.4%	11.2%	1.7%
<b>Cash flow</b>	<b>1 067.5</b>	<b>1 410.4</b>	<b>1 292.7</b>	<b>1 778.7</b>	<b>1 290.0</b>	<b>1 404.0</b>	<b>1 454.5</b>	<b>1 579.0</b>	<b>1 599.0</b>
<b>Balance Sheet</b>									
Shareholders' equity [group share]	5 485.0	5 896.0	6 406.0	7 394.0	7 151.0	7 908.0	7 880.6	8 376.4	8 848.4
Minority interests	1 270.0	1 432.0	232.0	359.0	260.0	253.0	253.0	253.0	253.0
Net debt [cash]	3 352.0	5 476.0	4 842.0	4 643.0	2 538.0	3 601.0	3 853.6	3 636.0	3 031.1
Gearing [%]	49.6	74.7	72.9	59.9	34.2	44.1	47.4	42.1	33.3
<b>Per Share Data (at 6/9/2007)</b>									
EPS before goodwill	0.57	0.55	0.86	1.38	1.05	1.19	1.21	1.34	1.36
EPS, reported	0.58	0.79	0.91	1.47	1.07	1.21	1.23	1.37	1.39
Goodwill per share	0.05	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.26	0.31	0.42	0.58	1.12	1.26	0.80	0.85	0.90
Cash flow per share	1.31	1.63	1.49	2.01	1.45	1.57	1.63	1.77	1.79
Book value per share	6.2	6.7	7.1	7.9	7.1	7.8	8.2	8.7	9.2
No. of shares, adjusted	845.610	845.760	848.830	871.710	875.290	875.290	875.290	875.290	875.290
Latest price	3.55	4.67	6.11	10.17	15.84	21.56	23.80	23.80	23.80
Market capitalisation	2 820.8	3 949.0	5 173.9	8 865.2	13 807.7	18 871.5	20 832.1	20 832.1	20 832.1
Enterprise value	6 494.8	9 797.0	10 230.9	13 769.2	16 780.7	22 658.5	24 871.7	24 654.1	24 049.2
<b>Valuation</b>									
P/E	6.9	9.3	7.3	7.5	15.1	18.1	19.7	17.7	17.5
P/E before goodwill	6.3	8.5	7.1	7.4	15.1	18.1	19.7	17.7	17.5
P/CF	2.7	2.9	4.1	5.1	11.0	13.7	14.6	13.4	13.3
Attrib. FCF yield [%]	20.5	19.1	NS	16.7	7.5	3.8	4.6	4.9	7.0
P/BV	0.6	0.7	0.9	1.3	2.2	2.8	2.9	2.7	2.6
Enterprise value / Op CE	0.7	0.9	1.1	1.3	1.9	2.2	2.3	2.2	2.2
Yield [%]	7.3	6.6	6.9	5.7	7.1	5.8	3.4	3.6	3.8
EV/EBITDA, restated	4.3	5.0	5.3	5.6	9.6	12.2	13.1	11.8	11.2
EV/EBITA, restated	7.1	7.6	7.3	7.1	12.5	15.8	17.4	15.2	14.4
EV/Sales	0.62	0.82	0.89	1.19	4.33	4.95	5.59	5.26	5.03
EV/Debt-adjusted cash flow	5.3	6.1	7.0	7.0	12.1	15.4	16.3	14.8	14.1
<b>Return [%]</b>									
Pre-tax RoCE	10.3	12.3	14.9	18.9	15.3	14.2	14.0	15.5	16.4
ROE [%]	8.7	12.0	12.8	18.9	14.0	14.4	14.6	15.4	14.8
Return on equity, restated	8.0	7.7	12.0	17.8	14.0	14.4	14.6	15.4	14.8



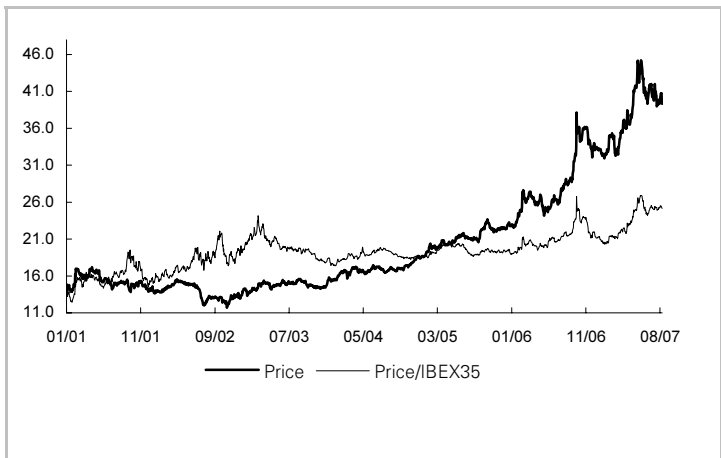
# Iberdrola (EUR39.31)

Electricity Utilities - 6 September 2007

Rating: 3/Underperform - Target price: +1.8% EUR40

Fernando Lafuente, José Ramon Ocina

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	11,017.4	19,201.6	23,279.2	24,473.4
Net att. profit, rest. (m)	1,505.9	2,432.5	2,888.7	3,213.5
Free Cash Flow (m)	(684.4)	(20,286.5)	1,401.2	2,017.8
EBITDA margin (%)	35.3	31.7	31.5	32.4
Clean EPS	1.67	2.10	2.49	2.77
Reported EPS	1.84	2.10	2.49	2.77
P/E (x)	19.8	18.7	15.8	14.2
Attrib. FCF yield (%)	NS	NS	3.1	4.4
EV/EBITDA (x)	10.4	11.4	9.5	8.7
EV/EBIT (x)	15.2	16.3	13.4	12.3
ROCE (%)	12.0	9.5	11.1	11.8
ROE (%)	17.3	13.0	14.5	15.1
P/BV (x)	3.2	2.5	2.3	2.2
Net debt/EBITDA (x)	3.4	4.3	3.6	3.2
Net dividend	1.06	1.22	1.45	1.62
Yield (%)	3.2	3.1	3.7	4.1



Market capitalisation	EUR4,5578m	IBEX35	14198.4		1 month	3 months	12 months
No. of shares, adjusted	1159.45m	Reuters	IBE.MC	Absolute perf.	-1.1%	-7.5%	35.9%
Daily volume	EUR210.85m	Bloomberg	IBE SM	Relative perf.	0.6%	-2.8%	15.8%

Shareholders: Estimated free float 57.9%, ACS 11.4%, BBK 7.2%, Bancaja 6.0%, Frere Bourgeois 5.0%, Other (Arregui, Osuna, Portillo 4.0%, other savings banks 3.9%, Omega Capital 2.3%, Unicaja 1.4%, Mr Martin 0.9%

## Low carbon exposure, but windfall profits blocked by regulated tariffs

### Low-carbon energy mix hedge against tough allocation of CO<sub>2</sub> credits in Spain

**Energy mix:** Iberdrola has a generation mix with very low CO<sub>2</sub>-intensity (247kgCO<sub>2</sub> emitted/MWh produced). The energy mix is dominated by natural gas (CCGT: 40%) and CO<sub>2</sub>-free energies (nuclear: 27%; hydro: 14% and wind: 9%). Coal accounts for only 6% of the energy mix. **Country exposure:** The group is mostly exposed to Spain (75%). Spain imposes tougher emission caps on its power sector than the EU average in order to meet its commitment to the Kyoto Protocol. However, the risk is low overall in terms of ETS compliance costs due to the low-carbon energy mix. Iberdrola is also exposed to the Latin American market (25% of power generation), which is an opportunity with regard to development of internal Clean Development Mechanism (CDM) projects. **Capacity to charge carbon costs:** Iberdrola has a perfect profile with regards the windfall profits effect. However, the persistence of regulated tariffs in Spain and regulation on CO<sub>2</sub> charges prevent Iberdrola from benefiting from windfall profits. We see no absolute CO<sub>2</sub> risk for, in the event of a shortfall in revenues (e.g. due to ETS compliance costs), the government allows utilities to securitise this amount, and utility companies eventually receive this money. Should the deregulation process go ahead, driven by the European Commission's energy strategy, Iberdrola would be a good carbon play. On 19 September, the EC is due to present its views on the energy market, which should provide more information on this issue.

### Fuel substitution in thermal power plants set to further reduce the CO<sub>2</sub> intensity

**Target:** Iberdrola plans to reduce its thermal power specific emissions from 563g CO<sub>2</sub>/kWh in 2006 to 487g CO<sub>2</sub>/kWh in 2011 (down 13.5%). **Capex:** In the medium term, the reduction in specific emissions will come mainly from substituting combined cycle gas turbine plants for fuel oil and coal production: Iberdrola plans to increase its eco efficient installed capacity from 13,749MW in 2006 to c19,000MW in 2010. **CDM projects:** For the five years of the Kyoto period (2008-2012), Iberdrola expects to obtain credits from Clean Development Mechanisms and Joint Implementation (CDM and JI), by both developing projects in countries where Iberdrola has a presence and by participating in Carbon Funds. In August 2007, the group was listed as a participant in four CDM projects (o/w one HFCs and two wind power). **Iberdrola's response to the EU Emissions Trading directive** is to invest in more environmentally efficient energy, that results in less primary energy consumption, and reduced emissions.



## Company profile

Until recently, **Iberdrola was the second largest electricity company in Spain**, with a 30% market share in generation, and a balanced generation mix (nuclear 40%, hydro 15%, renewables 15% and thermal 30%); a 37% share in the distribution business; and a leading position in renewable energy. It was also exposed to LatAm (18% of EBITDA in 2006), i.e., Mexico and Brazil.

**With the acquisition of Scottish Power (SP)** (the No. 5 UK operator with a 8% market share in generation, 5 million clients, and significant exposure to the US market and to the UK and US wind energy business) on 23 April 2007, **the new group** has become the sixth largest utility in Europe by market cap.

Iberdrola expects synergies of EUR130m p.a. in 2009E (2% of EBITDA), although we think there is room for additional savings of EUR250m-300m p.a.

We expect **EBITDA of around EUR7.3bn in 2008E** (vs. EUR4.7bn standalone): **56% from Spain, 27% from the UK, 12% from LatAm, and 5% from US**; and the Newco to post an EBITDA CAGR 06-09E of 27%.

**Financial structure:** Post-acquisition, net debt will amount to EUR26bn implying a Net debt/EBITDA 07E of 4.3X (3.6x for 08E) vs. 2.5x 07E for Iberdrola standalone.

**Shareholders:** ACS 10%, BBK 8%, other savings banks 7.6% and other investors 6.6%.

## Investment case

Following the presentation of recently-acquired Scottish Power, **we upgraded our rating on Iberdrola to 2/Outperform** in view of its strong fundamentals, the room for positive surprises on the earnings front and its appeal in a consolidating industry.

### Carbon case:

- If emission allowances trade at around EUR20/tonne, then over the period 2008-2012, the negative impact on net profit (i.e., after tax) for Iberdrola would total around EUR130m (around 4% of the total) if it is not able to pass the cost on to consumers (worst-case scenario).
- Based on the same assumptions, if the cost is fully passed on to clients, there would be a positive impact on net profit (due to windfall profits) of around EUR700m, or around 23% of the total.
- Post 2012, assuming no free allocation of allowances, the net negative impact on net profit would be EUR300m p.a. if costs are not passed on to clients. In the event of full pass-through, the net positive impact would be EUR500m p.a.

## Valuation

We have raised our target price by 14% to **EUR40.24 (12% upside)**, due to: 1) fine-tuning of our estimates; and 2) the higher value of its listed subsidiaries and of its wind farms business. We have used a SOTP model which breaks down as follows:

- 1) **Domestic electricity business (EUR33.9 p.s.):** DCF for generation (10.2x EBITDA 08E) and dist. (9.3x EBITDA 08E) and EUR1.55m/MW for renew. (13x EBITDA 08).
- 2) **SP assets (EUR18.4 p.s.):** We have included the synergies and tax benefits, valued at EUR1.9bn.
- 3) **International business (EUR5.4 p.s.):** using a DCF method (WACC of 11.2%, 7x EBITDA 08E);
- 4) **Other business (EUR2.0 p.s.):** Engineering and other services valued at EUR2.3bn (7x EBITDA 08E).
- 5) **Holdings (EUR4.7 p.s.):** Listed holdings EDP, REE and Galp valued at market price net of tax, Gamesa and Rokas at market price and unlisted holdings at 2x BV.
- 6) **Net debt** stands at EUR26.3bn and contingencies EUR1.1bn. Iberdrola is trading almost in line with its Spanish peers. However, we think that it should trade at a premium due to its higher growth prospects, better asset base and more credible strategy.

**Carbon impact on TP:** around negative EUR3 p.s. if not able to transfer to clients; positive EUR5 p.s. impact if full pass-through of the CO2 opportunity cost.

## SWOT analysis

### Strengths

- 1) Strong management team.
- 2) Attractive generation and distribution assets in Spain.
- 3) Exposure to renewables in the EU and the US.
- 4) Strong cash flow generation.

### Weaknesses

- 1) Expensive gas supplies.
- 2) Imbalance between generation and distribution.
- 3) Generation results sensitive to weather conditions.
- 4) Lack of ownership of gas supplies.

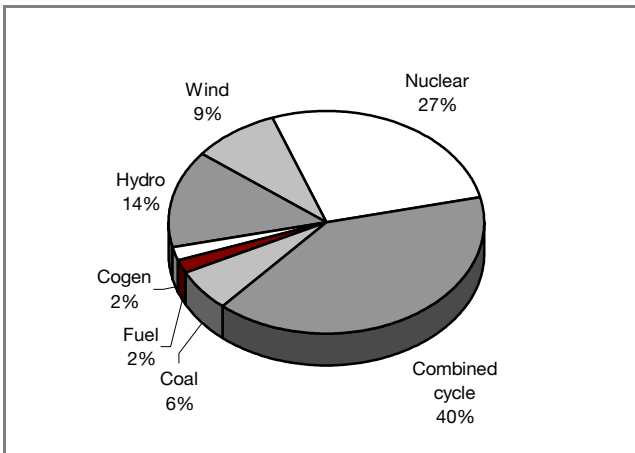
### Opportunities

- 1) Value creation from Scottish Power.
- 2) International roll-out of wind farms (China and the US).
- 3) Increase exposure to LatAm (regulated business).
- 4) M&A in Spain and Portugal.

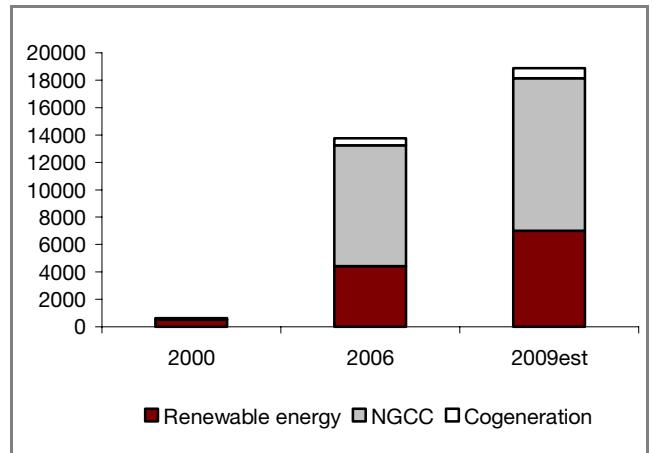
### Threats

- 1) New regulation for renewable energy in Spain.
- 2) Execution risk of SP acquisition.
- 3) Rise in crude oil and gas prices.
- 4) Shareholder situation determining strategy

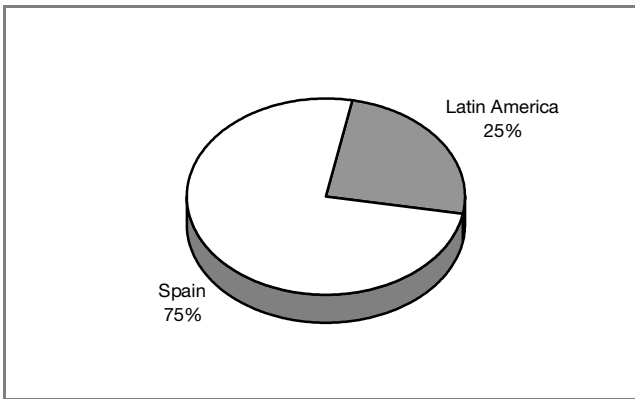
Energy mix – power generation (2006)



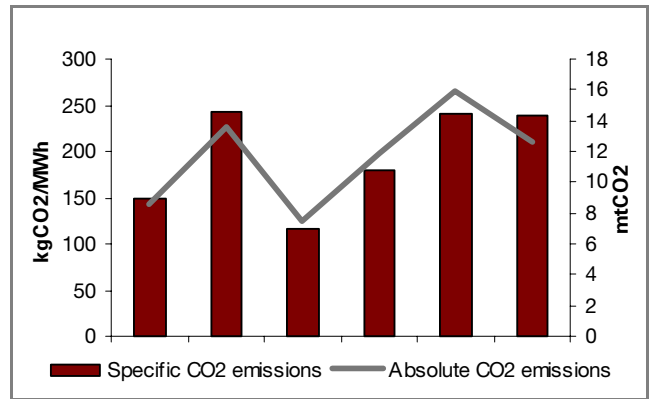
Additional power capacities by 2009



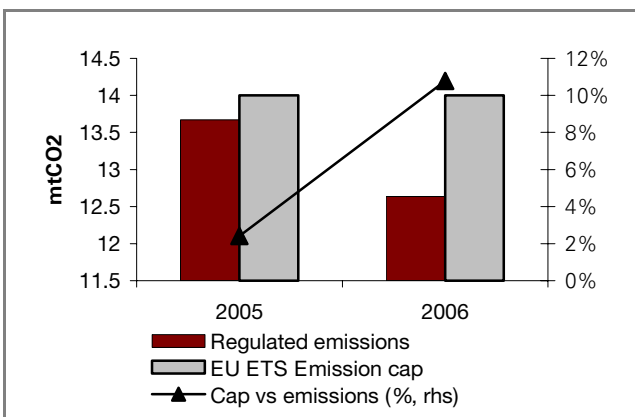
Breakdown by region (GWh generated)



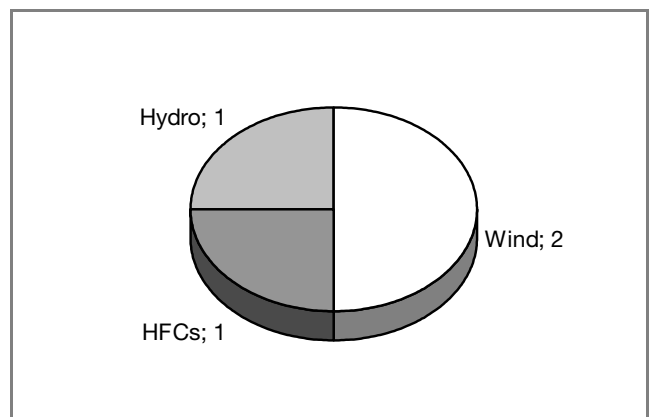
Trend in absolute/specific emissions (2001-2006)



Emission allowances vs. absolute emissions (2005-2012E)



Participation in Kyoto projects (no. of projects by type)



<b>Iberdrola</b>									
<b>FY to 31/12 (Euro m)</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007E</b>	<b>2008E</b>	<b>2009E</b>
<b>Profit &amp; Loss Account</b>									
<b>Sales</b>	<b>8,215.5</b>	<b>9,742.6</b>	<b>9,681.0</b>	<b>8,724.7</b>	<b>11,783.0</b>	<b>11,017.4</b>	<b>19,201.6</b>	<b>23,279.2</b>	<b>24,473.4</b>
% Change	16.5%	18.6%	-0.6%	-9.9%	35.1%	-6.5%	74.3%	21.2%	5.1%
Staff costs	(742.7)	(762.1)	(771.9)	(949.0)	(979.8)	(1,173.7)	(1,333.9)	(1,533.8)	(1,584.5)
Other costs	(5,094.2)	(6,623.4)	(6,296.4)	(4,863.1)	(7,425.6)	(5,954.0)	(11,775.4)	(14,401.5)	(14,958.8)
<b>EBITDA</b>	<b>2,378.6</b>	<b>2,357.1</b>	<b>2,612.7</b>	<b>2,912.6</b>	<b>3,377.6</b>	<b>3,889.7</b>	<b>6,092.3</b>	<b>7,343.9</b>	<b>7,930.1</b>
% Change	18.9%	-0.9%	10.8%	11.5%	16.0%	15.2%	56.6%	20.5%	8.0%
Depreciation	(799.8)	(792.8)	(789.2)	(922.5)	(1,115.4)	(1,235.2)	(1,846.6)	(2,177.6)	(2,292.2)
<b>EBITA</b>	<b>1,578.8</b>	<b>1,564.3</b>	<b>1,823.5</b>	<b>1,990.1</b>	<b>2,262.2</b>	<b>2,654.5</b>	<b>4,245.7</b>	<b>5,166.3</b>	<b>5,637.9</b>
% Change	28.9%	-0.9%	16.6%	9.1%	13.7%	17.3%	59.9%	21.7%	9.1%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>1,578.8</b>	<b>1,564.3</b>	<b>1,823.5</b>	<b>1,990.1</b>	<b>2,262.2</b>	<b>2,654.5</b>	<b>4,245.7</b>	<b>5,166.3</b>	<b>5,637.9</b>
Net financial items	(559.2)	(588.7)	(449.7)	(394.6)	(455.6)	(519.0)	(834.6)	(1,177.1)	(1,187.1)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	(8.1)	253.3	(198.3)	89.5	116.8	181.6	0.0	0.0	0.0
Tax	(286.2)	(304.0)	(207.1)	(520.6)	(553.3)	(695.3)	(1,023.9)	(1,142.0)	(1,272.9)
Associates [contribution]	220.5	87.3	121.1	43.4	34.4	69.1	83.6	89.2	95.3
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	(33.7)	(43.4)	(21.3)	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>912.0</b>	<b>968.7</b>	<b>1,068.2</b>	<b>1,207.8</b>	<b>1,404.5</b>	<b>1,690.9</b>	<b>2,470.8</b>	<b>2,936.5</b>	<b>3,273.3</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(6.2)	(6.1)	(7.9)	(12.2)	(22.5)	(30.6)	(38.3)	(47.8)	(59.8)
<b>Net attributable profit [loss]</b>	<b>905.8</b>	<b>962.6</b>	<b>1,060.3</b>	<b>1,195.6</b>	<b>1,382.0</b>	<b>1,660.3</b>	<b>2,432.5</b>	<b>2,888.7</b>	<b>3,213.5</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	40.4	(179.5)	186.1	(76.1)	(99.3)	(154.4)	0.0	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>979.9</b>	<b>826.6</b>	<b>1,267.7</b>	<b>1,119.5</b>	<b>1,282.7</b>	<b>1,505.9</b>	<b>2,432.5</b>	<b>2,888.7</b>	<b>3,213.5</b>
% Change	12.2%	-15.7%	53.4%	-11.7%	14.6%	17.4%	61.5%	18.8%	11.2%
<b>Cash flow</b>	<b>1,758.5</b>	<b>1,167.5</b>	<b>1,841.0</b>	<b>2,033.3</b>	<b>2,005.7</b>	<b>2,769.5</b>	<b>4,365.3</b>	<b>5,163.8</b>	<b>5,617.0</b>
<b>Balance Sheet</b>									
Shareholders' equity [group share]	7,983.9	8,045.4	8,225.4	8,427.0	9,268.0	10,418.0	19,923.3	21,407.9	22,954.0
Minority interests	111.6	80.6	80.9	93.0	147.0	149.0	187.3	235.1	294.8
Net debt [cash]	10,505.5	10,904.7	10,581.7	10,643.0	12,260.0	13,359.0	26,326.1	26,175.3	25,762.8
Gearing [%]	129.8	134.2	127.4	124.9	130.2	126.4	130.9	120.9	110.8
<b>Per Share Data (at 6/9/2007)</b>									
EPS before goodwill	1.09	0.92	1.41	1.24	1.42	1.67	2.10	2.49	2.77
EPS, reported	1.01	1.07	1.18	1.33	1.53	1.84	2.10	2.49	2.77
Goodwill per share	0.04	0.05	0.02	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.58	0.61	0.67	0.77	0.89	1.06	1.22	1.45	1.62
Cash flow per share	1.95	1.30	2.04	2.26	2.23	3.07	3.77	4.45	4.85
Book value per share	8.3	8.3	8.5	8.6	9.4	10.5	16.0	17.0	18.2
No. of shares, adjusted	901.550	901.550	901.550	901.550	901.550	901.550	1159.450	1159.450	1159.450
Latest price	14.62	13.35	15.67	18.70	23.09	33.12	39.31	39.31	39.31
Market capitalisation	13,179.9	12,035.0	14,126.5	16,858.1	20,815.6	29,857.7	45,578.0	45,578.0	45,578.0
Enterprise value	20,260.3	20,558.5	23,133.5	25,292.9	31,050.4	40,325.5	69,345.8	69,446.1	69,207.0
<b>Valuation</b>									
P/E	13.9	15.4	11.3	15.1	16.2	19.8	18.7	15.8	14.2
P/E before goodwill	13.5	14.6	11.1	15.1	16.2	19.8	18.7	15.8	14.2
P/CF	7.5	10.3	7.7	8.3	10.4	10.8	10.4	8.8	8.1
Attrib. FCF yield [%]	1.3	NS	NS	6.8	NS	NS	NS	3.1	4.4
P/BV	1.8	1.6	1.9	2.2	2.5	3.2	2.5	2.3	2.2
Enterprise value / Op CE	1.3	1.2	1.3	1.4	1.5	1.8	1.6	1.5	1.5
Yield [%]	4.0	4.6	4.3	4.1	3.9	3.2	3.1	3.7	4.1
EV/EBITDA, restated	8.5	8.7	8.9	8.7	9.2	10.4	11.4	9.5	8.7
EV/EBITA, restated	12.8	13.1	12.7	12.7	13.7	15.2	16.3	13.4	12.3
EV/Sales	2.47	2.11	2.39	2.90	2.64	3.66	3.61	2.98	2.83
EV/Debt-adjusted cash flow	9.3	12.7	10.4	11.0	13.3	12.9	14.0	11.6	10.7
<b>Return [%]</b>									
Pre-tax RoCE	10.1	9.1	10.1	11.3	11.0	12.0	9.5	11.1	11.8
ROE [%]	12.0	12.7	13.8	15.3	16.1	17.3	13.0	14.5	15.1
Return on equity, restated	12.6	10.2	16.4	14.2	14.9	15.6	13.0	14.5	15.1

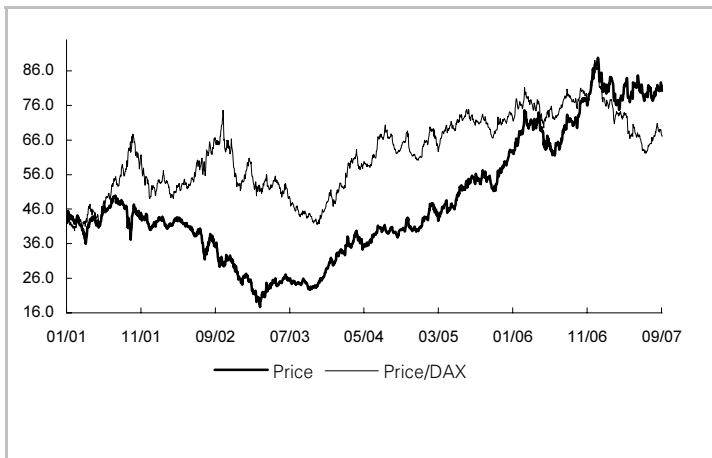
**RWE (EUR80.23)**

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +14.7% EUR92

Sebastian Kauffmann

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	44,256.0	42,949.1	45,510.5	46,255.2
Net att. profit, rest. (m)	3,847.0	3,396.7	4,028.9	4,206.8
Free Cash Flow (m)	16,852.0	1,084.2	1,866.8	1,907.2
EBITDA margin (%)	17.8	18.7	19.2	19.7
Clean EPS	6.84	6.04	7.16	7.48
Reported EPS	6.84	5.72	7.16	7.48
P/E (x)	12.2	13.3	11.2	10.7
Attrib. FCF yield (%)	34.7	2.3	4.0	4.1
EV/EBITDA (x)	8.0	6.8	6.3	6.1
EV/EBIT (x)	10.9	8.9	8.1	7.8
ROCE (%)	14.5	17.9	18.2	17.6
ROE (%)	33.4	24.4	27.4	25.5
P/BV (x)	4.1	3.6	3.2	2.8
Net debt/EBITDA (x)	(0.4)	(1.1)	(1.0)	(0.9)
Net dividend	3.50	3.90	4.25	4.50
Yield (%)	4.2	4.9	5.3	5.6



Market capitalisation	EUR44,826m	DAX	7621.72	1 month	3 months	12 months	
No. of shares, adjusted	562.4m	Reuters	RWEG.DE	Absolute perf.	1.9%	-2.0%	14.2%
Daily volume	EUR304.34m	Bloomberg	RWE GR	Relative perf.	-0.4%	-0.6%	-12.9%

Shareholders: Estimated free float 65.0%, Municipals 28.0%, Capital Intl 5.0%, Employees 2.0%

**A winner of the system so far despite some of the worst CO<sub>2</sub>-intensity**

**Hike in ETS compliance costs from 2008, but still more than fully recovered in electricity prices**

**Energy mix:** High carbon-intensity of around 800kgCO<sub>2</sub>/MWh in 2007E due to a high share of hard coal and lignite in power generation, which together account for some two-thirds of generation from own sources. **Country exposure:** The group is fully exposed to stringent emission caps applied to German and UK operators. We expect a shortage in CO<sub>2</sub> emission allowances from 2008 of about 71mtCO<sub>2</sub> (42% short of CO<sub>2</sub> allowances). We expect only **EUR800m of ETS compliance costs in 2008** due to high use of cheap Kyoto credits to fill the compliance gap. **Capacity to charge carbon costs:** We think that the low level of competition on the German generation market enables RWE to largely pass on carbon opportunity costs to retail clients. In the UK, the pass-on rate is lower due to the higher level of competition.

**Proactive involvement in CDM/JI projects and challenging clean coal strategy will reduce exposure**

**Target: A 30% reduction in carbon-intensity between 2006 and 2015:** The company aims to lower its CO<sub>2</sub> emissions between 2006 and 2015 from 179m tonnes per year to 122m tonnes per year, i.e. a 30% cut. The drivers are the build-up of new and more efficient generation capacity, lifetime extensions of two of its nuclear power plants (Biblis A and B) and the build-up of generation capacity from renewable energy sources, a CO<sub>2</sub>-free power plant and the execution of CDM/JI projects. We thus project a **reduction in the carbon intensity** for the power generation business to a carbon factor of **around 600kg/MWh** vs. c.800kg/MWh currently, which would represent a 3% annual reduction. **Capex:** According to the company's capex plan, management will invest around EUR5bn p.a., of which 40% dedicated to growth. Capex for renewable energies for the total period 2007-11 is forecast to be only some EUR700m (in the UK), however, management already indicated that in the next decade, capex for renewable energies, in particular for wind energy, may increase to up to EUR1bn p.a. **The group has been involved in CDM projects** since 2001. To date, the company has already secured 50 million certificates in contract volume and around 35m in risk-adjusted volume. Until the end of 2012, **RWE expects to have secured the total of 90 million certificates with a good chance of an even higher figure.** China accounts for the vast majority of projects (c.75% of contracted volume).

**Recommendation:** The company's high exposure to CO<sub>2</sub> has been extensively played by many brokers this year, which led to a massive underperformance of the stock of up to 20% vs. the DAX at the peak. With the release of the half-year 2007 figures, however, RWE proactively addressed the issue of its high CO<sub>2</sub> emissions and presented its forecast volume of CDM/JI projects of 90m certificates until the end of 2012, which was a positive surprise for the market.

## Company profile

RWE is **Germany's largest electricity utility** in terms of domestic generation, with a market share of roughly 33%, and the country's second-largest utility in terms of market capitalisation.

Given the pending sale of American Water, the company now defines its **core business activities as electricity and gas**. RWE operates along the entire chain, from generation to transmission and supply to the end client. With a 40% share, the largest proportion of 2006 group operating profit came from the German and European (ex UK) generation business.

**67% of operating profit** is generated in **unregulated activities**. The remainder mainly includes the German electricity and gas grid business.

The company's **core market is Germany**, which was responsible for 61% of 2006 external revenues, followed by the UK (20%), eastern Europe and (still) the US.

## Investment case

Due to management's increased guidance and statements regarding the utilisation of CERs (certified emission reductions), we expect widespread **upward revisions of broker estimates**. **We are currently 15% and 19% ahead of consensus** in terms of EPS for 2008E and 2009E, respectively.

The market's **concerns regarding a management vacuum** as well as scepticism regarding new CEO Dr Grossmann **are likely to dissipate** after his arrival in November.

Though we still see less than a 50% **likelihood of a hostile takeover**, we do believe chances of such a takeover (as well as related rumours) **will increase once the company has floated American Water**, which is forecast to happen by the end of 2007.

RWE is likely to announce the **details of its share buy-back programme** in Q1-08. We estimate a **reduction in the shares outstanding of 5.5%**. Neither we nor the market have incorporated this into our EPS estimates.

The company offers an **attractive dividend yield of 5.4%**, which should largely protect the shares from falling in a general equity market downturn. Additionally, the company has a **low beta factor of 0.8** vs. the DJ Stoxx 600 and is **virtually net debt free**, which is one more positive in an environment of possibly further-rising interest rates.

## Valuation

We have a **2/Outperform** rating on RWE with a **target price of EUR92**.

We value RWE based on a DCF for RWE Power (WACC of 6.5% and growth = 1.5%) and peer group multiples for RWE Energy and RWE npower. With regards to the multiple-based part of our valuation, we apply a **10% discount on the peer multiples** as we think European valuations are currently somewhat inflated by historical standards, particularly through M&A speculation.

For RWE Energy we also apply a **further 10% discount** to reflect the **uncertainties of German politics and regulation**, i.e. we value RWE Energy at a 20% discount to the market.

RWE is the **cheapest stock in the European utilities universe**, trading at an average 30% discount to its peers. Moreover, the company's dividend yield of 5.4%, which is 38% above its peers, should attract investors and at the same time protect the shares from falling.

## Carbon SWOT analysis

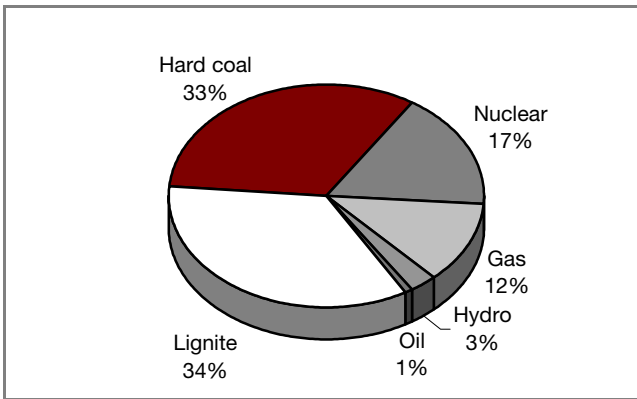
**Strengths:** RWE is Germany's leader in terms of electricity generation, with a market share of about 33%, and is the second-largest utility in Europe (EU-25) behind EdF/EnBW, with a market share of 7%.

**Weaknesses:** The company is highly leveraged to the German base load price and thus dependent on political and regulatory decisions. Regulated activities contribute 33% to the group's operating profit. Its gas sales have little backing from up-/midstream activities.

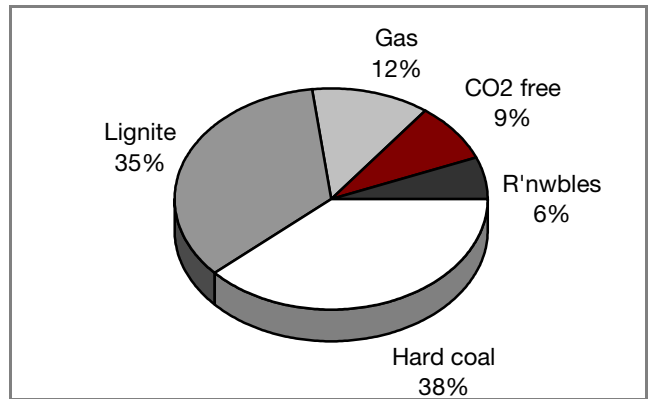
**Opportunities:** Further increases in electricity prices may lead to soaring profits from power generation. Proceeds from the water business disposal are likely to be used to strengthen the company's energy market position, raise dividends and execute a share buyback programme.

**Threats:** The main risks arise on the political side, with regards to the pricing in of CO<sub>2</sub> costs, legal uncertainty due to intensified abuse controls on the part of the Federal antitrust authorities, regulation of wholesale power prices and further cuts in electricity and gas grid charges.

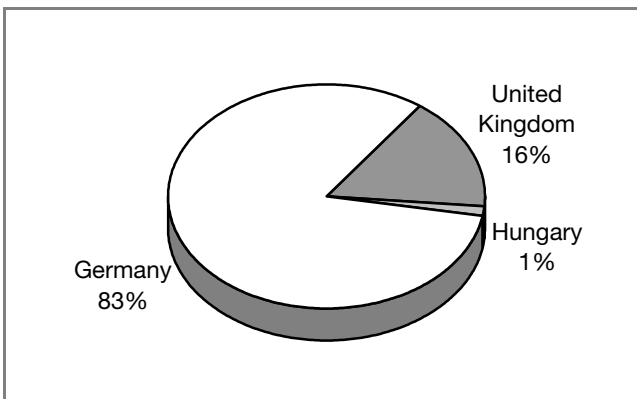
Energy mix – power generation (2006)



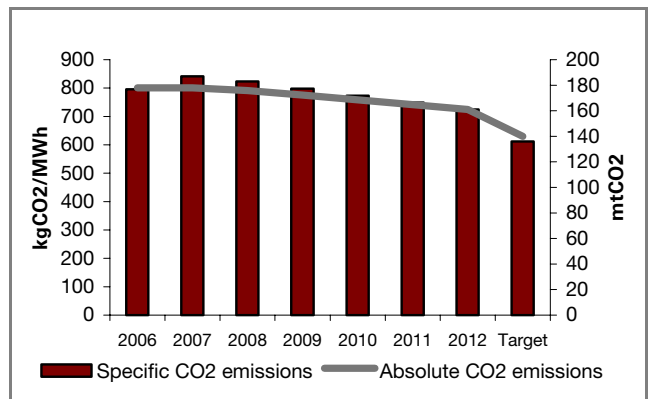
Investment plan – Power capacities



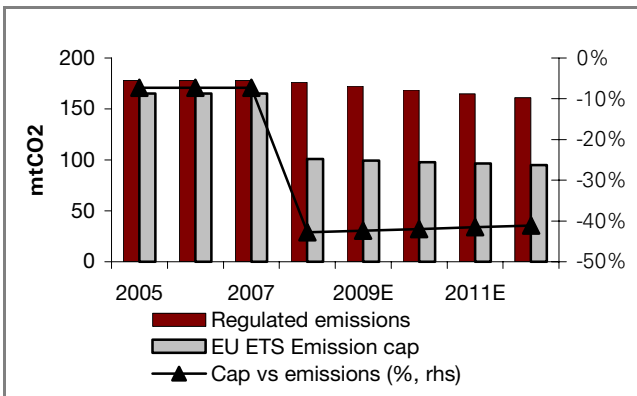
Country breakdown (GWh generated)



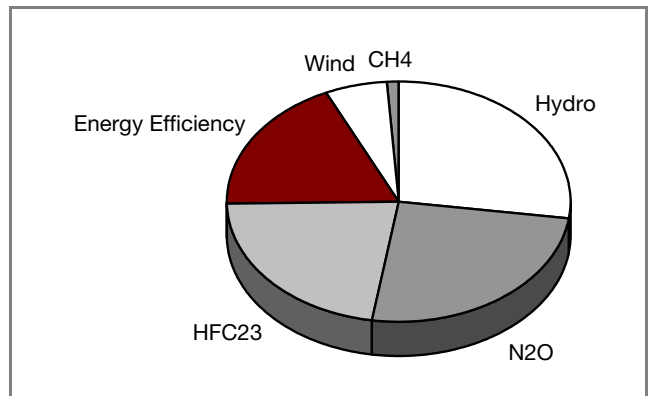
Trend in absolute/specific emissions (2006-2012E)



Emission allowances vs. absolute emissions (2005-2012E)



Participation in Kyoto projects (contract volume by technology)





<b>RWE</b>								
<b>FY to 31/12 (Euro m)</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007E</b>	<b>2008E</b>	<b>2009E</b>
<b>Profit &amp; Loss Account</b>								
<b>Sales</b>	<b>43 487.0</b>	<b>42 771.0</b>	<b>42 137.0</b>	<b>39 487.0</b>	<b>44 256.0</b>	<b>42 949.1</b>	<b>45 510.5</b>	<b>46 255.2</b>
% Change		-1.6%	-1.5%	-6.3%	12.1%	-3.0%	6.0%	1.6%
Staff costs	(7 527.0)	(7 530.0)	(6 122.0)	(4 969.0)	(4 900.0)	(4 642.4)	(4 803.2)	(4 767.1)
Other costs	(28 719.0)	(26 765.0)	(27 615.0)	(27 423.0)	(31 495.0)	(30 271.8)	(31 980.4)	(32 396.7)
<b>EBITDA</b>	<b>7 241.0</b>	<b>8 476.0</b>	<b>8 400.0</b>	<b>7 095.0</b>	<b>7 861.0</b>	<b>8 034.9</b>	<b>8 726.9</b>	<b>9 091.4</b>
% Change		17.1%	-0.9%	-15.5%	10.8%	2.2%	8.6%	4.2%
Depreciation	(3 018.0)	(3 130.0)	(2 836.0)	(2 171.0)	(2 141.0)	(1 889.8)	(1 946.5)	(2 004.8)
<b>EBITA</b>	<b>4 223.0</b>	<b>5 346.0</b>	<b>5 564.0</b>	<b>4 924.0</b>	<b>5 720.0</b>	<b>6 145.1</b>	<b>6 780.4</b>	<b>7 086.6</b>
% Change		26.6%	4.1%	-11.5%	16.2%	7.4%	10.3%	4.5%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>4 223.0</b>	<b>5 346.0</b>	<b>5 564.0</b>	<b>4 924.0</b>	<b>5 720.0</b>	<b>6 145.1</b>	<b>6 780.4</b>	<b>7 086.6</b>
Net financial items	(2 246.0)	(2 689.0)	(2 485.0)	(1 581.0)	(2 035.0)	(1 015.0)	(1 001.5)	(1 059.1)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	464.0	(739.0)	444.0	(249.0)	924.0	(184.0)	(180.0)	(180.0)
Tax	(1 367.0)	(1 187.0)	(1 521.0)	(1 086.0)	(982.0)	(1 951.3)	(1 808.2)	(1 888.2)
Associates [contribution]	281.0	205.0	412.0	447.0	386.0	394.5	428.5	446.4
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>1 355.0</b>	<b>936.0</b>	<b>2 414.0</b>	<b>2 455.0</b>	<b>4 013.0</b>	<b>3 389.3</b>	<b>4 219.2</b>	<b>4 405.7</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(305.0)	17.0	(277.0)	(224.0)	(166.0)	(172.6)	(190.3)	(198.9)
<b>Net attributable profit [loss]</b>	<b>1 050.0</b>	<b>953.0</b>	<b>2 137.0</b>	<b>2 231.0</b>	<b>3 847.0</b>	<b>3 216.7</b>	<b>4 028.9</b>	<b>4 206.8</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	0.0	0.0	0.0	0.0	0.0	180.0	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>1 050.0</b>	<b>953.0</b>	<b>2 137.0</b>	<b>2 231.0</b>	<b>3 847.0</b>	<b>3 396.7</b>	<b>4 028.9</b>	<b>4 206.8</b>
% Change		-9.2%	124.2%	4.4%	72.4%	-11.7%	18.6%	4.4%
<b>Cash flow</b>	<b>0.0</b>	<b>923.0</b>	<b>9 803.0</b>	<b>4 716.0</b>	<b>7 135.0</b>	<b>5 409.4</b>	<b>6 518.2</b>	<b>6 697.4</b>
<b>Balance Sheet</b>								
Shareholders' equity [group share]	6 429.0	7 013.0	9 656.0	11 431.0	13 439.0	14 784.6	16 702.9	18 611.5
Minority interests	2 495.0	2 052.0	1 537.0	926.0	672.0	747.4	854.8	961.7
Net debt [cash]	30 719.0	18 470.0	13 742.0	12 522.0	(3 145.0)	(8 961.8)	(9 015.3)	(8 446.9)
Gearing [%]	344.2	203.8	122.8	101.3	NS	NS	NS	NS
<b>Per Share Data (at 6/9/2007)</b>								
EPS before goodwill	1.87	1.70	3.80	3.97	6.84	6.04	7.16	7.48
EPS, reported	1.87	1.70	3.80	3.97	6.84	5.72	7.16	7.48
Goodwill per share	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	1.10	1.25	1.50	1.75	3.50	3.90	4.25	4.50
Cash flow per share	0.00	1.64	17.43	8.39	12.69	9.62	11.59	11.91
Book value per share	10.3	11.2	15.7	18.6	20.4	22.4	25.4	28.6
No. of shares, adjusted	562.400	562.400	562.400	562.400	562.400	562.400	562.400	562.400
Latest price	24.70	31.37	40.70	62.55	83.50	80.23	80.23	80.23
Market capitalisation	13 742.2	17 509.4	22 637.0	34 862.5	46 511.9	44 825.7	44 825.7	44 825.7
Enterprise value	52 546.8	52 250.8	55 721.5	67 492.5	62 604.4	54 912.9	54 942.6	55 425.7
<b>Valuation</b>								
P/E	13.2	18.5	10.7	15.8	12.2	13.3	11.2	10.7
P/E before goodwill	13.2	18.5	10.7	15.8	12.2	13.3	11.2	10.7
P/CF	NS	19.1	2.3	7.5	6.6	8.3	6.9	6.7
Attrib. FCF yield [%]	NS	NS	20.4	2.2	34.7	2.3	4.0	4.1
P/BV	2.4	2.8	2.6	3.4	4.1	3.6	3.2	2.8
Enterprise value / Op CE	0.9	0.9	1.1	1.3	1.6	1.6	1.5	1.4
Yield [%]	4.5	4.0	3.7	2.8	4.2	4.9	5.3	5.6
EV/EBITDA, restated	7.3	6.2	6.6	9.5	8.0	6.8	6.3	6.1
EV/EBITA, restated	12.4	9.8	10.0	13.7	10.9	8.9	8.1	7.8
EV/Sales	1.21	1.22	1.32	1.71	1.42	1.28	1.21	1.20
EV/Debt-adjusted cash flow	43.4	24.9	4.7	11.0	6.9	8.7	7.3	7.2
<b>Return [%]</b>								
Pre-tax RoCE	7.4	9.2	10.8	9.6	14.5	17.9	18.2	17.6
ROE [%]	17.8	14.6	24.9	21.6	33.4	24.4	27.4	25.5
Return on equity, restated	17.8	14.6	24.9	21.6	33.4	26.0	27.4	25.5

## Scottish & Southern Energy

Not covered

### A balanced strategy for a balanced generation portfolio

#### *ETS compliance costs*

**Energy mix:** Median carbon intensity of 525kg of CO<sub>2</sub> per MWh over 2001-2007 thanks to a balanced energy mix with gas, coal/biomass, hydro and the ramp-up of wind capacity (no nuclear). **Country exposure:** The group is fully exposed to tight UK emissions caps, but has a cap constraint lower than the average in the UK. **Capacity to charge carbon costs:** As gas sets the price in the UK, we assume that about 40% of the EUA price is integrated into wholesale electricity prices. The retail market is opened up, and we believe that the relatively high level of competition on the UK market prevents the full carbon opportunity cost from being passed on to retail clients. At least current ETS compliance costs can be passed on.

#### *Strategy to reduce CO<sub>2</sub> emissions*

**Target:** The group announced a 20% reduction **target in carbon intensity** of the power generation business by 2016, which means a carbon factor of **under 496kg/MWh**, which represents an average reduction of just 0.6% p.a. based on average carbon factors since 2001. If the group achieves its announced balanced strategy of improving thermal efficiency, delivering more renewable energy, developing CCS and investing in Kyoto flexible mechanisms, we would expect this target to be beaten easily. **Capex:** R&D: GBP10m is to be invested in a fund for development of sustainable technologies, in addition to the GBP6m already committed. Involvement in off-shore deep-water wind projects (5MW turbine) and an underwater tidal turbine demonstrator. A joint project with BP on a CCS pilot plant. **SSE targets 1GW of wind and hydro generation capacity by 2010 (i.e. an additional 260MW).** Investments are being made to improve the efficiency of thermal plants.

*Participation in CDM/JI projects: **To date, the group is involved in only one CDM project (at least at the validation stage). In a recent statement, the groups said it had secured 2m CERs from wind power projects in China.***

**Support for energy savings:** Under the EEC, the group is required to comply with energy savings targets. SSE offers energy services that help customers implement energy savings. The group claims that it thus participated **in saving 7,125GWh in 2007**, 45.8% more than in 2006, through the insulation of 229,000 homes, subsidies for 560,000 low-energy lamps and subsidies for 23,400 energy-efficient appliances.



**Company profile**

SSE's main businesses are the generation, transmission, distribution and supply of electricity; storage and supply of gas; electrical and utility contracting; domestic appliance retailing and telecoms.

SSE serves more than 150 sites across the United Kingdom. The company's primary segments are the distribution and transmission of electricity in the north of Scotland, the distribution of electricity in the south of England (together referred to as Power Systems), the generation and supply of electricity, and sale of gas in the UK (Generation and Supply).

SSE also has a 50% stake Scotia Gas Networks plc, which distributes gas in Scotland and the south of England. The company owns Southern Electric Power Distribution, Scottish Hydro Electric Power Distribution and Scottish Hydro Electric Transmission.

On 31 March 2006, the company disposed of its interest in Thermal Transfer Limited.

**Valuation**

Stock not covered.

**Investment case**

Stock not covered.

**SWOT analysis****Strengths**

- A balanced portfolio of power generation capacities composed of gas, coal/biomass, hydro and wind.
- Lower deficit in emissions allowances than average UK operator.

**Weaknesses**

- Year-on-year volatility of CO<sub>2</sub> emissions (gas vs. coal prices) may make hedging with forward contracts more difficult.
- 100% exposure to the UK's stringent emission caps.

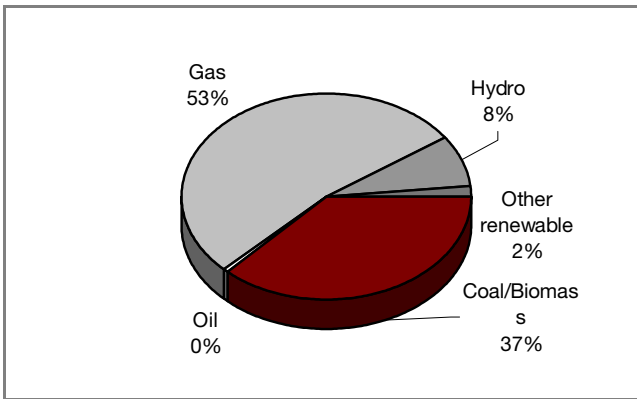
**Opportunities**

- Development of hydro and wind generation capacities in the UK.
- Partnership for the development of 600MW of wind power in Scotland.

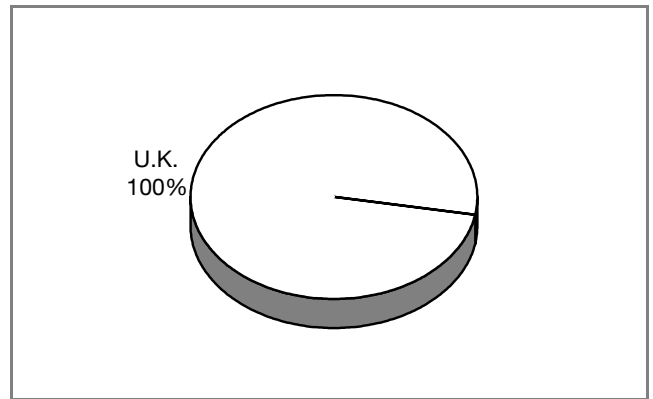
**Threats**

- Hike in gas prices would make the company more reliant on coal, and increase EU ETS compliance costs

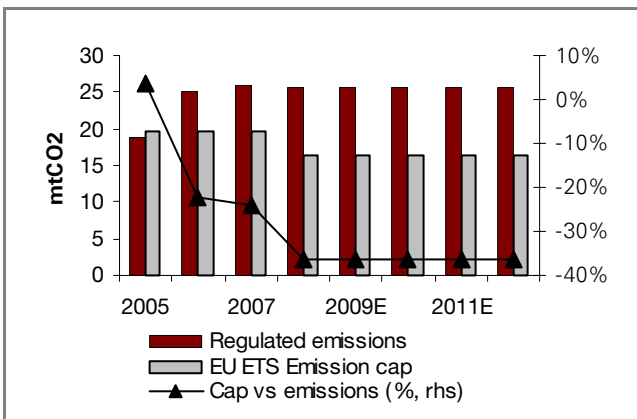
Energy mix – power generation (2006)



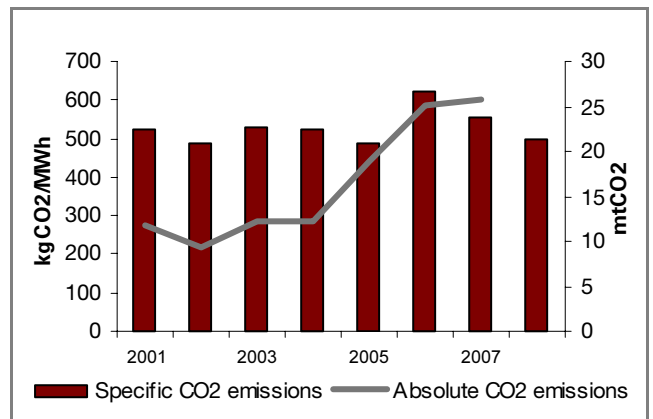
Country breakdown (GWh generated)



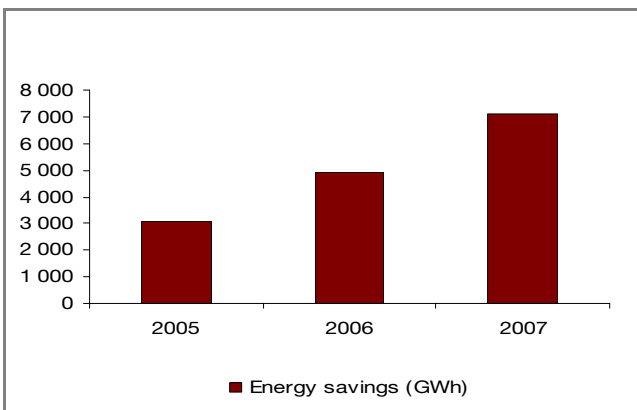
Emissions allowances vs. emissions (2005-2012E)



Trends in absolute/specific emissions (2000-2010E)



Energy savings achieved on demand side





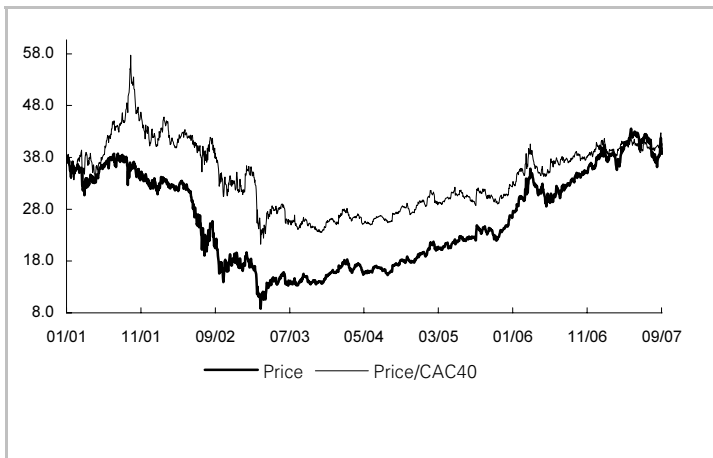
**Suez (EUR39.08)**

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +20.3% EUR47

Benoit Trochu, Damien De Saint-Germain

To 31/12 (EUR) - IFRS	2006	2007E	2008E	2009E
Sales (m)	44,289.0	47,507.0	51,377.0	54,638.0
Net att. profit, rest. (m)	2,625.0	2,929.0	3,421.0	3,956.0
Free Cash Flow (m)	2,121.0	2,433.0	1,318.0	2,088.0
EBITDA margin (%)	14.0	15.0	15.6	16.2
Clean EPS	2.05	2.35	2.77	3.21
Reported EPS	2.83	2.48	2.73	3.16
P/E (x)	19.1	16.6	14.1	12.2
Attrib. FCF yield (%)	4.0	4.6	2.5	3.9
EV/EBITDA (x)	10.1	9.0	8.1	7.3
EV/EBIT (x)	13.9	11.9	10.4	9.2
ROCE (%)	12.3	14.3	15.4	16.3
ROE (%)	20.4	17.3	17.3	18.3
P/BV (x)	2.8	2.7	2.5	2.3
Net debt/EBITDA (x)	1.7	1.8	1.7	1.5
Net dividend	1.20	1.30	1.45	1.50
Yield (%)	3.1	3.3	3.7	3.8



Market capitalisation	EUR48,944m	CAC40	5576.62		1 month	3 months	12 months
No. of shares, adjusted	1,252.396m	Reuters	LYOE.PA	Absolute perf.	4.3%	-5.3%	16.2%
Daily volume	EUR277.09m	Bloomberg	SZE FP	Relative perf.	2.2%	1.2%	6.6%

Shareholders: Free float 75.5%, GBL 9.2%, Employees 3.9%, Credit Agricole 3.4%, CDC 3.2%, Cogema 2.3%, CNP Assurances 1.7%, Treasury Stock 1.3%, Caixa 0.0%

**CO<sub>2</sub> is not the main concern**

**Low exposure to carbon constraints: a favourable energy production mix**

**Energy mix:** Suez benefits from a very positive production mix in terms of CO<sub>2</sub> exposure: 39% is CO<sub>2</sub> free (nuclear, hydro and renewables), 43% is generated with gas and 18% with fuel oil and coal. **Country exposure:** Suez has 36% of its installed capacity in the Benelux, 44% outside Europe and 10% in France. Outside Europe, Suez is currently not affected by CO<sub>2</sub> issues. The outcome of a "Kyoto 2" Protocol, if any, could be a threat after 2012, if large emerging countries in which the group operates (e.g. Brazil, Mexico) accept mandatory GHG emission reductions. **Capacity to charge carbon costs:** in Europe: 1) for retail (24% of sales), prices are indexed on a basket reflecting the energy mix and the production cost trend, but not reflecting CO<sub>2</sub> costs; 2) for wholesale (13% of sales), CO<sub>2</sub> costs are continually priced in; and 3) for business and resellers (63% of sales), prices are based on market prices at inception, which prevents Suez from passing on CO<sub>2</sub> cost increases during the life of the contract (one to three years).

**Development in renewables and a European leader in solutions to improve energy efficiency**

**Capex:** Possible extension of the Belgian nuclear power plants. Development of renewable energies (1,500MW in development or construction in wind power). Acquisition of a Canadian wind power producer that has a project pipeline of 2,000MW. Other developments in biomass, biogas and geothermic energy. **Energy savings:** SES proposes commercial offers to help its clients optimise their energy efficiency. **CDM:** SEI will continue to develop CDM projects. Electrabel is listed as a buyer in two CDM projects (one HFC and one landfill gas).

**Recommendation:** For the SEE division (43% of total EBITDA), the impact of change in CO<sub>2</sub> costs is at least neutral on the group's margins and potentially positive if the group successfully sells all its electricity at market prices while 39% of its production capacity in Europe is CO<sub>2</sub> free. The SEI division (22% of total EBITDA), as well as the energy services and environment business, is not affected by CO<sub>2</sub> issues.

## Company profile

Suez has announced its merger with Gaz de France, which will take effect sometime in H1 2008, after approval by both companies' EGMs. The new group will be the leader in natural gas in Europe (No. 1 purchaser and supplier and transmission and distribution network, No.2 storage operator), the No. 5 producer of electricity and the world leader in LNG. Suez Environment activities (water and waste management) will be spun off and listed with GDF-Suez as a 35% shareholder. The French State will hold a 36% stake in the merged entity, GDF-Suez.

Suez owns 100% of Electrabel, one of the main producers and distributors of electricity in Europe, which benefits from an installed base that is both competitive (nuclear and hydro power) and flexible (base-load and peak-load demand). Outside Europe, Suez's energy activities are grouped together within Suez Energy International (SEI).

In the environment branch, Suez has reduced its exposure by gradually exiting Latin America and is resuming its investment programme in Europe. At the group level, Suez has announced a EUR20bn investment programme over four years, one-third of which for the environment division.

After the refocusing moves, the disposal of its financial investments, the acquisition of Electrabel and the capital increase, Suez has returned to a sound financial structure, with gearing of 50%.

## Investment case

The Gaz de France – Suez merger has a strong industrial rationale, with the constitution of a group with a balanced production mix, a leadership position and the possibility to fully play the gas/electricity convergence.

The merger is expected to generate synergies amounting to EUR1.0bn.

On the other hand, Suez will divest from its environmental activities while peers in the sector benefited from a strong re-rating over the period 2001-2007 (EV/EBITDA of year y+1 increasing from 5.0x to 8.5x).

The new group will be underleveraged (Net debt/EBITDA of 1.4x), which will provide some flexibility for strong developments, a generous payout ratio together with share buyback programmes and/or exceptional dividends.

## Valuation

Our valuation of Suez is based on the completion of the merger with Gaz de France.

The financial terms of the announced merger are: 22 Suez shares for 21 Gaz de France shares plus 0.65 of a Suez Environnement share.

Our SOP valuation of GDF-Suez stands at EUR42 per share, leading to a valuation of Suez of EUR47:

- EUR40 from GDF-Suez;
- EUR7 from Suez Environnement.

Our valuation is based on the following assumptions: 1) discounted synergies of EUR760m (EUR1.0bn to be implemented over the period 2008-2013), an enterprise value of Suez Environnement of EUR21.7bn and stand-alone "intrinsic" valuations of Suez and GDF of EUR43 and EUR38 per share, respectively.

## SWOT analysis

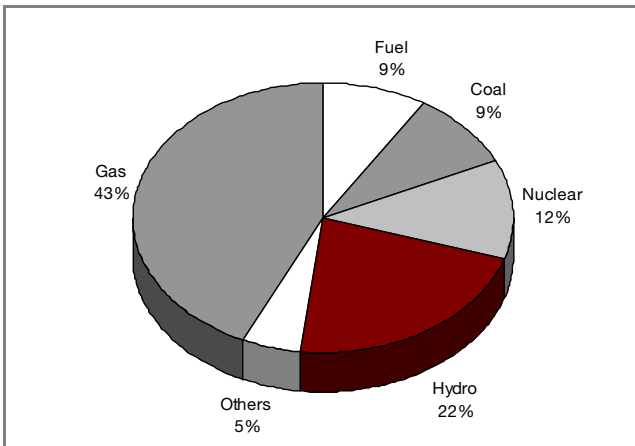
**Strengths:** Efficient production mix with limited exposure to CO<sub>2</sub>. Suez is the world leader in CCGTs, using gas which generates the lowest GHG emissions amongst fossil fuels. Finally, part of Elyo's business is to help its clients reduce CO<sub>2</sub> emissions.

**Weaknesses:** Suez sells some of its electricity under regulated tariffs, which do not reflect CO<sub>2</sub> prices.

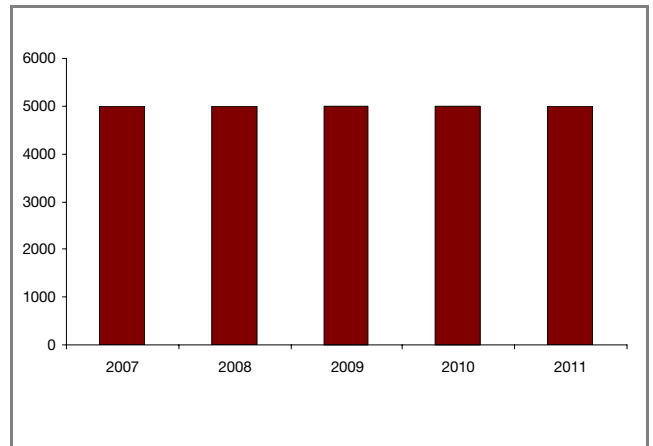
**Opportunities:** Suez might benefit from an increase in CO<sub>2</sub> prices if it succeeds in increasing its exposure to market prices.

**Threats:** In waste management, the landfill treatment method is at risk of being considered a significant CO<sub>2</sub> emitter. Uncertainty risks due to the EU ETS, especially for the development of new power plants and installations with an operating lifetime of 40 years or more. The emerging markets in which Suez operates could apply a GHG reduction scheme after 2012.

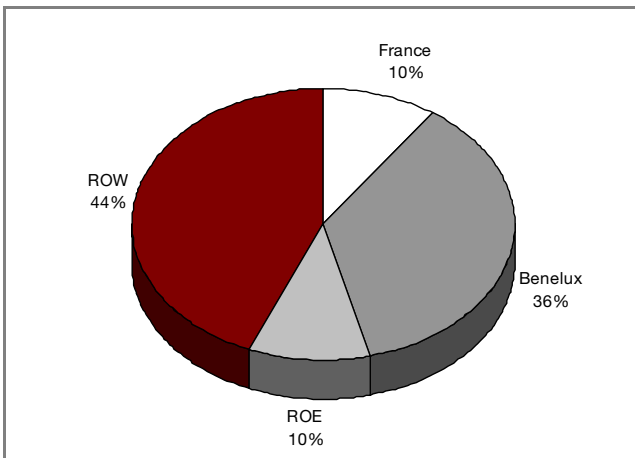
**Energy mix – power generation (2006)**



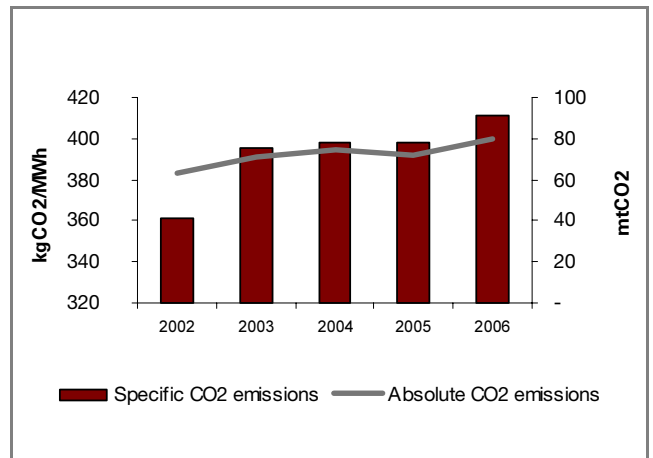
**Investment plan – power capacities (MW)**



**Country breakdown (MW installed)**



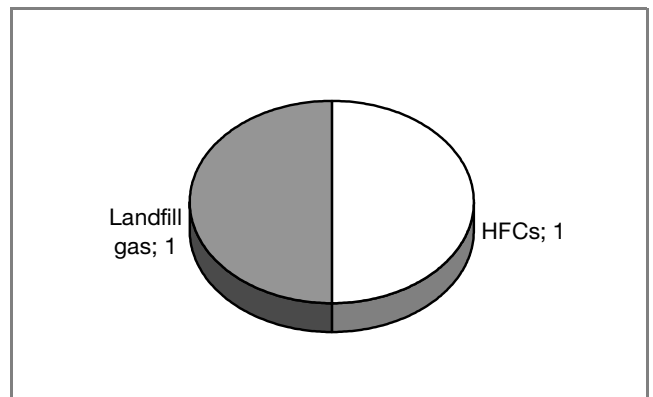
**Trends in absolute/specific emissions (2002-2006)**



**Emissions allowances vs. absolute emissions (2005-2012E)**

The group does not communicate on its post-2007 quota position.

**Participation in Kyoto projects (Electrabel)**



Suez	IFRS				IFRS					
	FY to 31/12 (Euro m)	2002	2003	2004	2004	2005E	2006E	2007E	2008E	2009E
<b>Profit &amp; Loss Account</b>										
<b>Sales</b>	<b>40 784.0</b>	<b>39 622.0</b>	<b>40 739.0</b>	<b>38 058.0</b>	<b>41 490.0</b>	<b>44 289.0</b>	<b>46 949.0</b>	<b>50 470.0</b>	<b>53 626.0</b>	
% Change	6.1%	-2.8%	2.8%		9.0%	6.7%	6.0%	7.5%	6.3%	
Staff costs	9 295.0	8 236.0	7 636.0	7 832.0	0.0	0.0	0.0	0.0	0.0	
Other costs	(43 235.0)	(42 123.0)	(42 441.0)	(40 515.9)	(36 036.5)	(38 091.0)	(39 907.0)	(42 655.0)	(44 972.0)	
<b>EBITDA</b>	<b>6 844.0</b>	<b>5 735.0</b>	<b>5 934.0</b>	<b>5 374.1</b>	<b>5 453.5</b>	<b>6 198.0</b>	<b>7 042.0</b>	<b>7 815.0</b>	<b>8 654.0</b>	
% Change	-4.5%	-16.2%	3.5%		1.5%	13.7%	13.6%	11.0%	10.7%	
Depreciation	(3 071.0)	(2 522.0)	(2 333.0)	(1 637.0)	(1 702.0)	(1 685.0)	(1 730.0)	(1 760.0)	(1 795.0)	
<b>EBITA</b>	<b>3 773.0</b>	<b>3 213.0</b>	<b>3 601.0</b>	<b>3 737.1</b>	<b>3 751.5</b>	<b>4 513.0</b>	<b>5 312.0</b>	<b>6 055.0</b>	<b>6 860.0</b>	
% Change	-7.2%	-14.8%	12.1%		0.4%	20.3%	17.7%	14.0%	13.3%	
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	
Goodwill amortisation [impairment test]	0.0	0.0	0.0	(268.2)	(657.9)	(150.0)	(100.0)	0.0	0.0	
Non recurring operational items	0.0	0.0	0.0	71.1	1 428.4	1 004.0	177.0	0.0	0.0	
<b>EBIT</b>	<b>3 773.0</b>	<b>3 213.0</b>	<b>3 601.0</b>	<b>3 540.0</b>	<b>4 522.0</b>	<b>5 367.0</b>	<b>5 389.0</b>	<b>6 055.0</b>	<b>6 860.0</b>	
Net financial items	(976.0)	(880.0)	(675.0)	(1 079.0)	(725.0)	(731.0)	(679.0)	(880.0)	(940.0)	
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Other exceptional items	(1 849.0)	(2 765.0)	956.0	0.0	0.0	0.0	0.0	0.0	0.0	
Tax	(657.0)	(721.0)	(937.0)	(926.0)	(585.0)	(815.0)	(1 343.0)	(1 501.0)	(1 717.0)	
Associates [contribution]	51.0	166.0	(56.0)	277.0	566.0	373.0	380.0	390.0	400.0	
Discontinuing activities	0.0	0.0	0.0	716.4	0.0	0.0	0.0	0.0	0.0	
Goodwill amortisation	(384.0)	(236.0)	(221.0)	0.0	0.0	0.0	0.0	0.0	0.0	
<b>Net profit [loss] before minorities</b>	<b>(41.0)</b>	<b>(1 357.0)</b>	<b>2 668.0</b>	<b>2 528.0</b>	<b>3 777.0</b>	<b>4 194.0</b>	<b>3 747.0</b>	<b>4 064.0</b>	<b>4 603.0</b>	
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Minorities	(822.0)	(809.0)	(864.0)	(831.0)	(1 264.0)	(588.0)	(602.0)	(672.0)	(672.0)	
<b>Net attributable profit [loss]</b>	<b>(863.0)</b>	<b>(2 166.0)</b>	<b>1 804.0</b>	<b>1 697.0</b>	<b>2 513.0</b>	<b>3 606.0</b>	<b>3 145.0</b>	<b>3 392.0</b>	<b>3 931.0</b>	
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Adj. for exceptional items	1 735.0	2 912.0	(697.0)	(514.0)	(1 101.0)	(981.0)	(210.0)	0.0	0.0	
<b>Net attrib. profit [loss], restated</b>	<b>1 256.0</b>	<b>982.0</b>	<b>1 328.0</b>	<b>1 183.0</b>	<b>1 412.0</b>	<b>2 625.0</b>	<b>2 935.0</b>	<b>3 392.0</b>	<b>3 930.0</b>	
% Change	-10.0%	-21.8%	35.2%		19.4%	85.9%	11.8%	15.6%	15.9%	
<b>Cash flow</b>	<b>4 857.0</b>	<b>3 727.0</b>	<b>4 486.0</b>	<b>4 290.0</b>	<b>4 550.0</b>	<b>5 347.0</b>	<b>5 299.0</b>	<b>5 784.0</b>	<b>6 371.0</b>	
<b>Balance Sheet</b>										
Shareholders' equity [group share]	10 578.0	6 896.0	7 923.0	7 923.0	16 511.0	19 504.0	19 689.0	21 453.0	23 568.0	
Minority interests	5 191.0	4 847.0	4 771.0	5 086.0	2 578.0	3 060.0	3 312.0	3 634.0	3 957.0	
Net debt [cash]	26 006.0	14 991.0	11 515.0	11 695.0	14 227.0	10 780.0	12 918.0	13 725.0	13 955.0	
Gearing [%]	164.9	127.7	90.7	89.9	74.5	47.8	56.2	54.7	50.7	
<b>Per Share Data (at 3/9/2007)</b>										
EPS before goodwill	1.26	0.97	1.31	1.17	1.38	2.05	2.36	2.75	3.19	
EPS, reported	(0.86)	(2.15)	1.78	1.67	2.46	2.83	2.49	2.71	3.14	
Goodwill per share	0.39	0.23	0.22	0.00	0.00	0.00	0.00	0.00	(0.00)	
Dividend per share	0.71	0.71	0.80	0.80	1.00	1.20	1.30	1.45	1.50	
Cash flow per share	4.89	3.67	4.42	4.23	4.43	4.17	4.25	4.69	5.16	
Book value per share	9.8	6.1	7.0	7.0	15.2	14.1	14.4	15.7	17.3	
No. of shares, adjusted	1007.422	1007.680	1020.465	1020.465	1020.465	1277.444	1252.396	1252.396	1252.396	
Latest price	16.54	15.93	19.62	19.62	26.30	39.23	40.36	40.36	40.36	
Market capitalisation	16 662.8	16 052.3	20 021.5	20 021.5	26 838.2	49 343.5	50 546.7	50 546.7	50 546.7	
Enterprise value	51 292.1	40 880.8	42 115.9	38 232.7	42 459.8	62 637.2	66 076.0	66 883.0	67 113.0	
<b>Valuation</b>										
P/E	18.9	21.5	17.9	16.8	19.1	19.1	17.1	14.7	12.7	
P/E before goodwill	13.1	16.4	15.0	16.8	19.1	19.1	17.1	14.7	12.7	
P/CF	3.4	4.3	4.4	4.6	5.9	9.4	9.5	8.6	7.8	
Attrib. FCF yield [%]	2.8	6.7	7.1	6.6	10.5	4.0	4.3	2.1	3.5	
P/BV	1.7	2.6	2.8	2.8	1.7	2.8	2.8	2.6	2.3	
Enterprise value / Op CE	1.3	1.4	1.5	1.4	1.2	1.7	1.8	1.7	0.3	
Yield [%]	4.3	4.5	4.1	4.1	3.8	3.1	3.2	3.6	3.7	
EV/EBITDA, restated	7.5	7.1	7.1	7.1	7.8	10.1	9.4	8.6	7.8	
EV/EBITA, restated	13.6	12.7	11.7	10.2	11.3	13.9	12.4	11.0	9.8	
EV/Sales	1.26	1.03	1.03	1.01	1.02	1.41	1.41	1.33	1.25	
EV/Debt-adjusted cash flow	8.5	6.9	6.2	5.4	7.8	9.9	10.7	9.8	9.0	
<b>Return [%]</b>										
Pre-tax RoCE	9.2	10.7	13.2	13.5	10.7	12.3	14.0	14.9	15.8	
ROE [%]	NS	NS	25.7	24.0	16.5	20.4	17.4	17.2	18.2	
Return on equity, restated	8.6	11.4	15.0	16.1	8.9	14.4	16.1	17.2	18.2	

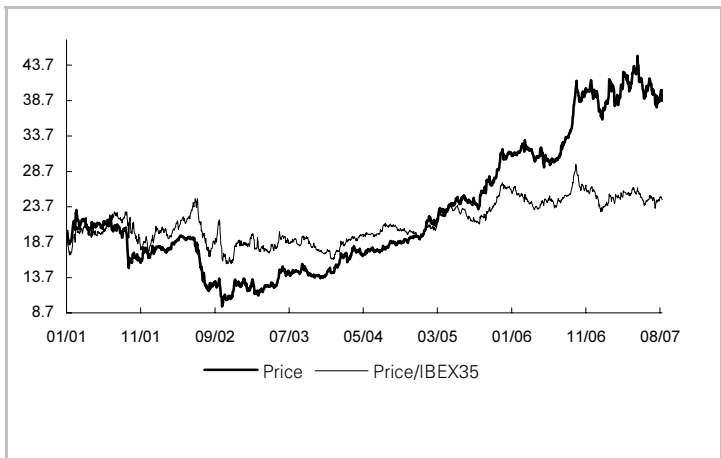
**Union Fenosa (EUR38.64)**

Electricity Utilities - 6 September 2007

Rating: 2/Outperform - Target price: +29.4% EUR50

Fernando Lafuente, José Ramon Ocina

To 31/12 (EUR)	2006	2007E	2008E	2009E
Sales (m)	6,056.7	5,647.2	6,314.0	6,837.4
Net att. profit, rest. (m)	623.3	732.4	850.4	979.9
Free Cash Flow (m)	0.7	312.0	479.2	630.8
EBITDA margin (%)	31.5	37.3	36.4	36.9
Clean EPS	2.05	2.40	2.79	3.22
Reported EPS	2.09	2.80	2.79	3.22
P/E (x)	18.3	16.1	13.8	12.0
Attrib. FCF yield (%)	0.0	2.7	4.1	5.4
EV/EBITDA (x)	9.3	8.6	7.8	7.0
EV/EBIT (x)	13.6	12.4	11.1	9.8
ROCE (%)	12.6	13.5	14.4	15.5
ROE (%)	15.3	18.6	16.7	17.7
P/BV (x)	2.7	2.5	2.3	2.1
Net debt/EBITDA (x)	3.2	2.9	2.6	2.3
Net dividend	1.00	1.20	1.45	1.74
Yield (%)	2.7	3.1	3.8	4.5



Market capitalisation	EUR11,774m	IBEX35	14198.4	1 month	3 months	12 months
No. of shares, adjusted	304.68m	Reuters	UNF.MC	Absolute perf.	-2.8%	-8.8%
Daily volume	EUR43.72m	Bloomberg	UNF SM	Relative perf.	-1.2%	-4.8%

Shareholders: ACS 40.5%, Estimated free float 34.5%, Caixa Galicia 10.3%, C.A.M. 5.2%, Caixanova 5.0%, Banco Pastor 3.8%, Manuel Jove 0.7%

**Highly exposed, but the whole electricity system in Spain covers the costs****Higher ETS compliance costs ahead, poorly recovered due to persistence of regulated tariffs**

**Energy mix:** Union Fenosa has relatively high CO<sub>2</sub>-intensity in Europe (514kgCO<sub>2</sub>/MWh in 2006) due to high share of thermal power capacity in the power generation portfolio. CCGT and coal account for 45% and 24% respectively of electricity generated. Absolute CO<sub>2</sub> emissions stabilised in 2006 whilst production increased 11%. **Country exposure:** Union Fenosa has 33% exposure to Latin America countries, which reduces the group's overall exposure to the EU ETS carbon constraint. This is also an opportunity to implement internal Kyoto projects to generate carbon credits. However, it is offset by 67% exposure to Spain, which is severe in terms of utilities' emissions. We expect ETS compliance costs to be **around EUR140m p.a.** in the coming years. Overall the group should be around 7mt (43%) short of CO<sub>2</sub> allowances each year in Phase II. **Capacity to charge carbon costs:** the Spanish retail market is still dominated by low regulated tariffs that hamper the ability to pass CO<sub>2</sub> costs on to customers. We do not expect regulated tariffs to end before 2010 though. Beyond that, a price liberalisation scenario in Spain would be a positive sign for Union Fenosa.

**Towards a more efficient energy mix**

**An investment plan aimed at reducing carbon emissions by 760,000 tonnes of CO<sub>2</sub> equivalent by 2010.** The main goal of Union Fenosa's strategy with regard to the Kyoto Protocol is to reduce CO<sub>2</sub> emitted by coal-fired plants by 5% in 2010 compared to 1990 and 27% compared to 2004. The second main objective is a 40% reduction by 2010 in specific emissions produced by thermal generation in Spain and 20% for the production mix compared to 1990. **Capex:** Union Fenosa announced that the group will invest EUR1.65bn in developing renewable energy generation capacity in Latin America, with new wind power and hydroelectric installations. Its strategy is also based on developing clean coal technology and the group is considering sites for building a 1.2GW Supercritical PCC plant, with high thermal efficiency (up to 45%; i.e., 10pts higher than existing plants). This plant will be ready to integrate a Carbon Capture and Storage unit at later date. New combined cycle plants (CCGT) are planned. **CDM projects:** Union Fenosa has four projects registered with the United Nations with regard to CDMs: these projects concern hydraulic power plants (construction or rehabilitation) and allow for a reduction in emissions of around 100,000 tonnes of CO<sub>2</sub>. The objective is to reduce greenhouse gases in developing countries by 760,000 tonnes between now and 2010.

**Recommendation:** Despite relatively high CO<sub>2</sub> exposure, the impact is likely to be neutral. Indeed, in the event of a shortfall in revenues, all is not lost as the Spanish government allows utilities to securitise this, and they eventually receive this money. Further advances in the price liberalisation process would have a positive impact on Union Fenosa.



## Company profile

Union Fenosa is the third-largest power company in **Spain**, with installed capacity of 7,450MW in Spain (15% market share), and 2,770MW abroad (Colombia and Mexico). It has a 17% market share in distribution in Spain, and presence in Colombia and Central America. The group also has a gas business, with contracts in Egypt and Oman and liquefaction and regasification plants.

The electricity business in Spain represents 56% of EBITDA 2007E, while the international business accounts for 26% and gas for the remaining 17.5%.

The company recently presented a **new strategic plan for 2007-11**, with an operating target of a **8.7% EBITDA CAGR 2007-2011E**, in line with our estimates. **We are looking for** a CAGR 2006-2009E of 9.8% at EBITDA level, driven by the electricity business in Spain and LatAm, with a 11% and 10% EBITDA CAGR 2006-2009E respectively.

**Financial structure:** Net debt/EBITDA 2007E is expected to be 2.9x, with total net debt of EUR6.2bn, including EUR750m in preference shares. We think this multiple will fall to 2.3x in 2009E. The company has equity holdings worth EUR1.5bn after tax.

**Shareholding structure:** ACS (40.5%), followed by Caixa Galicia (10.3%), CAM (5.2%) and Caixanova (5.0%) and others (4.5%). Free float of 34.5%.

## Investment case

Union Fenosa is attractive valuation-wise, will deliver good and long-term growth, and we see limited downside for the share considering its undemanding multiples and speculative appeal. Accordingly, **we have a 2/Outperform rating on the stock.**

– **Impact: compliance costs**

**Compliance costs from 2008 to 2012 are likely to be around EUR140m p.a.**, based on EUA=EUR20/tonne; CER/ERU= EUR10/t)

**Post 2012 ETS compliance costs could be up to EUR550m p.a.** in a full auctioning scenario (i.e. group buys as many CO<sub>2</sub> allowances as they emit); at EUR30/tonne

– **Pricing power environment:** ability to pass on CO<sub>2</sub> costs should increase in a price deregulation scenario in Spain. We do not expect regulated tariffs to end before 2010 though.

## Valuation

Our target price of **EUR50 offers 29% upside**. We have used a SOTP, which breaks down as follows:

**Domestic electricity business:** EUR14bn, **Gas division:** EUR3.6bn, **International business:** EUR3.8bn, **Listed holdings:** EUR1.5bn, **Other stakes:** EUR640m. **Net debt** stands at EUR6.2bn. minorities at EUR1.2bn and contingencies at EUR808m.

### Valuation sensitivity to CO<sub>2</sub>

If emission allowances trade at around EUR20/tonne, then in 2008-2012, the negative impact on net profit (i.e., after tax) for Union Fenosa would be around EUR80m (around 8-10% of the total) if they are not able to pass the cost on to consumers (worst-case scenario).

- Based on the same assumptions, if the cost is fully passed on to clients, there would be a positive impact on net profit (due to windfall profits) of around EUR200m, or around 20% of total.
- Post 2012, assuming no free allocation of allowances, the net negative impact on net profit would be EUR180m p.a., if costs are not passed on to clients. In the event of full pass-through, the net positive impact would be EUR150m p.a.
- Impact on our target price: a negative ca. EUR7-8 per share if the group is unable to pass costs on to clients; a positive EUR5-6 per share impact under a full price deregulation scenario.

## SWOT analysis

### Strengths

- 1) Integrated electricity operator.
- 2) Low-priced gas and coal supplies.
- 3) Presence in high growth regional markets (Madrid).
- 4) Leveraged to growth in LatAm.

### Weaknesses

- 1) Small size in the Spanish market.
- 2) Volatility from its gas division.
- 3) Below-average quality generation assets in Spain.
- 4) Forex risk (LatAm currencies and USD).

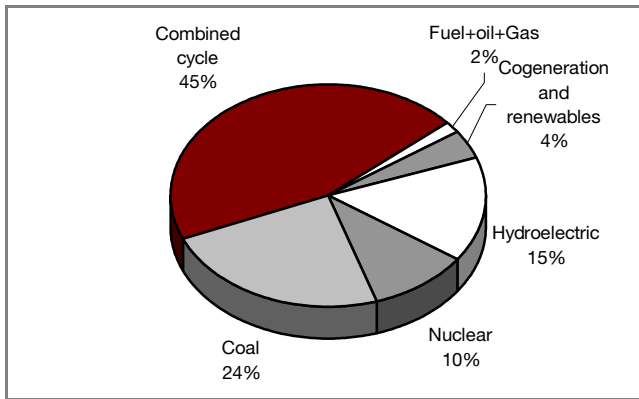
### Opportunities

- 1) Consolidation in Iberian energy market.
- 2) Pipeline for new generation capacity in Spain.
- 3) New gas projects in Egypt.
- 4) Increased exposure to renewable energy.

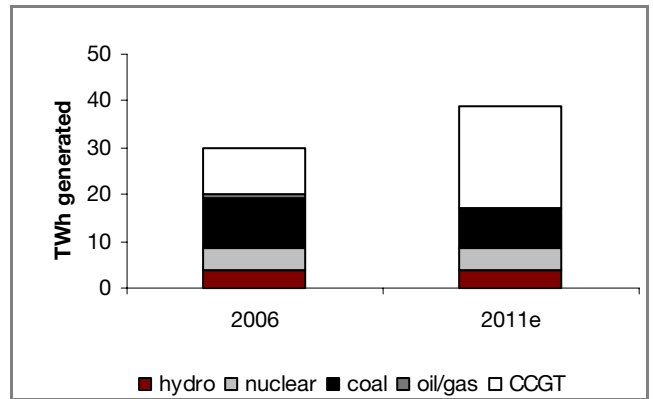
### Threats

- 1) Regulatory interventionism in Spain.
- 2) Political risk in LatAm and North Africa.

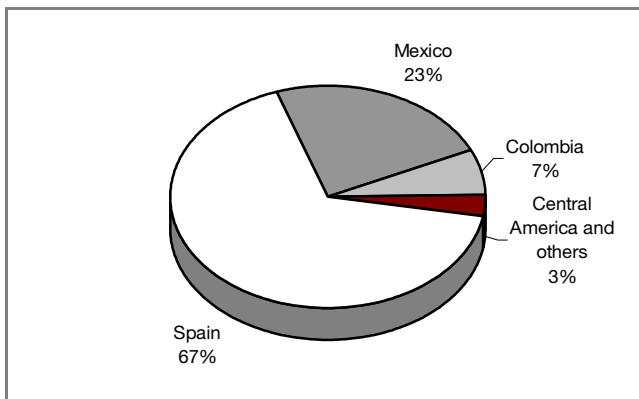
Energy mix – power generation (2006)



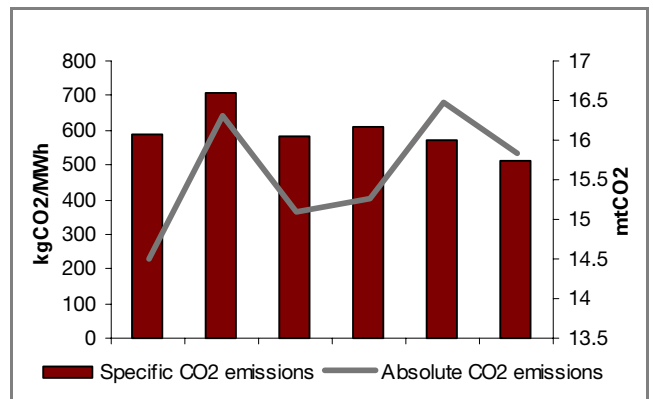
Investment plan – Power capacity



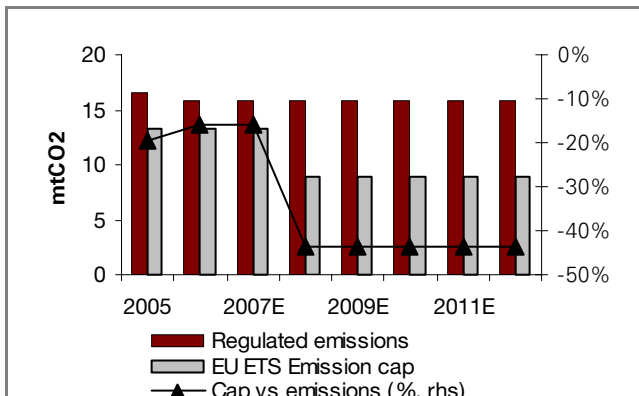
Country breakdown (GWh generated)



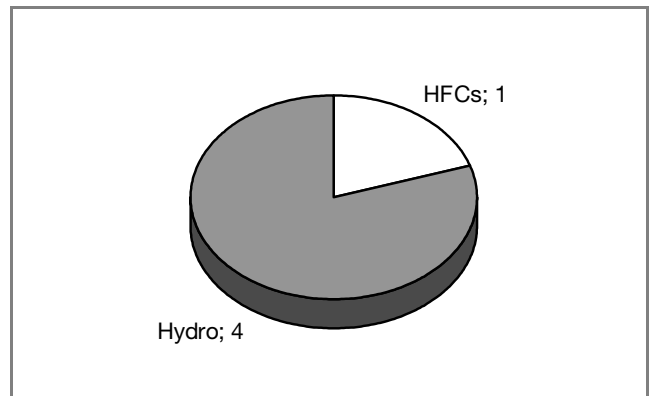
Trend in absolute/specific emissions (2001-2006)



Emission allowances vs. absolute emissions (2005-2012E)



Participation in Kyoto projects (no. of projects by type)



Union Fenosa									
FY to 31/12 (Euro m)	2001	2002	2003	2004	2005	2006	2007E	2008E	2009E
<b>Profit &amp; Loss Account</b>									
<b>Sales</b>	<b>5 496.1</b>	<b>5 922.3</b>	<b>5 631.7</b>	<b>4 471.8</b>	<b>6 098.8</b>	<b>6 056.7</b>	<b>5 647.2</b>	<b>6 314.0</b>	<b>6 837.4</b>
% Change	30.2%	7.8%	-4.9%	-20.6%	36.4%	-0.7%	-6.8%	11.8%	8.3%
Staff costs	(742.3)	(731.0)	(664.6)	(567.9)	(687.9)	(643.1)	(386.6)	(399.1)	(415.9)
Other costs	(3 659.1)	(3 914.1)	(3 665.7)	(2 670.9)	(3 933.6)	(3 506.8)	(3 155.1)	(3 616.8)	(3 895.5)
<b>EBITDA</b>	<b>1 094.7</b>	<b>1 277.3</b>	<b>1 301.4</b>	<b>1 233.0</b>	<b>1 477.3</b>	<b>1 906.8</b>	<b>2 105.6</b>	<b>2 298.1</b>	<b>2 526.0</b>
% Change	20.2%	16.7%	1.9%	-5.3%	19.8%	29.1%	10.4%	9.1%	9.9%
Depreciation	(463.8)	(567.4)	(525.6)	(470.0)	(553.4)	(600.0)	(635.7)	(679.2)	(720.2)
<b>EBITA</b>	<b>630.9</b>	<b>709.9</b>	<b>775.8</b>	<b>763.0</b>	<b>923.9</b>	<b>1 306.8</b>	<b>1 469.9</b>	<b>1 618.9</b>	<b>1 805.8</b>
% Change	19.1%	12.5%	9.3%	-1.6%	21.1%	41.4%	12.5%	10.1%	11.5%
Goodwill amortisation before OP	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non recurring operational items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>EBIT</b>	<b>630.9</b>	<b>709.9</b>	<b>775.8</b>	<b>763.0</b>	<b>923.9</b>	<b>1 306.8</b>	<b>1 469.9</b>	<b>1 618.9</b>	<b>1 805.8</b>
Net financial items	(355.8)	(353.5)	(327.8)	(273.6)	(434.2)	(356.2)	(328.5)	(337.5)	(328.9)
Non recurring financial items	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other exceptional items	66.0	(99.4)	(64.5)	8.4	584.3	14.2	148.0	0.0	0.0
Tax	(33.2)	103.2	(1.3)	(105.1)	(252.8)	(316.7)	(406.2)	(396.6)	(456.6)
Associates [contribution]	(72.0)	(73.7)	22.4	8.8	13.5	10.6	10.5	10.4	10.3
Discontinuing activities	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Goodwill amortisation	73.4	33.4	(22.7)	0.0	0.0	0.0	0.0	0.0	0.0
<b>Net profit [loss] before minorities</b>	<b>309.3</b>	<b>319.8</b>	<b>381.9</b>	<b>401.5</b>	<b>834.7</b>	<b>658.7</b>	<b>893.7</b>	<b>895.3</b>	<b>1 030.6</b>
Dividend to preferred shares	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Minorities	(15.9)	25.4	(9.0)	(21.3)	(11.2)	(23.3)	(40.0)	(44.8)	(50.8)
<b>Net attributable profit [loss]</b>	<b>293.5</b>	<b>345.2</b>	<b>372.9</b>	<b>380.2</b>	<b>823.5</b>	<b>635.4</b>	<b>853.7</b>	<b>850.4</b>	<b>979.9</b>
Restatement [impairment test]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Adj. for exceptional items	(127.6)	57.0	73.6	(7.1)	(438.2)	(12.1)	(121.4)	0.0	0.0
<b>Net attrib. profit [loss], restated</b>	<b>92.4</b>	<b>368.8</b>	<b>469.2</b>	<b>373.1</b>	<b>385.3</b>	<b>623.3</b>	<b>732.4</b>	<b>850.4</b>	<b>979.9</b>
% Change	-45.5%	NS	27.2%	-20.5%	3.3%	61.8%	17.5%	16.1%	15.2%
<b>Cash flow</b>	<b>450.9</b>	<b>474.6</b>	<b>787.0</b>	<b>768.4</b>	<b>1 304.7</b>	<b>1 171.7</b>	<b>1 473.5</b>	<b>1 519.9</b>	<b>1 697.4</b>
<b>Balance Sheet</b>									
Shareholders' equity [group share]	3 111.6	3 128.0	3 061.5	2 937.3	3 923.8	4 469.7	5 018.4	5 502.7	6 040.3
Minority interests	696.2	453.2	406.3	355.7	402.3	557.6	597.6	642.4	693.2
Net debt [cash]	6 800.1	7 602.2	6 615.2	7 190.1	6 685.8	6 099.5	6 172.6	6 020.0	5 793.4
Gearing [%]	178.6	212.3	190.8	218.3	154.5	121.3	109.9	98.0	86.0
<b>Per Share Data (at 6/9/2007)</b>									
EPS before goodwill	0.30	1.21	1.54	1.22	1.27	2.05	2.40	2.79	3.22
EPS, reported	0.96	1.13	1.22	1.25	2.70	2.09	2.80	2.79	3.22
Goodwill per share	(0.24)	(0.11)	0.08	0.00	0.00	0.00	0.00	0.00	0.00
Dividend per share	0.49	0.51	0.55	0.59	0.76	1.00	1.20	1.45	1.74
Cash flow per share	1.48	1.56	2.58	2.52	4.28	3.85	4.84	4.99	5.57
Book value per share	9.7	9.8	9.5	9.1	12.1	13.7	15.3	16.6	18.1
No. of shares, adjusted	304.680	304.680	304.680	304.680	304.680	304.680	304.680	304.680	304.680
Latest price	18.18	12.55	14.89	19.35	31.43	37.50	38.64	38.64	38.64
Market capitalisation	5 539.1	3 823.7	4 536.7	5 895.6	9 576.1	11 426.3	11 773.6	11 773.6	11 773.6
Enterprise value	12 967.9	11 708.1	11 428.6	13 367.5	16 530.3	17 780.3	18 186.3	18 018.7	17 776.7
<b>Valuation</b>									
P/E	33.4	9.5	10.2	15.8	24.9	18.3	16.1	13.8	12.0
P/E before goodwill	59.9	10.4	9.7	15.8	24.9	18.3	16.1	13.8	12.0
P/CF	12.3	8.1	5.8	7.7	7.3	9.8	8.0	7.7	6.9
Attrib. FCF yield [%]	NS	NS	9.4	9.4	9.3	0.0	2.7	4.1	5.4
P/BV	1.9	1.3	1.6	2.1	2.6	2.7	2.5	2.3	2.1
Enterprise value / Op CE	1.2	1.1	1.1	1.4	1.6	1.7	1.7	1.7	1.7
Yield [%]	2.7	4.1	3.7	3.0	2.4	2.7	3.1	3.8	4.5
EV/EBITDA, restated	11.8	9.2	8.8	10.8	11.2	9.3	8.6	7.8	7.0
EV/EBITA, restated	20.6	16.5	14.7	17.5	17.9	13.6	12.4	11.1	9.8
EV/Sales	2.36	1.98	2.03	2.99	2.71	2.94	3.22	2.85	2.60
EV/Debt-adjusted cash flow	16.8	11.7	10.3	13.6	10.1	12.6	10.7	10.3	9.2
<b>Return [%]</b>									
Pre-tax RoCE	5.8	6.5	7.7	8.2	9.0	12.6	13.5	14.4	15.5
ROE [%]	9.9	11.7	13.0	13.8	23.4	15.3	18.6	16.7	17.7
Return on equity, restated	5.5	13.7	15.7	13.6	10.3	15.0	15.7	16.7	17.7

# APPENDIX: IIGCC DISCLOSURE FRAMEWORK FOR ELECTRICITY UTILITIES

## About IIGCC

The Institutional Investors Group on Climate Change (IIGCC) is the leading group for collaboration among institutional investors focused on addressing investment risks and opportunities presented by climate change. The group currently has 37 members, including major pension funds and asset management companies, with combined assets under management exceeding €3.5trillion.

## IIGCC Membership, August 2007

ABP Investments	Henderson Global Investors
Baptist Union of Great Britain*	Hermes
BBC Pension Trust	HSBC Investments
Bedfordshire County Council Pension Fund	Insight Investment
BlackRock	Integral Development Asset Management
BNP Paribas Asset Management	Joseph Rowntree Charitable Trust*
CCLA Investment Management	London Borough of Hounslow Pension Fund
Central Finance Board of the	London Borough of Islington Pension Fund
	London Pensions Fund Authority
Methodist Church	Merseyside Pension Fund
Church Commissioners for England	Morley Fund Management
Co-operative Insurance Society	Northern Trust
Climate Change Capital	PGGM
Corporation of London Pension Fund	PRUPIM
Credit Agricole Asset Management	Schroders
Environment Agency Pension Fund	Transport for London Pension Fund
Ethos Foundation	Universities Superannuation Scheme
F&C Management Ltd	West Midlands Metropolitan Authorities
Generation Investment Management LLP	Pension Fund
Greater Manchester Pension Fund	West Yorkshire Pension Fund
	<i>*part of the Church Investors Group</i>

IIGCC would like to acknowledge the contribution of BNP Paribas Asset Management, ABP Investments, F&C Management Ltd, Schroders and CA Cheuvreux in developing this framework.

## Introduction

Following the entry into force of the Kyoto Protocol in February 2005 and the introduction of the European Union Emissions Trading Scheme (EU ETS) in January 2005, climate change is increasingly recognised as a key strategic issue for the electricity generation sector.

From an investor's perspective, climate change presents a set of risks and opportunities for this sector, including:

- Compliance costs as a result of regulatory constraints on greenhouse gas emissions, in particular emissions of carbon dioxide;
- Changing demand for energy/electricity. For example, energy and electricity demand in Europe will be influenced by the EU target of improving energy efficiency by 20% by 2020, by the EU renewable energy target of increasing the share of renewable energy by 20% by 2020 and by associated national climate policies;

- Impacts on generating assets and hence on electricity generation due to changing weather conditions;
- Reputational risks or opportunities;
- New business opportunities in areas such as emissions trading, energy efficiency and renewable energy.

Experience to date shows that there are significant gaps and inconsistencies in the data that electricity utility companies provide on their greenhouse gas emissions and other climate change-related issues. As a result it is extremely difficult for investors to assess the risks and opportunities posed by climate change policy to individual companies and to understand the manner in which the different companies have structured their business strategies and capital expenditure plans to respond to climate change.

The Institutional Investors Group on Climate Change (IIGCC) has therefore worked with sell-side analysts from CA Cheuvreux to produce a reporting framework which defines investors' climate change-related disclosure expectations for electricity utilities, specifically those involved in power generation. The development of the IIGCC disclosure framework also involved extensive consultation with a number of European utilities companies. The framework is based on an earlier report by Insight Investment 'The Climate Change Disclosures of European Utilities', produced in June 2006. Through the use of this framework, we hope to assist electricity companies to provide information that allows institutional investors to make informed decisions about the financial implications of climate change for the electricity sector.

### ***What do Investors Require?***

In order to properly assess climate change related risks and opportunities faced by individual electricity utilities, investors require information on two issues:

- Climate change strategy: Companies are requested to provide a brief overview of their climate change strategy and their processes for managing climate change risks and opportunities. We set out the specific issues to be covered in this strategy statement in Section 1.
- Quantitative data related to exposure to climate change: Companies are requested to provide quantitative data (both historical and projected) on their generation mix, their electricity production and their carbon dioxide (CO<sub>2</sub>) emissions, as well as on their emissions allowances and other forms of credits recognised under the Kyoto Protocol. We provide a format for disclosing this data in Section 2.

## **1. Disclosure on Climate Change Strategy**

Given the strategic nature of climate change for electricity utilities, we believe it is appropriate for companies to describe how climate change is likely to impact on corporate strategy. In this discussion, companies should disclose the following:

### ***a. Assessment of the Likely Implications of Climate Policy***

Companies should discuss the financial and strategic implications of current and anticipated national and international climate change policy and regulations in each of the countries (EU and ex-EU) in which they operate.

With respect to national/international targets on energy efficiency and demand management, companies should disclose their views on how these measures could impact the growth in demand for electricity and the opportunities these measures may present for the company (e.g. revenue implications from energy services business units).

With respect to renewable energy, companies should disclose their views on any opportunities that may result from policies on renewable energy (e.g. current/planned investments in renewable energy sources).

**b. Emission Reduction Targets and Strategy**

Companies should specify their greenhouse gas emission targets at group level and where applicable at subsidiary/divisional levels. These targets should be expressed in specific terms (i.e. emissions per unit of electricity generated) and should include specification of the baseline against which performance is being measured. Companies should also provide targets in absolute terms (i.e. total emissions) where possible.

Companies should describe the actions that they are taking to abate and/or offset their CO<sub>2</sub> emissions globally. This may include (but is not limited to) increasing generation efficiency, fuel switching, installing new generating capacity, emissions trading and participation in Kyoto projects.

Companies should also discuss whether they are investing in any R&D that may result in greenhouse gas emission reductions, e.g. CO<sub>2</sub> capture and storage and clean coal technologies.

**c. Assessment of Changing Weather Conditions on Output**

Companies should describe how extreme weather events have affected or may in future affect generating capacity and production and resulting financial implications. This should include the impact of flooding and droughts (hydro-electricity), storms (wind farms) heatwaves (nuclear power) and the impacts from broader changes in weather patterns. Companies should also explain what measures are in place for dealing with changes in weather conditions (e.g. insurance, hedging, investments in new technologies).

**d. Impact of Carbon Price on Wholesale Power Prices**

Companies should give their views on the extent to which carbon prices are passed through or may in future be passed through into electricity prices in the markets in which they operate based on current and planned regulatory requirements.

**2. Disclosure of Quantitative Data related to Climate Change**

Companies should specify whether they use an equity share or a control approach (financial or operational control) for the data required below. While the equity share approach could provide a better picture of liability and risks supported by investors with regards to greenhouse gas emissions, the IIGCC understands that it may be difficult for groups to collect greenhouse gas emissions data from joint-ventures not under their control.

However, companies should use the same consolidation approach for all data provided below (capacities, production, emissions, and allowances).

Companies may specify the accounting standards they are referring to (e.g. IFRS, government requirements).

**2.1 Capacity and Production Data**

Companies should provide a detailed description of their historic, current and planned total installed capacity by fuel type. Projections should take the form of a year-by-year plan over a five year horizon that accounts for the following:

- New generation equipment, including capital expenditures associated with new investments and expected completion dates for new facilities;
- Plans for fuel switching at existing plants;
- Closure of existing plants.

We provide a suggested format for generating portfolio data disclosures in Table 2.1. For each country where they have substantial operations, companies should disclose historical, current and future installed capacity (in megawatts, MW). Production output (in gigawatt hours, GWh) should be disclosed on a historic basis.

## 2.2 Emissions Inventories

Companies should publish detailed CO<sub>2</sub> emissions inventories that cover historic and current emissions. Ideally, historic figures should go back to 2000 thereby allowing investors to detect any significant trends.

### a. Disclosure on Group's CO<sub>2</sub> Emissions

Companies should provide:

- CO<sub>2</sub> emissions in both specific terms (tonnes of CO<sub>2</sub> per MWh) and absolute terms (total tonnes of CO<sub>2</sub>). Data should be provided by country (where companies have substantial operations) and by fuel type.
- Explanations for any changes in their emissions profiles (e.g. the installation of new generating capacity, closure of existing plants, exceptional conditions such as plant outages or extreme weather events).

We provide a suggested format for CO<sub>2</sub> emissions inventories in Table 2.2.

### b. Accuracy of Reported Emissions

Companies should disclose the methodology they used to calculate their CO<sub>2</sub> emissions (e.g. 'The Greenhouse Gas Protocol' developed by the World Resources Institute and the World Business Council for Sustainable Development (WRI/WBCSD) or EC Monitoring and Reporting Guidelines). Alternatively, companies should provide a detailed explanation of the methodology used and should explain how the calculated emissions differ from those that would be obtained from using WRI/WBCSD or EU methodology.

Companies should also provide:

- The level of accuracy for reporting CO<sub>2</sub> emissions (e.g. tier 1/2/3 as defined in the EC Monitoring and Reporting Guidelines or an error margin as % of reported emissions and the breakdown by type of installation where this differs;
- An explanation of how they ensure data accuracy. This can be in the form of a verification statement of CO<sub>2</sub> emissions from a third party auditor that describes the scope and findings of the verification process. If a third party has not verified their emissions inventories, companies should provide a detailed explanation of how they ensure the accuracy of their calculations.

## 2.3 Emissions Allowances and Credits

### a. Amount of free emission allowances, and allocation methodologies

For existing and new operations covered by European Allowances or EUAs, companies should disclose:

- The quantity of EUAs they received for Phase I of the EU ETS for each of the countries in which they operate;
- The quantity of EUAs they received for Phase II (2008-2012). If not available, companies should indicate the assumptions they are making regarding the number of allowances that they expect to receive in Phase II in the EU countries in which they operate.

We provide a suggested format for reporting EUAs in Table 2.3.

If companies operate in countries outside of the EU, they should specify:

- If they participate in any emission trading schemes;
- The potential CO<sub>2</sub> emission reduction targets that are likely to be required of them.

### b. Participation in CDM/JI projects: expected use of CERs/ERUs for compliance

For Joint Implementation (JI) and/or Clean Development Mechanism (CDM) projects, companies should disclose the number of CO<sub>2</sub> credits they expect to receive or purchase by 2012.

Specifically, this includes:



- The total amount of Kyoto credits (Emissions Reduction Units (ERUs) for JI projects and Certified Emissions Reductions (CERs) for CDM projects):
  - The amount of credits from direct participation in JI/CDM projects;
  - The amount of credits from carbon funds;
- Credits expected from HFC projects.

We provide a suggested format for reporting CERs/ERUs in Table 2.3.

**Table 2.1: Format for disclosing generation capacity and production data**

Country / Source	Total Installed Capacity – at year end (MW)												Production (GWh)							
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2000	2001	2002	2003	2004	2005	2006
Country A (A table should be provided for each country where the company has significant operations)																				
Coal																				
- Hard																				
- Lignite (Brown)																				
Fuel Oil																				
Gas																				
Combined Cycle (CCGT)																				
CHP																				
Total thermal																				
of which solid biomass																				
Nuclear																				
Hydro																				
Renewables																				
- Wind																				
- Solar																				
- Other																				
Total, Country A																				
<b>Total, all countries</b>																				

**Table 2.2: Format for disclosing CO<sub>2</sub> emissions**

Country / Source	CO <sub>2</sub> emissions (absolute, tCO <sub>2</sub> )								CO <sub>2</sub> emissions (specific, tonnes/MWh)							
	2000	2001	2002	2003	2004	2005	2006	2007	2000	2001	2002	2003	2004	2005	2006	2007
Country A (A table should be provided for each country where the company has significant operations)																
Coal																
- Hard																
- Lignite (Brown)																
Fuel Oil																
Gas																
Combined Cycle (CCGT)																
CHP																
Total thermal																
of which solid biomass																
Other																
Total, Country A																
<b>Total, all countries</b>																



**Table 2.3: Format for disclosing CO<sub>2</sub> credits**

<b>(million tonnes CO<sub>2</sub>)</b>	<b>Total Phase 1 (2005 - 2007)</b>	<b>Total Phase 2 (2008 - 2012)</b>
<b>Emission allowances</b>		
Total EU CO <sub>2</sub> emissions (from Table 2.2)		
EU CO <sub>2</sub> emission allowances received (EUAs)		
Country A (Copy row for each of EU-27)		
of which EUAs for new power plants		
<b>CO<sub>2</sub> offsets</b>		
Expected CERs/ERUs (issued)		
of which credits from projects for which the group is listed as direct participant		
of which credits obtained from carbon funds		
of which credits from HFC projects		

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