

## Corporate policies in the EU energy sector

by

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## 1. Summary

The trend towards concentration noted in our previous report of 2007<sup>1</sup> has continued. The three dominant companies, E.ON, EDF and RWE have maintained or strengthened their positions, EDF through its acquisition of British Energy, E.ON through the assets it bought from ENEL and Endesa, and RWE through its acquisition of the Dutch utility Essent. These three companies have been joined by two companies, ENEL and GDF Suez, who through a take-over and a merger, respectively, are now of comparable size. The European Union's policy to force EDF, E.ON and RWE to sell their transmission networks may, far from increasing competition as it was designed to do, reduce it further. The proceeds from selling these networks will be used to buy up more assets in Europe in the competitive activities in energy making already limited markets even more concentrated.

The financial crisis has made the companies more sensitive to their debt levels, especially the companies like EDF and ENEL that have made major acquisitions and several of the companies are looking to divest non-core assets to reduce their debt levels and protect their credit ratings. This can also have implications that impact on workers like outsourcing and lower wage increases as major disputes in E.ON and EDF illustrate.

Without strong backing from government, the major national companies, even those as large as the British companies, (Centrica and Scottish & Southern) will struggle to survive as independent companies as the five major companies continue to try to increase their grip over European energy markets. Some countries, such as Denmark, Luxembourg, Romania and Czech Republic do seem to be supporting the emergence of 'national champions' but this support can only be limited given EU competition law. In some of the countries where large numbers of companies still exist, such as Italy and Switzerland, mergers and takeovers are rapidly reducing the numbers of companies in the market.

The major European international companies are increasingly focusing their investments in markets which connect physically with their core businesses. While the large companies maintain a watch on countries on the edge of the EU, such as Turkey and Ukraine, they appear not to be seeking to expand their position until it is clearer that these countries will become integrated more fully into European markets.

In our previous review, we identified 'Seven Brothers', seven major European electricity and gas companies that dominate European markets. In the past year, the Seven Brothers have all reinforced their positions in nuclear power so that if a major expansion in nuclear capacity does take place, they are well positioned to take advantage of it. This is generally justified as being necessary to meet obligation to reduce greenhouse gas emissions. The commitment to renewables and energy efficiency as alternative ways to reduce greenhouse gas emissions appears to be much weaker and, for example, ENEL is selling parts of its renewable businesses.

## 2. Introduction

In March 2007, we published a review of corporate policies amongst EU energy companies<sup>2</sup>. This report reviews developments in the two years since that report. It focuses mainly on the companies with a significant presence in more than one country but also examines countries/regions, such as Italy, Poland and the Baltic States where there have been major changes in the corporate structure. We also include some developments in Norway and Switzerland because of their important electricity trading links with the European Union. There have been several trends in corporate policies in the past 2 years:

- Further consolidation around five large dominant internationally-based companies and two smaller international companies;
- Consolidation of activities of the dominant companies within EU borders;
- The changes in Germany and France (the main countries not to have completed ownership unbundling) required to take account of the EU policy on unbundling of transmission networks;
- Attempts to reduce debt by divesting non-core assets; and
- Strengthening of nuclear capabilities (not generally matched by greater commitment to renewables) to allow the companies to take advantage of any 'nuclear renaissance' overtly aimed at reducing greenhouse gas emissions.

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<sup>1</sup> S Thomas (2007) 'Corporate concentration in the EU energy sector' PSIRU, Greenwich. <http://www.psiru.org/>

<sup>2</sup> *ibid*

The five dominant companies are EDF (which has taken over British Energy), ENEL (which has taken over Endesa) E.ON (which has acquired some of ENEL/Endesa's assets in Spain, Italy and France), RWE (which has taken over the Dutch company, Essent) and the newly formed GDF Suez (see Table 1). Iberdrola and Vattenfall (which has taken over the other large Dutch utility, Nuon) are now lagging significantly behind the other five and may need to make further acquisitions if they are to keep pace. Table 2 shows the main companies that are primarily based in just one country. Only three of these, the three British companies, Centrica, Scottish & Southern Energy and National Grid rival even the two smallest of the 'Seven Brothers' in terms of turnover and of these, only Centrica has shown any ambition to expand into mainland Europe. National Grid, which because of its niche as a network operator is not such an attractive takeover target for companies competing in the gas and electricity markets, has, however, made significant energy network acquisitions in the USA.

A set-back for the two large German companies, E.ON and RWE, was that in November 2008, the German Federal Court of Justice banned them from taking over further municipally owned companies in Germany. Given that these two companies already between them control about 80% of the German energy market and have stakes in 200 municipal companies, it is not clear whether this ruling will significantly restrict them.<sup>3</sup>

**Table 1. Financial size of the 'Seven Brothers'**

	Turnover 2008 €bn / % annual increase	Worldwide workforce / % annual increase	Net debt €bn / % annual increase	Debt/turnover
<b>GDF Suez</b>	83.1 / +17	200000 / +1	28.9 / +73	0.35
<b>E.ON</b>	86.8 / +26	93538 / +6	44.9 / +92	0.52
<b>EDF</b>	64.3 / +11	160913 / +1	24.4 / +50	0.38
<b>ENEL</b>	61.2 / +40	75981 / +3	50.0 / -10	0.82
<b>RWE</b>	48.9 / +15	65908 / +4	18.7 / +13	0.39
<b>Iberdrola</b>	25.2 / +44	32993 / +26	29.0 / +38	1.15
<b>Vattenfall</b>	15.0 / +15	32801 / +1	6.0 / +51	0.40

Sources: Annual reports and accounts

Notes

1. €1=SKr10.94

2. Data for EDF, E.ON, and ENEL are for calendar year 2008; other companies are for 2007/08.

**Table 2. Financial size of the major national and regional energy companies**

	Turnover 2008 €bn / % annual increase	Worldwide workforce / % annual increase	Net debt €bn / % annual increase
<b>Centrica</b>	23.0 / +31	32817 / -1	0.6 / -36
<b>Scottish &amp; Southern</b>	21.0 / +8	18500 / +11	5.2 / +32
<b>National Grid</b>	16.9 / +37	27886 / -2	24.5 / +29
<b>EDP</b>	13.9 / +26	12245 / -7	13.9 / +19
<b>Gas Natural</b>	13.5 / +34	6842 / -2	4.9 / na
<b>CEZ</b>	6.9 / +4	27232 / -9.5	2.9 / +24
<b>DONG</b>	8.2 / +46	5347 / +8	2.0 / +3.1
<b>PPC</b>	5.8 / +13	23611 / -4	4.5 / +22
<b>Fortum</b>	5.6 / +26	14077 / +70	6.2 / +38
<b>Verbund</b>	3.7 / +23	2541 / +4	2.5 / +34
<b>EVN</b>	2.4 / +7	9342 / -2	1.1 / +4
<b>Statkraft</b>	2.8 / +42	2633 / +15	4.5 / +9

Sources: Annual reports and accounts

Notes:

1. £1=€1.08 €26.93, €1=DKK7.44, €1=NOK9.0

2. Figures for EVN are for the period 1 Oct 2007 to 30 Sept 2008

In March 2007 when the previous report was published, four major takeovers and mergers were underway:

- A takeover of Scottish Power (UK) by Iberdrola (Spain);
- A merger of Suez (France/Belgium) with GDF (France);
- A takeover of Endesa (Spain) by E.ON (Germany); and

<sup>3</sup> European Spot Gas Markets 'No further acquisitions of Stadtwerke by E.On and RWE - German Federal Court' November 11, 2008.

- A merger of Essent and Nuon (both Netherlands).

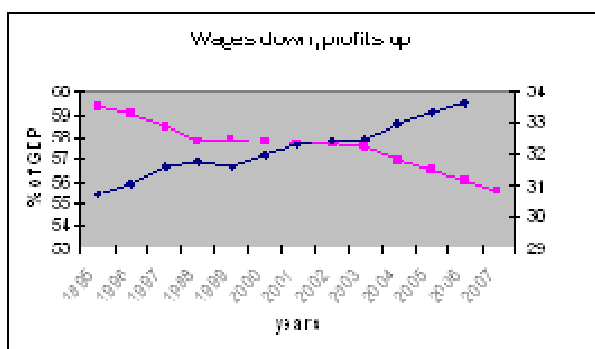
Of these, the first two were completed, but the second two were not. At the last minute, ENEL outbid E.ON for Endesa and the takeover by ENEL was completed in October 2007. The merger of Nuon and Essent collapsed in 2007 and in early 2009, Nuon was taken over by Vattenfall and Essent by RWE. Union Fenosa, one of the major Spanish electricity companies has been taken over by Gas Natural, the Spanish gas company, although EDP bought some of its gas networks.

Of the main primarily national companies, the two British companies, Centrica and Scottish & Southern Energy, stand out as far larger than the other companies. Centrica does have international ambitions with as yet small-scale operations in Belgium, Spain, the USA and Canada, but it sold its largest European mainland business, SPE (which trades as Luminus) to EDF as part of the deal for Centrica to buy a 20% share in British Energy from EDF.

## 2.1. Profits, wages and dividends

An EPSU research paper shows the companies significantly increased their profits from 2001 onwards but with a falling share of the wage bill compared to profits and dividends.

Chart 1: Trend in wages and profits as a share of GDP - 1995-2007



Source: EPSU, 2008 'Fair shares? Wages, profits and dividends in the energy sector – an analysis of recent trends in European energy multinationals' EPSU, Brussels. <http://www.epsu.org/a/4996>

The EPSU Briefing found:<sup>4</sup>

'Taking a period beginning 2001-2002 virtually all the 10 companies [covered in the analysis]<sup>5</sup> show significant increases in profits, ranging from 45% at RWE to over 300% at Verbund. There were similar sharp increases in the total dividend payout. The increase at EDF is the most dramatic, rising nearly 10-fold from 2002 to 2007, with Verbund also seeing a six-fold increase. Elsewhere the increases were lower but with all but ENEL (46%) registering rises of more than 100%.

Although in some cases the total wage bill might have fallen as a result of reductions in employment through job cuts or disposal of subsidiaries, over the same period there was a fairly steady upward trend in wages and salaries reflected in average wages. Looking at the wage and salary bill (excluding pension and other social security contributions) in each company and calculating it as a percentage of profits and dividends reveals a marked trend across the 10 companies.

The falling share of wages is significant in most of the 10, in fact, declining by a third or more. The only exception to this is Iberdrola where wages as a share of profits were fairly static for the four-year period to 2007 at around 36%.

All 10 companies registered a fall in wages as a proportion of dividends although this was a modest 10 percentage points at Iberdrola. EDF registered the most significant change and, in fact, has been excluded from the second chart because its figures would have distorted the scale. With total dividend payments rising from €208m to €3170m between 2003 and 2007, wages as a proportion of dividends fell from over 2500% to just over 200%. There were also significant falls at other companies - from 984% to 185% at RWE, from over 400% to 63% at Verbund and from 684% to 143% at E.ON.'

<sup>4</sup> EPSU, 2008 'Fair shares? Wages, profits and dividends in the energy sector – an analysis of recent trends in European energy multinationals' EPSU, Brussels. <http://www.epsu.org/a/4996>

<sup>5</sup> The ten companies covered were: RWE, EDF, ENEL, E.ON, Centrica, Essent, Vattenfall, CEZ, Iberdrola and Verbund.

### 3. The Seven Brothers

In this section, we examine the large internationally based European electricity companies, GDF Suez, E.ON, EDF, ENEL, RWE, Iberdrola and Vattenfall. These have been termed the 'Seven Brothers' as an analogy to the 'Seven Sisters', the large multinational oil companies that dominate the world oil market.

#### 3.1. GDF Suez

The main corporate change, along with the take-over of Endesa by ENEL, was the completion of the merger of Suez and GDF on July 22, 2008. The size of this deal and the importance of the companies involved in France, where GDF dominated the gas market, and Belgium, where Suez subsidiaries, Electrabel and Distrigaz dominated the electricity and gas markets respectively, meant that significant changes to shareholdings had to take place and some companies had to be sold to overcome regulatory concerns about competition. Its market capitalisation made it the largest energy company in Europe.

The largest individual shareholding remains the French state with 35.7%. The only other shareholder with more than 5% was Groupe Bruxelles Lambert (GBL), with 5.3%. In October 2008, the Belgian government was still considering trying to take a 'golden share' in the company but this would have to be with the agreement of the French government as the largest shareholder. What parts of the group any Golden Share, if granted, would cover and what powers it would give to the Belgian government are not clear yet. Suez Environnement was spun off as a separate company on the same day as the GDF Suez merger was completed. 65% of the shares were distributed to Suez shareholders with GDF Suez retaining the rest.

The most important energy company divestment was Distrigaz, which dominates Belgium's gas distribution and sales. In May 2008, Eni Spa (Italy) agreed to purchase Suez's 57% stake in the company for €2.7bn. On 15 October, the deal was approved by the European Commission. Eni paid with a number of assets including contracts for gas deliveries in Italy and abroad to Suez for up to 20 years; Italgas' gas distribution network in Rome and surrounding areas; €1.2 billion worth of rights for Suez to draw up to 1,100 megawatts of electricity from Eni's power plants over 20 years; upstream stakes worth €273 million; and a 20-year LNG supply contract into the US Gulf equivalent to 900 million cubic meters (650,000 tons) per year.

In May 2009, GDF Suez reduced its holding in the gas transmission company, Fluxys to 38.5% with the municipally owned holding company Publigas taking a 51.3% stake. Another important sale was Suez's 25.5% stake in SPE for €515m to Centrica (UK) in July 2008. SPE is the second largest generator in Belgium, owning or having access to about 2GW of plant. This sale increased Centrica's share in SPE to 51%, but this holding was sold in May 2009 to EDF as part of the deal under which Centrica took 20% of British Energy from EDF<sup>6</sup>.

In December 2008, GDF Suez agreed an asset swap with E.ON, which was finalised in July 2009. European Daily Electricity Markets reported<sup>7</sup>:

'According to the terms of the Memorandum of Understanding (MoU) between the companies, E.ON is to get a 556MW coal fired plant and a 385MW gas plant, both in Belgium. Electrabel is also granting E.ON nuclear off-take rights for reactors Doel 1 (150MW, 38%), Doel 2 (166MW, 38%) and Tihange 1 (184MW, 19%). The total off-take rights stand at 700MW, 270MW of which are to be delivered in the Netherlands. Under the deal, E.ON is to hand over stakes in the Farge (350MW) and Zolling (449MW) coal-fired power stations. Electrabel will also acquire 50MW combined-cycle gas turbines and a 50% stake in a 20MW biomass plant at the Zolling site. The agreement also includes the Jansen power plant group (99MW), Trausnitz hydroelectric plant (1.8MW), and Tanzmühle power plant, comprising a pump storage unit (28MW) and a hydroelectric unit (3.3MW).' and Electrabel will also acquire an aggregate of approximately 700MW of power procurement rights from the reactors Kruemmel (1,260MW Electrabel share 28%), Grundremmingen (2,572MW, Electrabel share 13%) and Unterweser (1,345MW Electrabel share 7%).'

The main holdings inherited from GDF are gas distribution businesses in Germany, Hungary, Portugal, Romania and Slovakia. Electrabel, the Suez subsidiary that dominates the Belgian electricity market has generation holdings amounting to about 13GW mainly in Netherlands, France, Italy, Hungary and Poland.

In the UK, GDF Suez has formed a consortium with Scottish & Southern Energy and Iberdrola (owner of Scottish Power) to build plants in the UK. Sites in the UK are being auctioned and by July 2009, this group

<sup>6</sup> Associated Press Financial Wire 'EdF, Centrica in British nuclear power deal' May 11, 2009.

<sup>7</sup> European Daily Electricity Markets 'E.ON-Electrabel asset swap paves way for companies' expansion in Europe', December 18, 2008.



had not bid successfully for sites although the consortium had not withdrawn from the process. GDF Suez has a 9.15% stake in the Romanian company that owns the Cernavoda site which has two operating reactors and where a third is expected to be built.<sup>8</sup> GDF Suez is part of a consortium bidding to build the third unit. Outside Europe, it has expressed an interest in participating in Brazil's nuclear programme<sup>9</sup> and it is part of a French bid, along with Total and Areva, to supply 5GW of nuclear power capacity (three EPRs) to the UAE.<sup>10</sup>

In July 2009, the European Commission imposed fines of €553m on both of E.ON and GDF Suez for operating an agreement not to sell the gas in each other's home markets (Germany and France respectively) that applied from 1975-2005. The investigation was launched in 2006 and the fines were levied for the period 1999-2005 when the Gas Directive was in operation. The companies are appealing against the fines.<sup>11</sup>

GDF Suez inherited Electrabel's nuclear capabilities from the operation of the seven units it owns in Belgium. Its first priority seems to be to build a nuclear presence in France, perhaps through asset swaps with EDF but also building new plants there. It had hoped to build the second EPR in France following on from the first, which was allocated to EDF. However, the second, at the Penly site, will also be built by EDF, although GDF Suez will take a 33% stake. Total is negotiating to take a quarter of GDF Suez's in Penly.<sup>12</sup> While GDF Suez's 2008 annual report does talk about renewable, its commitment to nuclear seems much greater. In August 2009, it purchased a reactor simulator for an Areva EPR nuclear power plant.<sup>13</sup> Its annual report states:<sup>14</sup>

'Nuclear energy is a competitive source for electricity production, but it is also the only energy source that can help massively cut greenhouse gases on the short- and medium-term. Countries that use this type of energy are less import dependent than fossil fuel-using countries.'

Of the big five companies, GDF Suez's level of indebtedness is significantly lower than the other four's and it seems well placed to make acquisitions if companies become available to take over. Its very strong position in North West Europe would mean that takeovers in this region might cause political problems. Its credit rating appears stable at 'A' with Moody's and Standard & Poor's.

### 3.2. E.ON

When E.ON was outbid by ENEL in its attempt to take over the largest Spanish electricity company, Endesa, E.ON agreed to withdraw, but as part of the agreement it bought a package of assets valued at €11.5bn from ENEL/Endesa in France, Italy and Spain. These included: Endesa Italia, the fourth largest generation company in Italy with 7.2GW; 65% of Endesa/SNET France, which owns 2.5GW of generation (the third largest French generator); and ENELViesgo and other Spanish assets (2.5GW plus 580,000 customers).

The UK is E.ON's second largest market after Germany and its business there, with over 8 million customers and a large amount of generation (10.5GW) has not changed significantly in the past two years. It has expressed an interest in participating in new nuclear build in the UK, but it did not bid for British Energy, the British nuclear generation company bought by EDF in 2008. In the USA, it continues to own an integrated gas and electricity company in Kentucky, formerly Louisville Gas and Electric, but this does not seem a central element of its strategy.

Its Nordic Market Unit is based mainly on its holdings in Sweden where it took over two major integrated electricity companies, Sydkraft and Graninge. It has much smaller businesses, primarily trading, in Finland and Denmark. In October 2007, it took over the 44.3% of E.ON Sverige owned by the Norwegian company Statkraft in exchange for one third of E.ON Sverige's hydro power assets and some of its heat production assets. Also in the assets taken over by Statkraft will be plants in Germany, UK as well as Sweden.

Most of its Central Europe Market Unit is located in Germany (its Central Europe West division), although it has a strong presence in Netherlands where it owns generation (1850MW) and gas and electricity retail. It also is strong in Eastern Europe, which has not changed substantially in the past two years except for some

<sup>8</sup> European Daily Electricity Markets 'France and Korea compete to build Romanian nuclear plant' May 29, 2009.

<sup>9</sup> Tenders Info 'Brazil: GdF Suez looks at Brazilian nuclear power market' July 21, 2009.

<sup>10</sup> Nucleonics Week 'UAE starts selection process for multi-unit nuclear program', February 12, 2009, p 3

<sup>11</sup> International Oil Daily 'EU Gas Giants to Appeal \$1.5 Billion Fine' July 9, 2009.

<sup>12</sup> European Daily Electricity Markets 'Local debate slated for second French EPR' July 10, 2009.

<sup>13</sup> World Nuclear News Daily, 'GDF Suez prepares for nuclear operations' August 19, 2009.

<sup>14</sup> GDF Suez, 2009 'Reference document 2008' GDF Suez, Paris, p 50.

<http://www.gdfsuez.com/en/finance/investors/publications/publications/>

unbundling to comply with EU legislation. It was one of the first Western electricity companies to move into Bulgaria acquiring 67 per cent of the distribution companies, Varna and Gorna Oryahovitsa at the beginning of 2005, which distribute power to more than a million consumers. The Bulgarian government still holds the remaining shares. In the Czech Republic, E.ON consolidated all its majority holdings (JME and JCE) into E.ON Ceska, E.ON Energie and E.ON Distribuce. E.ON made its first major acquisition in Romania in 2005, when it took 51 per cent stakes in the gas distribution company, Distrigaz Nord, which has over a million customers and the electricity company, Electrica Moldova with about 1.3 million consumers. In both cases, the shares were acquired from the Romanian government. In October 2007, the European Bank for Reconstruction and Development took a 9.8% stake in E.ON Energie Romania.

In February 2008, E.ON was the first of the large German electricity companies to signal its willingness to the European Commission to sell its electricity transmission network, E.ON Netz, in Germany<sup>15</sup>. A single holding has been mooted but by January 2009, only Vattenfall had followed E.ON's example and the fate of the German transmission network was still not known.<sup>16</sup> However, in October 2008, EnBW, Vattenfall and E.ON announced an agreement to cooperate closely on the management of their high-voltage networks (RWE refused to participate).<sup>17</sup>

E.ON subsequently agreed a deal with the European Commission to sell its German electricity transmission network (along with plant capacity) to an independent operator, in order to close a long-running competition enquiry. The Commission formally accepted the offer in December 2008, allowing E.ON to launch the sale process in spring 2009. No details on potential bidders were available by July 2009. E.ON remains committed not to divest its gas grids, which it claims are qualitatively different to electricity networks.<sup>18</sup>

E.ON offered at the same time to sell 4.8GW of generation in Germany or swap it for capacity in other countries.<sup>19</sup> The deal on asset swaps with GDF Suez is detailed above. At the same time as the swap with GDF Suez was agreed, E.ON agreed to sell about 525MW of generation to EnBW. EnBW will acquire E.ON's stakes in the 446-MW Lippendorf lignite and the 79-MW Bexbach hard-coal power plants.<sup>20</sup> The cost of the deal has not been published.

In January 2009, E.ON also completed an asset swap with Statkraft, the Norwegian state owned utility. Under the agreement, Statkraft transferred its 44.6% stake in E.ON Sverige AB and a Swedish hydropower plant to E.ON in exchange for power generating assets in Sweden, Germany and the UK, as well as 4.17% of the shares in E.ON. The deal was reported to be worth about €4.5bn.<sup>21</sup> E.ON also sold 1460MW of capacity in Italy to the Italian municipal company covering Milan and Brescia, A2A,<sup>22</sup>

E.ON would clearly be in a strong place to build nuclear power plants in Germany if the 'phase-out' policy in Germany was to be repealed by a new government. It is also positioning itself to build plants in France to allow it to enter the French market more effectively.<sup>23</sup> In the UK, E.ON has formed a partnership with RWE to build nuclear plants there. It bought two sites at auction in April 2009 and has stated it hopes to build at least 6000MW of nuclear capacity there (technology still to be decided).<sup>24</sup> It owns nuclear capacity in Sweden, it is bidding to build a nuclear power plant in Lithuania<sup>25</sup> and it has part of a consortium set up in Finland, Fennovoima, to build nuclear capacity in Finland.<sup>26</sup>

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<sup>15</sup> European Daily Electricity Markets 'Eon proposes selling off power grid, to settle antitrust cases' February 28, 2008

<sup>16</sup> European Daily Electricity Markets 'Future of the German power grid remains hot topic in industry circles, TSOs disagree' September 22, 2008

<sup>17</sup> Financial Times Deutschland 'Eon, EnBW and Vattenfall to cooperate on high-voltage networks' October 28, 2008.

<sup>18</sup> Global Insight 'E.On to Keep Gas Grids, Proposes National Grid Holding Company for Germany' March 5 2008 and Utility Week 'Grids line up for divestment' June 26, 2009.

<sup>19</sup> Platts Global Power report 'E.On proffers sale of grid, 4,800 MW of capacity to help settle EC complaints about German market' March 6, 2008.

<sup>20</sup> Platts Global Power Report 'E.ON to sell 2,200 MW of power capacity to EnBW, swap generation with Electrabel' December 25, 2008.

<sup>21</sup> Nordic Business Report 'Norway's Statkraft AS and E.ON AG complete EUR4.5bn asset swap deal' January 2, 2009.

<sup>22</sup> Power in Europe 'A2A takes charge of E.ON assets' July 13, 2009, p 15

<sup>23</sup> Tenders Info 'Germany : E.ON CEO eyes control of 3rd French EPR reactor' July 8, 2009

<sup>24</sup> Nucleonics Week 'RWE npower/E.On UK team, EDF winning bidders in UK land auction' April 30, 2009, p 16

<sup>25</sup> Agence France Presse 'Japan's Mitsubishi eyes Lithuania nuclear project: PM' July 14, 2009.

<sup>26</sup> Nucleonics Week 'OKG options include modernizing Oskarshamn-1, building new unit' June 25, 2009



Unlike the other companies, E.ON is aggressively pursuing Carbon Capture and Storage systems (CCS) as a way to make coal environmentally acceptable. Its 2008 annual report stated:<sup>27</sup>

'For the foreseeable future, coal in particular will remain a key ingredient in a balanced generation mix along with nuclear power, natural gas and renewable. But we need to capture more of coal's energy potential and dramatically reduce its carbon emissions. To achieve this objective, we are busy developing carbon capture and storage technology which will eventually be fitted to our new and highly efficient coal-fired power stations.'

Its plans to build a 1.6GW coal-fired plant at Kingsnorth (UK) have placed it in conflict with environmental groups because CCS systems would be fitted only if and when CCS systems are commercially proven. It also plans to fit CCS to other coal-fired power stations in Germany, Netherlands and Sweden. E.ON is an investor (with DONG, the Danish energy company and Masdar, an investment fund controlled by the Government of Abu Dhabi) financing the London Array, a 630MW wind farm to be built in the Thames estuary.<sup>28</sup>

E.ON's debts are relatively high and in 2009, it announced it planned to reduce investments over the next three years and sell off assets worth €10 billion by the end of 2010, although it did not specify which assets would be sold<sup>29</sup>. Its credit rating remains stable with Standard & Poor's at 'A'. In June 2009, it was in conflict with the main trade union, Verdi, over job security, out-sourcing and training.<sup>30</sup> In July 2009, the European Commission imposed fines of €553m on both of E.ON and GDF Suez for operating an agreement not to sell the gas in each other's home markets that applied from 1975-2005. The investigation was launched in 2006 and the fines were levied for the period 1999-2005, when the Gas Directive was in operation. The companies were appealing against the fines.<sup>31</sup>

### 3.3. EDF<sup>32</sup>

EDF remains 84.85% owned by the French government after it sold a further 2.5% of the shares in December 2007 following the initial sell off in October 2005. Of the remaining shares, 1.9% is owned by employees and the remaining 13.25% by individual and institutional shareholders. It remains far more committed to nuclear power than any of its competitors, owning about 10 times as much nuclear capacity as any of its rivals and a large part of the annual report has to be devoted to an analysis of the risks the company faces because of its high dependency on nuclear power. It is aggressively pursuing new nuclear generation in France, UK, USA, China and Italy.

Its annual report states:<sup>33</sup>

'Nuclear power, which can combine competitiveness with self-sufficiency and low CO2 emissions, is now proving to be an essential element of the future energy mix, both in France and in many other parts of the world. As the world's leading generator of nuclear power, with a unique position in Europe, and a strong presence on the four main markets, EDF believes itself to be ideally positioned to benefit from this situation.'

After a relatively quiet period during which it off-loaded most of its non-European investments, EDF was more active in 2008/09. In January 2008, it mooted the possibility of a takeover bid for Iberdrola, but this was met with bitter opposition by Iberdrola and the Spanish government and in September 2008, the matter was closed with EDF acknowledging that it would not pursue its bid.

However, when in May 2008, it was signalled by the British government that it wanted to sell its remaining stake in British Energy and that takeover bids for the company were being encouraged, EDF was quick to express an interest. Other potential bids did not materialise and in September 2008, after an earlier bid had been rejected by British Energy shareholders, British Energy accepted the bid valued at €15.7bn (£12.5bn).

The deal is a complex one and there were regulatory hurdles to clear, completed in January 2009, but there are a number of important points to note. First, the price is very high given that the privatisation price for British Energy was little more than a tenth of this figure and that in 2002, British Energy collapsed and had

<sup>27</sup> E.On, 2009 '2008 Company report' E.On, Dusseldorf, p 3.

[http://www.eon.com/en/downloads/EON\\_Company\\_Report2008.pdf](http://www.eon.com/en/downloads/EON_Company_Report2008.pdf)

<sup>28</sup> Times 'Budget incentives rescue the London Array wind farm project after years of wrangling' May 13, 2009, p 42

<sup>29</sup> Associated Press 'E.On 2008 profit up 9 percent; outlook 'uncertain'' March 10, 2009.

<sup>30</sup> <http://www.epsu.org/a/5302>

<sup>31</sup> International Oil Daily 'EU Gas Giants to Appeal \$1.5 Billion Fine' July 9, 2009.

<sup>32</sup> S Thomas (2009) 'Business prospects and risks in nuclear energy', PSIRU, University of Greenwich.

[http://www.greenpeace.org.uk/files/pdfs/nuclear/Areva\\_EDF\\_Final.pdf](http://www.greenpeace.org.uk/files/pdfs/nuclear/Areva_EDF_Final.pdf)

<sup>33</sup> EDF, 2009 'Document de reference' EDF, Paris p 35.

[http://shareholders.edf.com/fichiers/fckeditor/File/Finance/common/doc-ref/DDR\\_2008c\\_VA.pdf](http://shareholders.edf.com/fichiers/fckeditor/File/Finance/common/doc-ref/DDR_2008c_VA.pdf)

to be rescued at huge cost to taxpayers (ca €15bn). The price relates much less to the value of the 8 plants, each of about 1200MW but to the access it gives the owner to sites for new nuclear plants. The plants are seen to be ageing – they are likely to produce about 30% less output than in their peak year (1998) – and their operating costs are rising rapidly – they are nearly double their 2002 level. However, owning the company does give EDF access to most of the major sites for new nuclear development in the UK.

From a competition point of view, the deal does raise serious issues. British Energy has about 20% of the generation market and if that is added to EDF's existing share of about 10%, that would give them a market share that would probably be unacceptable to the regulatory authorities. It would also remove the one large independent power producer left in the UK from the market.

The company is expected to be acquired by a 'vehicle' created by EDF, Lake Acquisitions, a wholly owned UK subsidiary of EDF, which would then sell 25% of its stock to Centrica, which would gain 25% of the output of the existing plants as well as 25% of any new plants. EDF has agreed to sell the land it bought around two other UK nuclear sites earlier in 2008, plus some land owned by BE, to 'facilitate the entry of other new nuclear power generators into the UK'. Lake Acquisitions would be financed largely by a syndicated loan of €13.9bn with the rest as cash from EDF. EDF plans to build at least four new nuclear reactors at British Energy sites (probably Sizewell and Hinkley Point).

The deal to sell 25% of British Energy to Centrica was delayed several times and by March 2009, there was increasing resistance from Centrica shareholders to the deal<sup>34</sup> and it was not clear whether it would be completed. However, in May 2009, a deal was concluded under which Centrica paid EDF £2.3bn for a 20% stake in British Energy made up of £1.1bn in cash and sell its 51% stake in Belgian utility SPE. Under the deal, it would also have the option to be a partner in the four EPR reactors EDF plans to build in the UK.<sup>35</sup> In June 2009, the UK Office of Fair Trading was seeking written representations from the energy sector as part of a competition probe into Centrica's 20% buy in to British Energy.<sup>36</sup>

EDF's main new investments in renewable is in the UK where EDF Energy Renewables, was created in order to develop renewable energy sources in the United Kingdom. This company is planning: 'to increase renewable generation capacity in the United Kingdom to 1,000MW (onshore equivalent) in the next decade.'<sup>37</sup> This compares with EDF's plans to build four EPRs in the UK (6800MW) in the same period.

EDF's first significant entry into the USA was in 2005 through the creation of the Unistar 50-50 joint venture with the US utility, Constellation. Unistar would build new nuclear plants using the EPR design, which, in December 2008, had a target date for certification by the NRC of February 2012. Constellation owns about 3.9GW of nuclear power plants at three sites (Calvert Cliffs, Nine Mile Point and Ginna)<sup>38</sup>.

In September 2008, EDF made a takeover bid for a US utility, Constellation Energy, in which it had acquired 9.5% of the stock at nearly \$60 per share, which intends to build new nuclear power plants in the USA. However, it withdrew its offer citing global financial pressures. The company was expected to be bought by MidAmerican Energy Holdings, a company owned by Warren Buffet at \$26.50 per share. It was reported that this rival bid for Constellation could derail EDF's nuclear ambitions in the USA if MidAmerican did not support new nuclear build. However, in December, EDF announced an agreement with Constellation to take a 49.99% holding in Constellation's nuclear subsidiary, Constellation Energy Nuclear Group. The deal was done through the EDF subsidiary, EDF Development Inc, and will cost US\$4.5bn.<sup>39</sup> Mid American Holdings amicably withdrew its offer.

In China, EDF is building two EPRs with China Guangdong Nuclear Power Co. in the Taishan Nuclear Power Co. joint venture in which EDF has 30%. It hopes to take similar stakes in two more EPRs in China.<sup>40</sup>

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<sup>34</sup> The Times 'Commission raids EDF in price-fixing investigation' March 12, 2009 p 49

<sup>35</sup> Nucleonics Week 'Centrica buys into British Energy, to join EDF in reactor construction' May 14, 2009, p 1.

<sup>36</sup> Power in Europe 'OFT opens Centrica/BE Probe' June 15, 2009, p 6.

<sup>37</sup> EDF, 2009 'Document de reference' EDF, Paris.

[http://shareholders.edf.com/fichiers/fckeditor/File/Finance/common/doc-ref/DDR\\_2008c\\_VA.pdf](http://shareholders.edf.com/fichiers/fckeditor/File/Finance/common/doc-ref/DDR_2008c_VA.pdf)

<sup>38</sup> Constellation Energy Nuclear Group, undated 'Fact Sheet'. Accessed on January 27, 2009 at

[http://www.constellation.com/vcmfiles/Constellation/Files/Press-Kit\\_Corp\\_NuclearGrp\\_2008-09-17.pdf](http://www.constellation.com/vcmfiles/Constellation/Files/Press-Kit_Corp_NuclearGrp_2008-09-17.pdf)

<sup>39</sup> Nucleonics Week 'EDF to acquire nearly half of Constellation's nuclear business' December 18, 2008, p 1.

<sup>40</sup> Nucleonics Week 'EDF: Flamanville 3 cost rise due to inflation, technical/regulatory changes' Dec 11, 2008, p 1

While the French government has accepted in principle that EDF will reduce its holding from 100% to less than 50% in the French transmission company, RTE, it is not clear when this will take place, although a possible sale was mooted in July 2009<sup>41</sup>.

EDF's third largest market after France and UK is Germany, where it controls EnBW (46% of the shares) which is the incumbent utility in Baden-Wurtemberg and one of the four large regional companies that control most of the German power market including the transmission network. Unlike E.ON and Vattenfall but in common with RWE, EnBW has yet to commit to sell its electricity transmission network EnBW Netze.<sup>42</sup> In December 2008, EnBW agreed to buy about 525MW of generation from E.ON (see above).

Its fourth largest market is Italy where it owns 49% of Edison, which has 12.5GW of plant making it the second largest generator behind ENEL and has 187,000 customers including gas customers. In February 2009, EDF concluded an agreement with ENEL<sup>43</sup> to create a 50-50 joint venture to investigate construction of the Areva EPRs in Italy, contingent upon changes in the Italian legislative and regulatory framework.<sup>44</sup>

Elsewhere in Europe, it has stakes in generation plants in Belgium (419MW from its 50% holding in Tihange 1 nuclear plant), Netherlands (50% of an 870MW gas fired plant under construction), Spain (335MW), Poland (3172MW), and Switzerland (3714MW) through Atel. EDF has a 55.6% stake in Motor-Columbus, which in turn has a 58.5% stake in Atel. It has district heating plants in Hungary, Poland and Switzerland

In Hungary, its Demasz subsidiary distributes electricity to 770,800 consumers. It owned 60.9% of Demasz but in June 2008, it received approval from the Hungarian authorities to take over the remaining shares. EDF owns 49% of SSE, a Slovakian distribution, retail and district heating company with 699,000 consumers.

In March 2009, the European Commission, along with the French Competition Authority raided EDF's headquarters in Paris. The Commission said that it suspected EDF of manipulating prices in the wholesale electricity market.<sup>45</sup> By July 2009, no details on how the investigation was progressing had emerged.

In summer 2009, strikes at several nuclear power plants organised by EDF's largest union, FNME-CGT delayed the return to service of 6 reactors and appeared, at worst, to put security of supply in jeopardy and as a minimum led to expensive imports of electricity. EDF has tried to force the workers back to work by 'requisitioning' them. The legality of this is in dispute and by August 2009, the matter was not resolved.<sup>46</sup>

In the past, EDF has always enjoyed access to cheap finance because its debts were fully backed by the French government so its credit rating was the same as that of the French government, which has always been Standard & Poor's (S&P) highest rating, AAA. Now that EDF is partially privatised, this has changed and in December 2008 EDF was rated AA- for long-term debt and A-1+ for short-term debt, with a negative credit watch (i.e., the rating was likely to be lowered).<sup>47</sup> In January, its rating was lowered to A+ (long-term) and A-1 (short-term)<sup>48</sup>

### 3.4. ENEL<sup>49</sup>

The acquisition of Endesa puts ENEL on a comparable scale to the other four large internationally-based energy companies. The Italian government retains 31.2% of the shares, 21.1% directly and 10.1% through the state-run lender, Cassa Depositi e Prestiti. ENEL's holdings in Europe, apart from Endesa, are relatively small and dispersed with generation assets in France and Bulgaria. In 2005, it took over 66% of the largest Slovak generation company Slovenské Elektrárne (SE), with 6GW of plant. In Romania, it controls (51 per cent) of Electrica Banat and Electrica Dobrogea, electricity distributors with 1.4 m customers.

<sup>41</sup> La Tribune 'Pierre Gadonneix : "nos tarifs doivent refléter nos investissements"' July 9, 2009

<sup>42</sup> European Daily Electricity Markets 'Future of the German power grid remains hot topic in industry circles, TSOs disagree' September 22, 2008

<sup>43</sup> S Thomas (2009) 'ENEL: Business prospects and risks in nuclear energy' PSIRU, University of Greenwich. <http://www.greenpeace.org/raw/content/italy/ufficiostampa/rapporti/debiti-enel-nucleare.pdf>

<sup>44</sup> Nucleonics Week 'Italy seeks open competition as it plans to revive nuclear program' June 4, 2009, p 7

<sup>45</sup> The Times 'Commission raids EDF in price-fixing investigation' March 12, 2009 p 49.

<sup>46</sup> Nucleonics Week 'Some strikers returning to work under order at EDF reactors', June 25, 2009

<http://www.fnme-cgt.fr/pages/communiqu.php?id=18> and <http://www.fnme-cgt.fr/pages/communiqu.php?id=17>

<sup>47</sup> Nucleonics Week 'S&P rates Areva short-term credit highly, cites strong fundamentals', December 4, 2008, p 9

<sup>48</sup> French Business Digest 'S&P downgrades EDF to A+' February 12, 2009

<sup>49</sup> S Thomas (2009) 'ENEL: Business prospects and risks in nuclear energy' PSIRU, University of Greenwich. <http://www.greenpeace.org/raw/content/italy/ufficiostampa/rapporti/debiti-enel-nucleare.pdf>

ENEL is unique amongst the Seven Brothers in having major holdings in Russia. It entered Russia in 2004 taking a 49.5% stake in a Russian trader, Res. It managed a 450MW combined cycle plant in St Petersburg from 2004-07. In April 2007, it acquired stakes in promising gas fields, through SeverEnergia, a consortium 40% ENEL, 60% Eni. ENEL also owns 55.7% of the JCS Fifth Generation Company of the Wholesale Electricity Market (OGK-5). OGK-5 runs 4 thermal power plants in Russia with a capacity of 8.7GW.

In October 2007, ENEL and Acciona, a Spanish engineering company, completed the takeover of Endesa, Spain's largest utility. ENEL (67%) and Acciona (25%) hold 92% of Endesa's shares. Endesa's main assets outside Spain are in Latin America, where it owns 14,317MW of generating capacity. In December 2008, there was speculation that ENEL would buy Acciona's stake for €12bn. Under the terms of the Endesa takeover, Acciona has the option (a 'put' option) to sell its stake any time between 27 March 2010 and 26 March 2016. Selling its stake would allow Acciona to reduce its debts of over €17bn but would increase ENEL's debts. There were also reports that there were disagreements between ENEL and Acciona about representation of Acciona on the Endesa board and, more the policy of ENEL and Endesa on renewables. In January 2009, there were reports that the sale of Acciona's stake in Endesa was imminent.<sup>50</sup> Reflecting the strain that the acquisition of Endesa had put on ENEL and the potential additional strain the acquisition of Acciona's shares would put on ENEL, Standard & Poor's placed ENEL's long-term rating on CreditWatch Negative and affirmed its 'A-2' short-term rating. Standard & Poor's stated 'The CreditWatch placement reflects our concerns about ENEL's weak capital structure; delays in its asset disposal program; significant refinancing risk; tight liquidity position; and ability to achieve credit metrics in line with its 'A-' rating by year-end 2009--namely, funds from operations (FFO) to debt of about 18% and FFO interest coverage of about 4x.'<sup>51</sup> In February 2009, the deal was finally agreed with ENEL paying €11bn for Acciona's stake in Endesa. Acciona SA will pay ENEL €2.9bn for some Endesa renewable energy assets. The agreement gives ENEL 92% of Endesa.

The support by Prime Minister Berlusconi for the rescinding of the nuclear phase-out policy has encouraged ENEL to make expanding its nuclear power capability a main corporate objective. In February 2009, EDF concluded an agreement with ENEL<sup>52</sup> to create a 50-50 joint venture to investigate construction of the Areva EPRs in Italy, contingent upon changes in the Italian legislative and regulatory framework.<sup>53</sup>

ENEL's largest potential nuclear investment outside Italy is in France, where it has been working with EDF on the construction of new nuclear plants in France since 2003. It had tried to take a stake in a small French generation company, SNET, which Endesa also had a share in but these holdings were passed to E.ON as part of the deal under which E.ON withdrew their bid for Endesa. For most of 2004, a deal with EDF was said to be imminent but it was not till May 2005 that the deal was finally agreed.<sup>54</sup> Under the deal, ENEL would take 200MW (12.5%) from each of the first five EPRs built in France. Construction on the first unit, Flamanville 3, started in December 2007. Because power from Flamanville-3 was not expected to be available before 2012, ENEL will be given access to the equivalent of that 12.5% stake in six reactors, or about 1,200 MW, from EDF's existing nuclear plant fleet.<sup>55</sup> ENEL will pay 12.5% of the cost of Flamanville-3 and will participate in the top-level engineering and construction project, to gain experience for future nuclear projects of its own. Conclusion of the deal was delayed until November 2007.<sup>56</sup>

Large sections of the ENEL annual report are devoted to renewable, but the sale of some of Endesa's Spanish renewable assets to Acciona and the proposed sale of a minority stake in ENEL Green Power reduce the scale of ENEL's renewable assets. Even in 2008, before any of ENEL's main nuclear projects were commenced, capital expenditure on nuclear was nearly double that on 'alternative energy resources'.<sup>57</sup> Developing carbon capture technologies does not seem to be a corporate priority.

<sup>50</sup> European Daily Electricity Market 'Enel takeover of Acciona's Enel stake imminent - report' January 20, 2009.

<sup>51</sup> Market News Publishing 'Italian Utility Enel SpA 'A-' Long-Term Rating Placed On CreditWatch Negative; 'A-2' Short-Term Rating Affirmed' January 15, 2009.

<sup>52</sup> S Thomas (2009) 'ENEL: Business prospects and risks in nuclear energy' PSIRU, University of Greenwich. <http://www.greenpeace.org/raw/content/italy/ufficiostampa/rapporti/debiti-enel-nucleare.pdf>

<sup>53</sup> Nucleonics Week 'Italy seeks open competition as it plans to revive nuclear program' June 4, 2009, p 7

<sup>54</sup> Nucleonics Week 'EDF-ENEL MOU foresees 1,200 MW of new nuclear for Italians' June 2, 2005, p 3.

<sup>55</sup> Nucleonics Week 'French-Italian pact spells out ENEL participation in EDF's EPR' June 15, 2005, p 6

<sup>56</sup> Nucleonics Week 'Italy's ENEL takes shares in EDF projects, including EPR' December 6, 2007, p 4.

<sup>57</sup> Enel, 2009 'Annual report 2008' Enel, Rome p 118.

[http://www.enel.it/azienda/en/investor\\_relations/bilanci\\_documenti/doc/2008BILCONS/Annual\\_Report\\_ing.pdf](http://www.enel.it/azienda/en/investor_relations/bilanci_documenti/doc/2008BILCONS/Annual_Report_ing.pdf)



Over the past five years, revenue and net income (profits) have doubled, mostly since 2007 and the acquisition of Endesa, which also led to a significant increase in number of employees. However, what is most striking is the increase in debt, which had been falling for several years up to 2006, but increased five-fold in 2007. There was a reduction of 10% in net debt in 2008, but levels of debt are still far above levels in the past decade and far higher than its four main rivals. The credit rating has also been falling. For the long-term, both Standard & Poor's and Moody's rate ENEL well below their highest ratings and the outlook is for further declines. ENEL's short-term ability to repay its debts is not in doubt but its declining long-term rating will impact adversely on its cost of capital, particularly important given ENEL's high debts and its ambitious nuclear investment plans. As a result, its analysis of its 2008 results states: 'Maintaining A-/A2 rating is key to deploying our plan' and it aims to reduce net debt to €41bn by 2013. It aims to do this primarily through asset sales (€10bn), a rights issue (€8bn) and free cash flow (€4bn). These have to be off-set against the €12bn that will be required to finance the buyout of Acciona from Endesa. The asset sales include:

- Sale of high voltage electricity grid (2009);
- Sale of majority stake of gas network (2009);
- Sale of minority stake of ENEL Green Power (2009); and
- Other non-strategic assets (2009 and 2010).

The first three sales were expected to raise €6bn, while the non-strategic assets (unspecified) are expected to raise €1.6bn in 2009 and €2.4bn in 2010.<sup>58</sup> The sale of the high voltage grid (TERNNA) raised €1.15 in April 2009.<sup>59</sup> In May 2009, an 80% stake in ENEL Rete Gas, the distribution network, was sold to infrastructure investment fund F2i and Axa Private Equity for €480m. The value of the stake in ENEL Green Power that must be sold to make up the €6bn target is, implicitly, €3.5bn. Whether this is realistic remains to be seen.

The rights issue took place in June 2009 and was underwritten by a group of banks and backed by the Italian state, a 31% shareholder, which agreed to back the rights issue. 99% of the issue was taken up.<sup>60</sup> ENEL is also increasing its free cash flow by abandoning a target of a fixed €0.49 a share in favour of paying out 60% of net profits from 2009 onwards. It is reducing its capital expenditure plans by €12bn from its previous capital expenditure plans, and will spend €33bn over the next five years.<sup>61</sup>

### 3.5. RWE

Like E.ON and EDF, RWE's main base outside its home market (Germany) is the UK. It continues to have important holdings mainly in Eastern Europe, in Poland (distribution), the Czech Republic (6 regional distributors and the gas transmission company) and Hungary (2 distributors and generation). RWE was still voicing its opposition to unbundling its electricity transmission network, RWE Transportnetz Strom, in September 2008.<sup>62</sup> In June 2009, it rebranded this as 'Amprion' and the company will now be directly managed by the CEO's division, a move which RWE claims will allow it to meet the EU Electricity Directive's provisions.<sup>63</sup>

However, again in contrast to E.ON, it offered in June 2008 to sell its gas transmission network, RWE Transportnetz Gas.<sup>64</sup> A consortium of Ruhrland municipal utilities led by Stadtwerke Bochum in partnership with Dutch group Gasunie have confirmed their interest in the 4,000km network, which covers the west German states of North Rhine Westphalia and Lower Saxony.<sup>65</sup> RWE chairman Jurgen Grossmann said the company did not need to sell assets to reduce debt, and would prefer to acquire foreign energy assets in exchange for the gas grid.

Its strategy is to expand its operations from Germany, UK, Benelux and Central and Eastern Europe to South East Europe and Turkey, although it failed to bid in the recent Turkish distribution company privatisations. On technology, it expects a 'massive expansion of the share of renewable energies in our generating mix'.

<sup>58</sup> FD Wire 'Full Year 2008 Enel S.p.A. Earnings and 2009/2013 Business Plan Presentation – Final' March 12, 2009

<sup>59</sup> BMI Western Europe Oil and Gas Insights 'Enel Sells 80% Of Enel Rete Gas To Reduce Debt Burden' July 1, 2009.

<sup>60</sup> Power in Europe 'Enel concludes rights issue' June 29, 2009, p18

<sup>61</sup> Breakingviews 'Enel's €8bn cash call more than enough' March 12, 2009

<sup>62</sup> European Daily Electricity Markets 'Future of the German power grid remains hot topic in industry circles, TSOs disagree' September 22, 2008

<sup>63</sup> Power in Europe 'RWE rejigs grid reporting' July 13, 2009, p 14

<sup>64</sup> Utility Week 'GASRWE confirms plans to sell gas network', June 6, 2008.

<sup>65</sup> Utility Week 'Grids line up for divestment' June 26, 2009



In January 2009, RWE beat reported opposition from EDF, DONG and Vattenfall to win the contest, to buy the Dutch utility Essent for €9.3bn.<sup>66</sup> Essent's distribution networks and waste management operations were not included in the deal. However, it was blocked by the courts from acquiring Essent's 50% stake in the Borssele nuclear power plant on the grounds that the acquisition undermined the public interest and that of the other shareholder, Dutch utility Delta NV<sup>67</sup>. It is not clear whether this problem will affect the takeover in general, which, in August 2009, was still scheduled to be completed in third quarter 2009.<sup>68</sup>

In the UK, RWE has formed a partnership with E.ON to build nuclear plants there. It bought two sites at auction in April 2009 and has stated it hopes to build at least 6000MW of nuclear capacity there (technology still to be decided).<sup>69</sup> RWE also plans to build nuclear plants in Bulgaria and Romania.

RWE's main nuclear capability is in Germany and its annual report makes it clear that its priority is to keep this plant in operation as long as possible.<sup>70</sup>

'Nuclear power generation emits practically no carbon dioxide, and if nuclear power stations are shut down, they will have to be replaced by higher-emission fossil fuel-fired power plants. This is because renewables-based facilities are not capable of generating the same amounts of base-load power. We could prevent up to an additional 15 million metric tons of CO<sub>2</sub> emissions per year merely by extending the lifetimes of our two Biblis units.'

RWE plans to retrofit a coal fired power plant in Germany (Hamm, 1530MW) which it is building (expected completion 2011) with Carbon Capture and Storage (CCS) technology. It also plans to build a plant in UK and is actively working to develop CCS technology. Whilst it does mention renewable technologies, these represent only about 2% of its generation and renewable make up a small part of its investment plans. RWE's debt levels were relatively low and this put it in a good position to buy Essent.

### 3.6. Iberdrola

Iberdrola completed the takeover of Scottish Power in 2007 for €17.2bn but its activities in Europe remain concentrated in UK and Spain. An attempted takeover of Iberdrola by EDF in 2008 was strongly resisted and was abandoned in September 2008.

In October 2008, Iberdrola completed the friendly acquisition of US utility Energy East, a deal first announced in June 2007, but delayed by the process of getting regulatory approvals from the states (Maine, New Hampshire, Connecticut and New York ) involved. The deal cost Iberdrola €6.1bn made up of €3.2bn in cash and the rest in debt.<sup>71</sup> Energy East is the parent company for New York State Electric & Gas, Rochester Gas & Electric, Central Maine Power, Connecticut Natural Gas and Southern Connecticut Natural Gas. In addition to electric transmission and gas pipeline and distribution assets, the company has 1.8 million electric utility customers, 920,000 gas customers and 555 MW of generating capacity.<sup>72</sup>

In the UK, GDF Suez has formed a consortium with Scottish & Southern Energy and Iberdrola (owner of Scottish Power) to build plants in the UK. Sites in the UK are being auctioned and by July 2009, this consortium had not bid successfully for sites although the consortium had not withdrawn from the process.

There is little reference to its nuclear capabilities (in Spain) or Carbon Capture and Storage. It makes a strong case for its renewable credentials. Its web-site states:<sup>73</sup>

'We are leaders in the challenge involving more efficient and environmentally-friendly energy sources, with a commitment to service quality and supply guarantee. This leadership contributes to the growth of our businesses in Latin America and the United Kingdom, the development of the renewable energy business and the international expansion of our engineering and real estate business.'

<sup>66</sup> Agence France Press, 2009 'German power group agrees 9.3-bln-eur takeover of Dutch peer' January 12, 2009

<sup>67</sup> M&A Navigator 'Court rejects German RWE buying 50% in Dutch nuclear plant' July 13, 2009

<sup>68</sup> Tenders Info 'Germany: RWE: Essent Deal 1H Advance Financing Costs EUR50M' August 14, 2009.

<sup>69</sup> Nucleonics Week 'RWE npower/E.On UK team, EDF winning bidders in UK land auction' April 30, 2009, p 16

<sup>70</sup> RWE, 2009 'Annual report, 2008' RWE, Essen p 37.

<http://www.rwe.com/web/cms/mediablob/en/204612/data/110822/36048/rwe/investor-relations/financial-reports/Annual-report-2008-PDF-Download-.pdf>

<sup>71</sup> Energy Business Journal 'Energy East Corporation; Iberdrola S.A.; Iberdrola Completes Friendly Acquisition of Energy East' October 3, 2008

<sup>72</sup> Platts Power Market Week 'Iberdrola completes \$9.1 billion acquisition of Energy East, with investments to come' September 22, 2008

<sup>73</sup> <http://www.iberdrola.es/webibd/corporativa/iberdrola?IDPAG=ENWEBCONLINEA>

Iberdrola's debt to turnover ratio is by far the highest of the Seven Brothers, mainly as a result of its acquisition of Scottish Power and Energy East (combined cost €23.3 compared to total net debt of €29bn). This does not seem to concern the credit rating agencies and Moody's rates Iberdrola 'A' with a stable outlook. Nevertheless, Iberdrola is carrying modest measures to reduce its debt. It is cutting investment and is raising €2.5bn by sale of assets, for example, its stake in wind-turbine maker Gamesa.<sup>74</sup> It also raised €1.325bn in June 2009 via a new stock issue.

### 3.7. Vattenfall

Vattenfall is the main Swedish energy company and is 100 per cent owned by the Swedish state. Its main activities outside Sweden are in Germany (these are larger than its Swedish operations) where it is the incumbent electricity company in Berlin, Hamburg and the former East Germany. In Denmark, a failed attempt to take over a large electricity company, Elsam, led to it acquiring generation capacity of approximately 2500MW (e) and 2100 MW heat from Elsam and E2 (both taken over by DONG (see below). It also has assets in Finland and Poland. Vattenfall followed E.ON's example in offering to sell of its German grid in June 2008<sup>75</sup>.

In December 2008, Vattenfall announced that from January 2009, it would create a new business unit, Wind, Nuclear & Engineering, and the 'Trading' would get 'a more marked placing' in the new organisation.<sup>76</sup> Their main strategic move was the takeover of the Dutch energy company, Nuon in February 2009.<sup>77</sup> It was reportedly outbid by RWE for the comparable company, Essent, only a month earlier. It will pay a total of €8.5bn in cash for the company. It will initially take 49% of the shares and its stake will build up to 100% over the following 6 years. As with the sale of Essent to RWE, Nuon's networks were not included in the deal. The deal will give Vattenfall a better connection between its main Swedish and German businesses.

Vattenfall had been involved in the UK nuclear construction programme but in June 2009, Vattenfall said it was putting on hold for 12 to 18 months any decision on whether to participate in the UK's new construction program. Vattenfall cited the recession and economic uncertainty as reasons for holding off.<sup>78</sup>

Its annual report lists nuclear, renewables (including use of biomass in its fossil fuel stations and Carbon Capture and Storage (CCS) all as elements of its long-term strategy. Up to 2020, it sees renewable (biomass and wind) as the most important element. It also sees 'further development of its existing nuclear power, i.e., keeping its plants in Germany and Sweden in operation despite the phase-out policies that apply in both countries. However, in the long-term, it seems to see Carbon Capture and Storage (CCS) as the most important strategy. Its 2008 annual report states:<sup>79</sup>

'Most important over time will be the adoption of the emerging CCS technology, which makes it possible to capture and store carbon dioxide instead of emitting it into the atmosphere. In September 2008 Vattenfall inaugurated a pilot CCS plant at Schwarze Pumpe, Germany, and it is our ambition to participate in the EU's programme for demonstration plants on a larger scale.'

Its existing nuclear plants have been problematic since 2007. Its two German plants, Brunsbüttel and Krümmel (50% owned by Vattenfall), were shut in June 2007, after a serious electrical fires at both stations.<sup>80</sup> In July 2009, Brunsbüttel was not expected to be back on-line till 2010, while Krümmel returned to service in June 2009 but in July 2009, went off-line and was still off-line in August 2009.<sup>81</sup>

At the Ringhals<sup>82</sup> site and Forsmark<sup>83</sup> sites in Sweden, Vattenfall where there are, respectively, four and three, nuclear reactors, majority owned by Vattenfall has been in conflict with the Swedish Radiation Authority. It has placed the Ringhals plants under 'special supervision' because it has 'observed deficiencies

<sup>74</sup> Breakingviews 'Take cover' June 17, 2009

<sup>75</sup> Utility Week 'energyVattenfall Europe to divest power network' June 13, 2008.

<sup>76</sup> Vattenfall, 2008 'Vattenfall develops its organisation' Press Release, 17 December 2008.

[http://www.vattenfall.com/www/vf\\_com/vf\\_com/370103press/370135press/385357press/index.jsp?pmid=96433](http://www.vattenfall.com/www/vf_com/vf_com/370103press/370135press/385357press/index.jsp?pmid=96433)

<sup>77</sup> Agence France Presse 'Sweden's Vattenfall to buy Dutch Nuon for 8.5 billion euros' February 23, 2009.

<sup>78</sup> Nucleonics Week 'NDA offers Sellafield as last parcel for potential nuclear construction' June 11, 2009, p 4.

<sup>79</sup> Vattenfall, 2009 'Annual report' Vattenfall, Stockholm, p 5.

[http://www.vattenfall.com/www/vf\\_com/vf\\_com/Gemeinsame\\_Inhalte/DOCUMENT/360168vatt/5966164xin/596675annu/1608234200/P02.pdf](http://www.vattenfall.com/www/vf_com/vf_com/Gemeinsame_Inhalte/DOCUMENT/360168vatt/5966164xin/596675annu/1608234200/P02.pdf)

<sup>80</sup> Nucleonics Week 'Complex repairs to push restarts of Brunsbüttel, Krümmel into 2009' December 11, 2008,

<sup>81</sup> European Daily Electricity Markets 'Vattenfall's Brunsbüttel nuke off line until 2010' July 30, 2009

<sup>82</sup> Associated Press 'Swedish nuclear plan under special supervision' July 8, 2009.

<sup>83</sup> Nucleonics Week 'Regulators: Safety culture problems at Forsmark persist despite changes' Sept 11, 2008, p 11.

that can be linked to the safety culture' at these units. The Swedish Radiation Safety Authority said that Vattenfall had failed to correct safety shortcomings the authority had pointed out for the past years.<sup>84</sup> An issue that can be raised is if these accidents and a failing security culture can be linked to the company's corporate behaviour and profit maximisation.

#### 4. The national companies

Of the predominantly national companies, only Centrica and CEZ seem to have significant international expansion ambitions and Centrica's sale of its main European asset, SPE seems to place its international ambitions in doubt. Verbund is often mentioned in international markets but it has few assets outside Austria. Gas Natural has taken over one of the significant Spanish electricity companies, Union Fenosa, but it is not clear yet how the new company is expected to develop.

##### 4.1. Centrica

Centrica's turnover is still dominated by its UK gas and electricity businesses, which account for 75% of their turnover. Most of the remainder is accounted for by their US Business, Direct Energy (23%) while the European operations account for only 2% and the sale of SPE means this figure will fall even further.

##### 4.2. CEZ

CEZ has a very strong agenda to expand into Central and South Eastern Europe. It is still largely publicly owned with the Czech Ministry of Finance holding 64.3% of the shares and a further 10% is owned by itself. Its Czech business was formed in 2003, when CEZ, which up till then had been a generation and transmission company, took over several distribution companies.

In Bulgaria, it took over 67% of three distribution companies (Sofia, Stolichno and Pleven) with a total of 1.9m consumers in 2005 from the Bulgarian government. In October 2006, it took over the Varna (1260MW) coal-fired power plant. It has small businesses in Poland and Romania. In June 2009, it took a 76% stake in the sole Albanian electricity distribution company, OSSH. CEZ will pay €102m for the stake and repay €124m of its debts<sup>85</sup>. CEZ has been reported to be interested in purchasing a stake in the Polish utility, ENEA, but it did not place a bid.<sup>86</sup> However, in June 2009, it completed the takeover, in combination with J&T, a Czech investment group of a German mining company, Mibrag, for about €404m.<sup>87</sup>

##### 4.3. DONG

DONG became an important electricity company when it took over a number of Danish electricity generation and distribution companies in 2005. The company is still 100% publicly owned and attempts to privatise it through an IPO have been postponed several times and will not now take place before 2009. The company is an unusual mixture of upstream international oil and gas exploration and production, national electricity generation, and national gas and electricity distribution. It has some international generation interests, for example, it is a 50% stake-holder in the London Array project to build an off-shore wind farm with a total capacity of 1000MW.

In March 2009, DONG made small acquisitions in the UK from Welsh Power, a small generation company. These included an 800MW gas-fired station due on-line in 2010. The deal was worth about €630m.<sup>88</sup>

##### 4.4. Gas Natural and Union Fenosa

Gas Natural (GN), co-owned by Repsol (Spanish oil company) and La Caixa (Spanish bank), was outbid by E.ON in its attempt to take over Endesa but it continues to have ambitions to become a major presence in electricity markets, at least in Spain. In July 2008, it agreed to buy the 45.3% holding by ACS, a Spanish construction and services group, in Union Fenosa, Spain's fourth largest electricity company. GN expects to complete the full takeover in 2009 for €16.5bn. ACS hopes to use the proceeds to increase its stake in Iberdrola to 30%, although this is a move that Iberdrola would be expected to resist<sup>89</sup>. Gas Natural said after

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<sup>84</sup> UPI Energy 'Vattenfall's image tarnished' July 10, 2009.

<sup>85</sup> Power in Europe 'Investing in the Balkans: no pain, no gain' June 29, 2009, p 4.

<sup>86</sup> Intellinews 'Treasury short-lists Germany's RWE for talks on power firm Enea privatisation', August 18, 2009.

<sup>87</sup> Access Czech Republic Business Bulletin 'CEZ and J&T have been allowed to take over German mines' June 8 2009.

<sup>88</sup> Nordic Business Report 'Danish DONG acquires UK assets in DKK5bn deal' March 6, 2009

<sup>89</sup> Expansion 'Gas Natural takeover of Union Fenosa could take place as soon as January' October 11, 2008.

it bought ACS' stake in Fenosa that it planned to sell off around €3.0bn of its non-core assets, for example, its LNG regasification facility, to generate cash to complete the purchase and to comply with the conditions laid down by Spanish competition regulator CNC for the takeover of Union Fenosa. In July 2009, Gas Natural sold its low-pressure gas distribution networks and supply clients in the regions of Cantabria and Murcia to Naturgas Energía, the Spanish gas distribution company in which EDP has a 64% stake. Naturgas Energía also bought Gas Natural's high pressure gas networks in the regions of Asturias, País Vasco and Cantabria<sup>90</sup>. The total deal was valued at €330m.

#### 4.5. Fortum

In June 2008, Fortum concluded a deal with a Norwegian electricity distribution/retailer, Hafslund, which is based mainly in Oslo and was owned largely by the Oslo local authority. Under the deal, Hafslund Infratek, Hafslund's technical services business in which Hafslund owned 63% of the shares, was merged with Fortum's technical services division. The new company, in which Hafslund holds 43.3% of the shares and Fortum 33%, is called Infratek and has 2500 employees.

#### 4.6. Statkraft

In October 2007, E.ON took over the 44.3% of E.ON Sverige owned by the Statkraft in exchange for one third of E.ON Sverige's hydro power assets and some of its heat production assets. Also in the assets taken over by Statkraft will be plants in Germany, UK as well as Sweden (see section on E.ON for further details).

#### 4.7. Atel

Atel is Switzerland's largest electricity company. Its shareholder structure is complex but its largest shareholder is Motor-Columbus with 58.5% of the shares. EDF through its shares in Motor Columbus and directly owns 26% of the shares in Atel, while EOS (Energie Ouest Suisse Holding) is the other major shareholder with 18%. It plans to merge with EOS in 2009 and this deal might include EDF's other Swiss assets. Atel has also increased its holding in Edipower, the power generation arm of Edison of Italy from 16% to 20% (the other shareholders are Edison, 50%, A2A (see below) 20% and an Italian utility, IRIDE (a municipal utility based mainly in Genoa and Turin)' 10%.

#### 4.8. Italian municipal utilities

A2A was formed in January 2008 from the merger of the former municipal companies of Milan (AEM) and Brescia). The municipal authorities of Brescia and Milan own over 50% of the shares of A2A, although there has been some tension between Brescia and Milan because the Brescian authorities do not believe they are adequately represented on the board. It describes itself as a 'multi-utility' but its main activities are in energy. It claims it is the second largest Italian company in electricity generation and sales, the third largest in terms of gas sales and the largest in terms of district heating. In June 2008, it agreed that as part of the deal for E.ON to divest Endesa Italia (this was part of the deal that allowed E.ON to withdraw from its bid to take over Endesa), A2A would exchange its 20% stake in Endesa Italia for 1460MW of generating capacity. It owns 20% of Edipower.

Iride, based in Turin and Genoa, merged with ENIA, based in Parma, Piacenza and Reggio Emilia in October 2008. The new company would have 51% shareholding from the constituent municipalities. There have been discussions with Hera (based in Bologna) about joining the merged company.

#### 4.9. National Grid

National Grid is the privatised company created to own the electricity transmission network of England & Wales. In 2002, it took over the equivalent company in gas and now owns the high pressure transmission gas network and much of the low pressure gas distribution network. It has major electricity network assets in the USA, mainly in New England. Its only significant businesses are in the USA, where 62% of its employees are located and 58% of its turnover takes place and the UK. Because in UK, National Grid is not allowed to operate in commercial energy markets, it is of limited interest from a competition point of view and is highly unlikely to be a take-over target by the main European energy companies. It remains to be seen whether National Grid will seek to expand its network activities into Europe.

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<sup>90</sup> European Spot Gas Markets 'Portugal's EDP to buy Gas Natural's divested Spanish distribution assets' July 21, 2009.

The company has proposed to outsource back-office work and as a consequence to cut nearly 190 jobs in Newcastle. This is vigorously being contested by the unions at the time of writing.<sup>91</sup>

## 5. National/Regional markets

### 5.1. Poland

The Polish electricity market is dominated by four state-owned, integrated companies, Polska Grupa Energetyczna (PGE), Tauron Polska Energia, Enea and Energa, created in December 2006. These companies control about 75% of generation and retail and were created from a large number of generation and distribution companies with the intention of creating companies large enough to compete with international groups. The government then planned to privatise them soon after their creation. But this process has been continually delayed, most recently by the global credit crisis and it may be that the Initial Public Offerings (IPO) will not be before end 2009.

There had been criticism that this concentration and integration of generation and retail had been at the expense of competition. The head of the regulatory body, URE, was sacked in October 2007, soon after electricity retail competition had been introduced for all in July 2007. The outgoing head of URE, Adam Szafranski, was replaced by Mariusz Swora, who decided that the existing structure of electrical energy sector did not allow for free-market prices and reinstated the tariff regulation.

In August 2009, the Polish government announced an acceleration of its plans to privatise energy companies including the two largest power producers, Polska Grupa Energetyczna (PGE) and Tauron; the power generator Enea, the Gdansk-based utility Energa, and the vertically integrated energy group Grupa Lotos.<sup>92</sup>

### 5.2. Baltic States

In November 2008, the prime ministers of Latvia, Lithuania and Estonia decided that by 2013, they would join the Nordic market, creating a Baltic market by 2012. This would require them to reform their electricity industry structure so that it complied with Nordic market principles. The details of this will be worked out in 2009, but it will require major new cables to be constructed. The prime ministers also affirmed their support for the construction of a new nuclear plant in Lithuania to replace the existing Russian-designed plant.

### 5.3. Luxembourg

In July 2008, Luxembourg's main energy companies announced their intention to merge to create a single national champion company.<sup>93</sup> The new entity would be formed through the merger of the electricity group CEGEDEL, gas supplier SOTEG and gas distributor Saar Ferngas. In January 2009, the Luxembourg government announced the completion of the deal. The shareholders in the new company were stated to be: the State of Luxembourg (28.3%); ArcelorMittal Luxembourg (25.3%); RWE (19.8%); E.ON (10.8%); SNCI – a bank owned by the Luxembourg state (10.8%); and Electrabel/GDF Suez (5.1%).<sup>94</sup>

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<sup>91</sup> <http://www.nationalgreed.co.uk/>

<sup>92</sup> Global Insight 'Polish Government Approves Accelerated Energy Company Privatisation Plan' August 12, 2009.

<sup>93</sup> Global Insight 'Luxembourg to Consolidate Energy Companies into National Champion' July 24, 2008.

<sup>94</sup> [http://www.cegedel.lu/imperia/md/content/cegedel/cegedel-sa/communiqués-presse/fusion/communiqué\\_fusion\\_en\\_23janv2009.pdf](http://www.cegedel.lu/imperia/md/content/cegedel/cegedel-sa/communiqués-presse/fusion/communiqué_fusion_en_23janv2009.pdf)