

Mergers and Acquisitions: An Energy Sector Case Study

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Abstract

When I decided to do a thesis focused on Energy Mergers and Acquisitions, EDP's Privatization had just been launched and E.ON was one of the potential bidders.

Soon after E.ON joined the pool of bidders, discussion emerged about E.ON's motivations for the deal. Was E.ON interested in the deal for the value creation potential of acquiring EDP or was it being pressed by Berlin to participate in the bid and help show worldwide investors that the Portuguese Privatization Program was credible and contained attractive investing opportunities?

Another question that arose was if E.ON would be willing to pay a fair price for EDP or if they were just looking to the deal as good bargain from a seller (Portuguese State) in need.

This thesis intends to help answering these two questions.

After revising valuation and M&A literature, I focused on analyzing the energy sector and both companies' profiles. I concluded that there was, in fact, perfect economic reasoning for E.ON bidding for EDP.

EDP acquisition would allow E.ON to accomplish two major strategic goals: increase the foothold in renewables and expand its presence in fast growing emerging markets.

When I finished covering the first question, E.ON had already made the bid in late 2011. This allowed analyzing *a posteriori* the bid and concluding that the bid price offered by E.ON was reasonably below the fair price they could have paid.

Ultimately, E.ON lost the bid to China Three Gorges which proposed a higher price and more favorable payment terms. E.ON lost a good opportunity to add growth and diversification to its business portfolio.

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Writing a master thesis on M&A whilst working full-time on investment banking proved to be a very rewarding experience. It allowed me to refresh and profound the theory that many times is used without questioning on daily practice.

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1. Introduction

This thesis has two main goals:

1. Share with the readers an overview of and Mergers and Acquisitions (“M&A”) key ingredients: valuation techniques, analysis of company and industry backgrounds and deal rationale;
2. Assess if EON’s bid for EDP had economic reasoning and, if so, if it was made at fair price or if there was margin for improvement.

To accomplish these goals, I am going to start by presenting a Literature Review of the main methodologies and relevant issues regarding Valuation and M&A.

The Literature Review will include references from academics and practitioners and will focus, always when possible, on particular issues relating to energy M&A deals.

Following this chapter, I will depict the industry and companies background with the purpose of assessing if there is a strategic and economic rationale that supports E.ON acquiring EDP.

I will then estimate financial projections for E.ON and EDP and value both companies and the synergies created from the business combination.

I will conclude my thesis by comparing the real bid E.ON made in late 2011 (that was not successful) with a theoretical bid based on a fundamental analysis that will also take into account current sector, economic and capital markets background.

2. Literature Review

2.1. Introduction

The objective of this literature review is to share a body of knowledge which will enable readers with different backgrounds to go through the case.

The body of the literature review below is divided in two segments:

- Valuation: where I depict the most common valuation methods according to books and articles of reference;
- Mergers & Acquisitions: in this segment I present different views and opinions contained in contemporary scientific papers and that shed some discussion about the merits of such operations.

The literature review in this thesis does not propose to be extensive but clarifying. I took the option of limiting the variety of subjects to those that are material to understand the case. If the reader intends to extend their knowledge on valuation, it is advisable to additionally read through contemporary valuation and/or corporate finance books.

2.2. Valuation

There are several valuation methods of different complexity and used with different purposes. Concerning our journey through the analysis of an E.ON bid for EDP, a brief explanation about valuation methodologies will allow covering two objectives:

- Understand the importance of valuation as a tool for shareholder wealth maximization (valuation in a Corporate Finance perspective);
- Understand the importance of valuation in determining the fair value of a target (company) both for the bidder and for the seller (valuation in Acquisition Analysis).

I am going to start by focusing on standard valuation methods and then add some layers of complexity by addressing particular issues worth mentioning in an M&A context.

2.2.1. Standard Valuation Methods

There are three generally accepted approaches to valuation: Discounted Cash Flow, Relative Valuation and Contingent Claim Valuation (also known as Real Options).

This literature review will cover only the first two, which are the ones to be used for valuing E.ON and EDP later on.

2.2.1.1. Discounted Cash Flow (“DCF”) Valuation

Using DCF entails calculating the present value of expected future cash flows by discounting them at a risk-adjusted rate.

The present value can be calculated using single rate discounting, typical in Equity and Firm Valuation, or multiple rate discounting, common in Adjusted Present Value methodology.

I present below a short “guide” on how to perform these approaches.

Equity and Firm Valuation

Free Cash Flow to the Firm (“FCFF”) comprises the funds generated by the company that can be distributed to the company’s equity and debt claimants. Below I present a commonly accepted simplified formulation of the concept:

$$\text{Free Cash Flow to the Firm} = \text{operating cash flow (after taxes)} - \Delta \text{ net working capital} - \text{capital expenditures} - \Delta \text{ other assets}$$

Free Cash Flow to the Equity (“FCFE”) deducts from the above mentioned cash flows, interest and principal payments. It represents the cash flow available for a company’s common shareholders.

$$\text{Free Cash Flow to the Equity} = \text{Free Cash Flow to the Firm} - \text{interest (after taxes)} - \text{principal payments}$$

Now, that we have a common base of understanding regarding cash flows, the next step necessary to obtain a valuation is to determine an appropriate discount rate.

Starting with the simpler case, to discount FCFE we must use a rate that represents the opportunity cost of the equity for a similar investment.

A common approach to do this is using CAPM (Capital Asset Pricing Model):

$$K_e = R_f + \beta_L (R_M - R_f)$$

K_e = Cost of equity

R_f = Risk-free rate of return

β_L = Project’s levered Beta

$(R_M - R_f)$ = Equity market risk premium (expected return on the market – risk free rate of return)

The formulation above calls for some discussion about its main components:

A) Risk-free rate of return:

Damodaran (2008) states in his last study about the risk-free rate that the best proxy for this rate is the “default-free (government) zero coupon rate that is matched up to when the cash flow or flows that are being discounted occur”.

The question that arises nowadays, particularly when valuing Portuguese companies, is if Portuguese government bonds can be considered risk-free. Unfortunately, under current circumstances it would be optimistic to say so.

But, Damodaran also provides an alternative for these situations consisting in netting of the implicit default spread. In practice, for Portuguese companies, this would lead to use as risk-free a figure close to the *German Bunds*. I will expand further on this subject later on under the contemporary cost of capital chapter.

B) Project's Levered Beta:

The project's levered Beta is a measure of quantification of the specific risk that equity claimants will be exposed to by investing in a project / company with a given capital structure.

As it is very difficult to try to assess what the specific risk will be for a particular project, practitioners usually look for information available in the market, namely by averaging out Betas of comparable companies (I will go a little bit deeper about the subject of what is a comparable company in the Relative Valuation section ahead). It seems very simple, but what's the catch then? Well, there is an intermediary step. Market data give us the equity (levered) betas for each company's specific capital structure. Therefore, it is necessary to "unlever" each comparable company's Beta, according to its capital structure, and only afterwards we can calculate the average or median asset beta for a "comparable" company/project.

There are two approaches for unlevering beta.

The more robust, as for instance Kaplan and Ruback and others are keen on, considers the existence of a Beta for preferential shares and debt:

$$B_u = [B_e \times E + B_p \times P + B_d \times D \times (1 - t_c)] / [E + P + D \times (1 - t_c)]$$

B_u = Beta unlevered

B_e = Equity Beta

B_p = Preferential equity Beta

B_d = Debt Beta

E = Shareholders Equity

P = Value of Preferential Shares

D = Total amount of Debt

t_c = marginal corporate tax rate

Other simplified approach, as used by many practitioners, assumes zero beta for debt. Additional, most of the companies don't have preferential shares (at least, not the two we are going to look at in this thesis), so the formula to *unlever* beta could be simplified to:

$$B_u = [B_e \times E] / [E + D \times (1 - t)]$$

B_u = Beta unlevered

B_e = Equity Beta

E = Shareholders Equity

D = Total amount of Debt

t_c = marginal corporate tax rate

After calculating a benchmark (based on an average, median or other statistic) for the project's unlevered risk, we then can apply the project's capital structure and determine its cost of equity (K_e).

C) Equity Market Risk Premium ("EMRP"):

EMRP represents a proxy for measuring systematic risk associated to investing in equity shares. The Financial Times, for instance, defines it as the additional return an investor expects to earn for holding a stock or investing in shares generally, against what they would earn holding less risky assets like bonds (...)"

There is some debate about what's the soundest way to calculate EMRP, namely regarding the share-bond return spread calculation. Kaplan and Ruback (1996) concluded in a study that the long-term arithmetic average of the historical return spread between the stock market index and riskless bonds appears to be the best alternative.

Not disregarding the theoretical models that can be used, one could also use market risk-premiums considered by investment banks or research houses. These, incorporate the financial investors and decision-makers views within a certain window of time and translate the existing market sentiment at the time of the analysis (please see contemporary cost of capital ahead for further detail on this subject).

Adding some complexity to the discount rate issue, I move on to explaining Weighted Average Cost of Capital (WACC).

WACC is the discount rate to use when applying Firm Valuation approach. This discount rate accounts for the costs of the different sources of financing, weighted according to their relative contribution for the company's capital structure.

$$\mathbf{WACC} = (D/V) K_D (1-t_c) + (E/V) K_E$$

D/V = proportion of total value (V) claimed by debt (D)

E/V = proportion of total value (V) claimed by equity (E)

K_D = required rate of return on debt capital

K_E = required rate of return on equity capital

t_c = marginal corporate tax rate

Albeit WACC being a weighted average, it usually bares the limitation of assuming that the company's capital structure will remain constant at a medium to long term benchmark level. In an M&A context, where acquisitions structures could be significantly leveraged, this could lead to a value distortion.

If the company's capital structure is somewhat stable this hurdle is less material, but for changing capital structures there are two alternatives if one wants to remain faithful to a cash flow based approach:

- Calculate a WACC for each year of the explicit period of projections until the capital structure is expected to remain stable;
- Use an Adjusted Present Value approach, as I'll introduce next.

Adjusted Present Value (“APV”)

APV is another approach involving discounted cash flows and it has some additional merits when comparing to the approaches explained above.

Luehrman (1997), for example, is one of the several academics and practitioners stating that APV adds information when comparing to WACC.

The method consists in valuing separately operations and financing side effects.

The former refers to the value of the company/ project as if it was financed entirely with equity and is obtained by discounting the cash flows generated by the assets/operations at the rate of return required by investors from assets with same riskiness and fully equity financed.

Regarding financing side effects, usually interest tax shields accounts for the bulk of relevant value relating to these effects. But it also includes a variety of other financing related impacts, such as subsidies or costs of financial distress.

At what rate these financing related cash flows should be discounted is a subject open to discussion, partially because their value can only be reaped if the company has operating profits. Luehrman (1997), for instance, defends that this should be accounted for by using a discount rate just above the cost of debt. On the other hand, Froot and Kester (1995) say we can use the cost of debt assuming they are realized with the same degree of risk than the debt associated with those tax shields.

As for the advantages of using APV, Luehrman (1997) stresses that it allows valuing the several sources of value creation, which is particularly relevant in an M&A context, without having to face the defying challenge of defining a capital structure for each one.

This kind of analysis enables a better assessment of which synergies and other value creation initiatives are long-term or short-term. Additionally, it enhances the chances of their successful implementation by providing a monitoring tool for future performance measurement on each relevant value creation initiative.

DCF based valuations appear to be the most consistent approach for valuation as shown by a study from Kaplan and Ruback (1996) that analyzed 51 high leveraged transactions. Nevertheless, the authors also found evidence that “relative valuation” (also known as method of comparables) performs very satisfyingly and that the soundest valuation approach was, in fact, combining the two methods: DCF and Relative Valuation.

2.2.1.2. Relative Valuation

Relative Valuation consists in valuing a company (or an asset) deriving from the value of comparables companies by using a common variable such as revenues, earnings or cash flows.

Multiples used in valuations are usually categorized in:

- Market multiples: also known as *trading multiples*, allow to estimate a company’s value based on relative valuation metrics of comparable companies;
- Transaction multiples: derive valuation from implicit information regarding to recent transactions of comparable companies.

A variety of multiples can be used in valuations, ranging from the “*ready-to-use*” net income multiples, like the price-to-earnings ratio, to enterprise value multiples like the enterprise-value-to-EBITDA ratio.

Net income multiples are more readily available, but as Goedhart, Koller and Wessels (2005) state, they are influenced by the companies' capital structure, taxes and non-cash charges. In light of this, cash-flow multiples are commonly chosen as the best option to determine a company's value. For example, Sarin, Koeplin and Shapiro (2000) state that multiples derived from earnings before interest and taxes are not influenced by the capital structure so they are a better proxy for free cash flow. They add that, if capital expenditures are expected to be close to annual depreciation value, EBIT could be a good measure, but on the other hand, if capital expenditures are negligible, EBITDA should be used.

Depending of the specificities of the sector and the companies' stage of development, asset based multiples or operational multiples could also be used (for example: EV-to-Regulatory Asset Base or EV-to-number of MW installed)

Albeit this method of valuation may seem an oversimplification, it has a strong merit: it is probably the best way to capture the market's current view regarding the potential value for a transaction of an asset/ company.

Kaplan and Ruback (1996) state that comparable companies that are used as benchmark incorporate market expectations of future cash flows and discount rates. Hence, the multiples one applies in valuing a company should give a good proxy for market value of the company in hands.

On the other hand, Kaplan and Ruback also highlight one of the most commonly stated pitfalls of Relative Valuation approach: to what extend can we select a large enough number of companies that are comparable with our subject of valuation?

When forming a peer group one should be aware that both the companies and the transactions should be comparable. This implies scrutinizing cash flow profile, growth rates and specific risks to select the companies and analyze percentage of capital acquired, mode of payment and type of acquirer to filter the relevant transactions. Goedhart, Koller and Wessels (2005), for instance, indicate that trimming out the peer group by selecting most comparable Returns on Invested Capital and growth rates could add some robustness to the comparability of the companies.

Relative Valuation is a practical approach and is commonly used by practitioners as a *sanity check* of a DCF valuation but it is not an approach that should be used in situations that have a very specific context. For instance, Kim and Ritter (1994) concluded in a study that Relative Valuation does not perform well for Initial Public Offerings Valuation.

2.2.2. Special Cases and Contemporary Trends

2.2.2.1. Cross-border valuation

Cross-border valuation has a great deal of specificities such as deciding which currency to use, what tax rates to consider (domestic versus foreign) and how to account for special risks (foreign exchange, political), just to name a few.

Discounted cash flow and relative valuation are commonly used by practitioners for valuation in M&A context, but their use has some limitations.

Zenner *et all* warn that, in cross-border M&A related valuations, using market and transaction multiples could be limited because it is difficult to find comparable companies and transactions in some markets and because they do not easily incorporate the specificities of synergies, risk and taxes associated to cross-border transactions.

The authors state that a DCF approach is more flexible and therefore could be more appropriate to this kind of valuations.

Many academics and practitioners like Zenner *et all* and Froot and Kester (1995) are keen on using, for cross-border DCF valuations, one of the two alternative approaches that I will explain next (for simplicity's sake I am going to refer to them as "Approach A" and "Approach B").

Approach A

This approach consists in:

1. Estimation of future cash flows at foreign currency,
2. Discount cash flows at a rate that incorporates local risk and capital cost,
3. Convert Net Present Value at the spot foreign exchange rate.

This approach entails several specificities. Froot and Kester highlight the following issues:

A) Earned versus remitted cash flows

When valuing cross-border investments involving developed countries, earned cash flows should be used despite the timing of their remittance. On the other hand, if there is a risk of expropriation or there is no opportunity for retained earnings to earn adequate return, then it should be used only remitted cash flows.

B) Discount Rate

Determining what discount rate to use in cross border valuations could be a challenge. For Approach A, Froot and Kester suggest determining first the discount rate using home-currency rates of return for debt and equity and afterwards converting it to foreign-currency discount rate using interest rate parity.

This approach sometimes could be mandatory as some countries may not have the commonly used inputs for WACC such as riskless domestic securities or market indexes to calculate betas and others.

The cost of debt used should reflect the cost of borrowing for the project and also account for the marginal tax rate. Regarding the latter, Froot and Kester advice to use the higher of domestic or foreign tax rate, as it is the most probable to be enforced.

The home-currency WACC can be converted to a foreign currency WACC by multiplying it by the differential between long-term interest rates in both countries:

$$(1 + wacc_{\text{foreign currency}}) = (1 + wacc_{\text{home currency}}) \times (1 + R_{\text{foreign currency}}) / (1 + R_{\text{home currency}})$$

R = nominal yields during investment period for each currency comparable-risk debt

C) Adjusting for special risks

When dealing with projects located in countries with more unstable conditions, some special risks should be accounted for in the valuation.

Risks like expropriation, inflation and other country-specific risks could be accounted for by adding a premium to the project's estimated cost of capital. But, in order to reduce double counting of risks that may already be incorporated in the project's cost of capital (beta for example) and increase transparency of the analysis, it is preferable that these specific risks be reflected explicitly on the cash flow forecasts.

One alternative is to use scenario and sensitivity analysis to explicit the impacts of an eventual expropriation or other event in each forecasted year.

Finally, Froot and Kester notice that when dealing with valuations that involve high inflation-risk countries it is advisable to use real term analysis (instead of nominal).

Approach B

The alternative approach also mentioned by several academics is less commonly used but also worth mentioning as it should yield the same results as the previous approach.

This approach can be summarized in three steps:

1. Estimation of future cash flows at foreign currency,
2. Conversion of cash flows to home currency,
3. Discount cash flows at home discount rate.

Several methods could be used to estimate exchange rates: interest differential, assuming that relative purchasing-power-parity holds for a period of time, or just simply quoted interbank forward exchange rates.

The estimated exchange rates could then be used to convert foreign currency projections in home currency and afterwards discount cash flows at home currency WACC.

Assuming the cost of capital differential incorporates exchange rates differential evolution, approach A and approach B should be equivalent.

Froot and Kester also make a note to the importance that an APV approach could hold in cross-border valuation. As mentioned previously, the use of Adjusted Present Value is preferable when capital structures are expected to change over time and when subsidized loans or specific methods of financing with accounting and tax particularities exist.

In a cross-border context, in addition to a possible changing capital structure, there could be important sources of value related to benefits like tax incentives to foreign investment or subsidies and other forms of below market rate financing provided by local authorities. APV is the best method to capture the value of these items individually.

2.2.2.2. Looking to a company as a going concern: Terminal Value

If a company or project is a going concern, its valuation should include terminal value. The shorter the "explicit period" where cash flow estimations are depicted, the larger proportion terminal value will have in the valuation.

Kaplan and Ruback (1996) identify two of the main determinants of a company's perpetuity cash flow:

- Growth rate: it should incorporate expected inflation plus the real growth rate. There has to be sound arguments to support a real growth rate, otherwise it should be zero;

- Capital expenditures: at minimum, for no real growth perpetuity, capital expenditures should equal depreciation plus amortization in order to maintain a stable cash flow generating asset base.

Froot and Kester share some additional insight on how to determine terminal value, namely by suggesting the following methodology:

Terminal value = (EBIAT + depreciation – capital expenditures – investment in working capital) x (1 + growth rate) / WACC

EBIAT = Earnings Before Interests and After Taxes

Under this approach, capital expenditures and investment in working capital on perpetuity will be a function of the estimated growth rate (higher growth rates imply higher investments).

Note that the formula indicated above yields a value that has still to be discounted using the project or the company's WACC in order to obtain the Terminal Value's present value.

Given the large proportion of value usually contributed by terminal value, it is advised to develop sensitivity analysis to the perpetuity growth rate and other critical assumptions.

2.2.2.3. Private company discount

When valuing private companies, using multiples could be somewhat limited because, apart from the challenge of finding comparable transactions to the case at hands, most often the characteristics of public companies are different from private firms. On the other hand, using a standard DCF approach could also overstate the "real" value of the company because the full potential value could not, probably, be reaped by the current shareholders due to reduced marketability of the company's stocks.

A way to account for these constraints is to apply a discount to account for lack of liquidity on the private company's valuation.

This discount could additionally be justified by the fact that many times the previous shareholders of the private company are also senior managers of the company and could be offered above-market compensations to stay in the company after the sale, thus reducing the price paid by the acquirers, when in fact the "real price" received by the selling shareholders would be superior.

There are also some additional discussion amongst academics about the best way to apply this private company discount, namely if it should be reflected in the discount rate or if it should be applied directly to the company value.

As the companies to be analyzed on this thesis are both listed, I am not depicting thoroughly this subject, but the reader should be aware of two important issues on this matter:

- Private companies transaction are usually made at smaller implicit valuation multiples than comparable listed companies;
- The total value reaped by the sellers could be split amongst price paid and above-average compensation after the transaction.

2.2.2.4. Contemporary cost of capital

The economic and financial turmoil has been conditioning financial markets evolution and has impacted greatly economic agent's behaviors and perceptions.

One of the consequences is the questioning of traditional valuation models, namely if and how they can be used under abnormal market conditions. Cost of capital has, perhaps, been one of the subjects under most discussion.

On broader terms, CAPM has been under scrutiny, namely the variables risk-free rate and market risk premiums.

On a recent article, Damodaran (2011) says that can be used 3 alternative methods for estimation CAPM variables:

- Using historic data;
- Performing surveys to investors, managers and others;
- Using implied variables.

Using historic data fits the traditional approach already explained previously so, on this chapter, I am going to focus on market participants (companies and investors) views on CAPM.

What to consider as risk-free rate is a subject much open to discussion nowadays.

Citibank analysts (2012), for example, say in their yearly "Global Perspectives and Solutions" report that, conceptually, a risk-free rate entails no default risk and has zero correlation with the market but sovereign credit-default-swaps today indicate there is significant embedded default risk.

Blackrock Investment Institute (2011) points out on a study called "Sovereign Bonds: Reassessing the Risk-Free Rate" that, on the years prior to the recent global financial crisis and subsequent recession, there was a broad consensus among financial market participants regarding the stability of sovereign debt markets.

In this sense, sovereign debt was considered as benchmark for risk-free returns upon which all other assets traded at a risk premium, due to higher credit risk or limited liquidity. But, nowadays, there is the possibility of returning to AAA-rated corporate bonds as a benchmark for valuation, as it was used in the 1950s and 1960s.

The particular situation of Portugal has not been disregarded by markets participants and observers.

Dow Jones Newswires (2011) noticed that regarding Portugal, when it was already in the midst of the *troika* (IMF, European Commission, European Central Bank) intervention, credit default swaps on the five-year bonds of EDP quoted more than 265 basis points lower than Portugal's five-year swaps spreads.

On the other hand, Barclays Wealth (2011) alerts that even though CDS are treated as measures of risk it should be accounted for that they price can be distorted by a lack of transparency and liquidity and therefore some caution should be taken when using this instrument to value risk.

It seems the markets are looking for a new risk free benchmark but appears to be still no common ground on this matter.

Market risk-premium is other variable subject to discussion under current market conditions.

On this subject, Citibank analysts (2012) say that the Equity Market Risk Premium (“EMRP”) should reflect the risk premium over the long run and hence ought not to be subject to short-term swings. But they acknowledge that implied EMRPs are higher (up to 8%) than historical averages (5-7%).

If implied EMRP persists at current peak levels, firms may need to adjust EMRPs upwards.

Regarding Portugal, a survey made by IESE Business School (2011) to academics and practitioners, concluded that the market risk premium used for Portugal is on average 6,5% (6,1% median), indicating a rise from previous levels.

Damodaran (2011), after analyzing data from 1960 to 2010, found that using implied risk premium had the greater predictive power (when compared to historical data and surveys). But he also notices that if the market is overvalued or undervalued, one should use historical risk premiums. For someone that has no faith on markets, Damodaran advises to use the survey approach.

Despite CAPM as its assumptions are under scrutiny, the truth is that circa 90% of organizations use CAPM to estimate the cost of equity, as a survey made by the Association for Financials Professionals (2011) concluded after questioning more than 300 financial planning and analysis professionals. Other conclusions of the survey are:

- Risk-free rate: 46% use 10-year sovereigns as a benchmark;
- Beta: 57% of organizations use Betas from Bloomberg database;
- Market risk premium: 49% use a market risk premium between 5% and 6%;
- Cost of debt: 37% use current rate on existing debt while 34% use forecasted rate for newly issued debt;
- Tax rate: 64% use effective tax rate and 29% use the marginal tax rate;
- WACC: publicly traded companies, as is the case of EDP and E.ON, use the current debt-to-equity ratio in most cases;
- Valuing potential acquisitions: more than 50% use the cost of capital for a group of comparable companies and 37% use the acquisition target’s cost of capital.

It is difficult to determine the best approach to follow given the variety of choices available and the arguments in favor of each one. What seems unquestionable is that CAPM assumptions are becoming more subjective and can vary greatly amongst practitioners.

2.3. Mergers & Acquisitions

As Sirower and Sahni (2006) put it, few decisions carry as much risk to shareholders as a major acquisition.

They say it is common stock markets having a negative response to M&A announcements and that this is a reflex of skepticism about the transactions generating value for the acquirers. Namely, there is usually doubt that synergies implied in the premium paid would be accomplished and that the value of each of the firms involved in the combined business would be maintained or increased after the merger. Additionally, it is difficult and costly to unwind mergers that go wrong, so when the harm is done, it is usually irreversible.

On this chapter I will try to explain the rationale behind business combinations and if and how they can generate value for shareholders.

Before that, as a way of introduction, it is important to clarify what type of transactions can be involved in M&A operations.

A common categorization is just differentiating mergers from tender offers. For example, Loughran and Vijh (1997) say that “mergers are usually friendly deals that enjoy the cooperation of incumbent managers” whilst “tender offers are made directly to target shareholders, often to overcome resistance from incumbent managers”.

On Damodaran’s Investment Valuation book it is possible to find a broader categorization, which I summarize below:

- Merger: the target firm is integrated in the acquiring firm, usually by agreement of both boards of directors;
- Consolidation: a new firm is created by combining the acquiring and target firms. The firms involved in the operation cease to exist after the operation;
- Tender offer: the acquiring firm offers to buy the outstanding stocks of the target at a determined price. The offer is made directly to the target shareholders, bypassing the board of directors of the target firm;
- Acquisition of assets: the assets of the target firm are transferred to the acquiring firm. The target firm can remain as a shell company or be liquidated.

2.3.1. M&A: Where does value come from?

Control and synergies are possibly the only two fundamental sources of value on an M&A. For instance, Martin and McConnell (1991) elected operational synergies and the disciplining of target managers as the main influencers of wealth gains in M&A.

Also, value creation for the acquirer depends greatly on the deal structure, mainly price paid, and, for listed companies, market reaction. I will depict those topics further on but, for now, I will focus on the fundamental sources of value in an M&A operation.

2.3.1.1. Control

Gaining control of a company can be a driver for generating value from an acquisition due to the mere possibility of changing the status quo of how the target company is managed.

Shivdasani and Zak (2007) say that the opportunity to make business decisions, namely regarding the divestment of assets and the definition of the operational and financial strategy, is a generator of value.

They also state that having the power to decide the capital structure of the target company could generate value, namely by increasing the company's leverage and thus enhancing capital discipline in the company. This could be achieved by promoting a tight financial discipline, increasing cost-consciousness and implementing a policy of funding only value-adding investment outlays. Albeit the authors make a fair statement about the importance of unlocking value by deciding to increase leverage, it is important to regard that, nowadays, increasing leverage is much harder (and expensive) than it was when the authors made the study (in the pinnacle of the credit bubble).

Wruck (2008) also recognizes that the benefits associated to control are possible mainly through concentration of ownership and at cost of restricting shareholder access to liquidity and their ability to diversify risk.

On the other hand, he adds that these benefits could be reaped through the post-transaction implementation of more recurrent performance evaluation and strong incentive-and-reward structures that enable managers to be constantly driven by value creation actions.

On a broader view, controlling the acquired company allow the acquirer to mandate a new management team, that could for itself be a generator of value due to better skills or assured alignment with the new controlling shareholders objectives.

Wruck (2008) calls this the "value of control" and it could be summed up as an improvement of governance, possible through gaining control of the target.

The reverse of this benefit is that, usually, the bidder pays a control premium that is no more than the price it is willing to pay up-front for the estimate present value of future expected benefits associated to gaining control of the target.

2.3.1.2. Synergies

Synergies are recognized as one of the main drivers for M&A deals and can be originated through operational enhancements or financial benefits.

Damodaran (2005) has made a thorough study on synergy and highlights several operational and financial synergies as sources of value, which I resume below.

Operational Synergies

Usually, synergies created under an M&A context will either reduce costs or enhance revenues.

As for cost reductions, they could be originated by improvements in long-term sustainable cost-efficiency initiatives (economies of scale) or by one-of optimizations.

Regarding revenue enhancement, it could come from entering in new markets or introducing new products in an already established distribution network.

Sirower and Sahni (2006) say that companies are usually more successful in reducing costs than in increasing revenue. They explain that cost reduction is an internal issue that is controllable, visible and tangible. On the other hand, revenues are affected by competitors and customer reactions. Additionally, usually cost optimization is tackled first and this can compromise the infrastructure to support potential revenue growth.

Damodaran (2005) identifies additional synergies associated to growth generation and says they can come from higher return on its investments, increased volume of projects or assuring growth for a longer period of time due to increased competitive advantages.

Finally, the combination of different functional strengths is also a potential source of value that could impact positively both costs and revenues. In utilities companies, for example, the combination of engineering skills and management skills could be a powerful source of value.

Financial Synergies

There are several financial synergies that can be obtained through a merger. Damodaran (2005) identifies increased debt capacity, namely excess cash and tax benefits associated to it, as the most evident.

Increased debt capacity, possible due to changes in rating, diversification of funding sources or enhancement in creditworthiness, is a potential source of value. The benefits of increased debt capacity have two main fundamental drivers: excess cash and tax shields.

As for excess cash, it could be a source of value if it allows the implementation of high return projects that otherwise would not be implemented.

On the other hand, tax shields associated to increased debt could be a source of value as long as the company does not incur into financial distress situations.

But tax benefits encompass greater financial synergies than the ones strictly related to debt, namely the use of tax assets hold by the target or reduction of taxable income by acquiring firms with net operating losses.

Damodaran (2005) also refers that there could be some value creation associated to diversification benefits by lowered volatility in income thus leading to risk reduction. On the other hand, if the both the acquirer and the target are listed companies (as it is the case on this thesis), this benefit does not hold because the shareholders have the chance to diversify on their own and not through mergers.

Lewellen (1971) identified potential value creation also for the target's bondholders, namely through a possible reduction of the risk perception of the company. After the merger, bonds could increase value since outstanding bonds may have been issued with coupon rates that reflected a pre-merger higher risk perception of the company. Albeit some decades have passed since Lewellen's study, it applies perfectly to the case of EDP, which has a risk perception impacted by the fact Portugal is under intervention of International Monetary Fund partnered by the European Commission and European Central Bank. I will expand further on this subject on the Deal Rationale chapter.

2.3.1.3. Value of control, synergy and impact on fair bidding price

It is critical to value properly these two main drivers of value (control and synergy) as they are paramount in supporting negotiation strategies, or more simply, in defining the maximum bidding price that allows value creation for the acquirer shareholders.

The value of control is the difference between the value of the target according to how it is run before the acquisition and the value of the company under new management.

Damodaran (2005) clarifies that the value of control resides entirely in the target firm, whilst synergy requires two entities and is created by combining them.

For valuing synergies, two important issues should be addressed according to Damodaran:

- Understand how will the synergy take form by determining impact on cash flow size and growth;
- Estimate when the synergy will start to affect cash flows.

Damodaran study about synergy (2005) explains that the most practical way to calculate the value of synergy is to value the combined firm with synergies, accounting for the impact on cash flows and discount rates, and then deduct the sum of the individual stand-alone valuation of each company.

On the other hand, Damodaran also acknowledges the possibility of valuing synergies individually. According to the author, operational synergies usually translate in higher cash flows whilst financial synergies could come under the form of higher cash flows and/ or a lower discount rate.

One of the possible drivers for lowering the discount rate, according to Damodaran (2005), is the impact on Beta. He advises using a weighted average of the unlevered betas according to pre-deal firm value and then lever it according to the combined firm capital structure.

Considering the various alternatives available, it is not completely straightforward what discount rate should be used to value synergies, but Damodaran is an advocate of discounting synergy cash flows using the combined firm's cost of capital.

Apart from calculating synergy value, it is important also to determine how it can influence the bidding price.

When defining the fair bidding price, it is important to account for how much of the synergy is contributed by the target and the buyer. To assure the synergies associated to the operation are in fact incremental, Sirower and Sahni (2006) suggest categorizing what the acquisition is bringing new to the combined company under same, better or new market access and capabilities. This way, it should become clearer where the synergies behind the numbers are coming from.

Damodaran highlights that the more the synergy is contributed by the acquirer, more bidding power it has, because other contestants will struggle to match the bid.

One relevant concern relating to synergies is not to overvaluing them. To make sure that the buyer is not overvaluing synergy or making too optimistic assumptions, Sirower and Sahni (2006) propose a methodology they call "Meet-the-Premium".

It consists in determining the revenue and/ or cost synergies that would be necessary to create the value implicit on the premium paid. This method allows the buyer to assess on a high level approach the global effort that has to be made to optimize the target's Profit & Loss main drivers.

The Meet-the-Premium methodology is a good "sanity check" for validating the realism of assumptions made to value the synergies implicit on the price offered for acquiring the target.

All things considered, we can say, with some prudence, that gaining control of the target and creating synergies from the business combination can justify a higher bidding price than the one that would be offered on the basis of a stand-alone valuation of the target.

2.3.1.4. Other

On top off the above mentioned issues, there can be additional sources of value in cross-border M&A. They depend mainly on the context and potential of the specific country/ region where the target has the bulk of its operations.

Zenner *et all*, for instance, state that the positive market response to announcements of cross-border M&A (and thus value creation for shareholders) could come from a perceived advantage of benefiting from immediate market access *versus* a greenfield alternative. In fact, in cross-border M&A, foreign bidders appear to pay more when compared to competing domestic bidders. Kohers and Kohers (2000) say that this premium could be the recognition there is a price to pay for local expertise and market access.

This kind of sources of value could be “boxed” under the label of “Operational Synergies” but many times they are more related to market perceptions and *momentum* than to quantifiable business plan inputs.

2.3.2. Cross-border M&A: What is different?

Apart from the necessary adjustments in valuation methodologies mentioned previously, there are some critical issues that should be addressed carefully in the case of cross-border M&A. In an article published in the Journal of Corporate Finance (Zenner *et all*), the authors identify 3 main issues that should be analyzed thoroughly:

2.3.2.1. Financing

The main specificities regarding financing issues related to cross-border M&A transactions refer to payment methods and debt financing choices.

In this kind of transactions, payment in cash is usually more advisable because of tax, legal and flow back limitations associated to payment in stock. For instance, index funds could not be able to accept stocks of foreign companies as a method of payment.

If the acquisition is financed by debt, the currency and location of the debt are relevant issues. The currency issue is straight forward: it should match the target’s cash flows currency; but regarding location of the debt, the matter is more complex. On one hand, debt should be “close” to the assets and cash flows, but on the other hand, funding costs, market access and tax optimization could lead to placement of debt in a market other than the one the target is located. It all comes down to a tradeoff between cost enhancing and risk coverage (for instance, debt located in the same country of assets reduces risk of expropriation in developing countries).

Another debt related issue, particular from cross-border M&A, is the possible impact on the rating of the acquirer derived from the market exposure of the acquirer.

2.3.2.2. Currency risk management

Intrinsically connected to the latter issue above mentioned (debt financing) but not limited to it, is currency risk management. According to the authors, this risk should be managed at the three stages of the acquisition:

- Pre-close: risk related to foreign exchange fluctuations between a deal’s signing and its financial close;

- At-close: risk refers to the repatriation of target company's cash flows (like dividends or inter-company loan interest);
- Post-close: risk related to ongoing cross-border cash flow, cost versus revenue mismatch and translational risk (associated to accounting reporting: income statement and balance sheet).

2.3.2.3. Taxes

The diversity of tax frameworks across countries implies additional complexity in cross-border operations, not only related to the transaction itself but also associated to post transaction taxes.

Tax issues could condition greatly the value created for the shareholders. Zenner *et al* highlight the relevance of seeking advice from tax experts to assist in cross-border M&A operations.

Additionally, there are other matters that could become pertinent in cross-border M&A, such as language, culture, infra-structure assessment and others. As the relevance of such subjects differs on a case by case basis, I am not going to cover them on my thesis, but the reader should bear in mind that the set of non-financial related issues could also impact greatly the success of a cross-border M&A operation.

2.3.3. Long-term value creation: True or Myth?

This chapter includes an analysis of the conclusions of several studies about M&A creating value. It is important to acknowledge that studies give us conclusions based on analysis of "averages" and seldom companies perform an "average" acquisition. Therefore, it is paramount to understand what can make the difference and enable a value creation transaction.

2.3.3.1. What does History tell us?

The best way to assess the impact of M&A would be to compare shareholders wealth after the deal to how much would it be if the deal had not happened. As this is not possible, event studies, that analyses shareholders abnormal returns, and accounting studies, that analyses financial results, are a good proxy to determine the merits of corporate acquisitions.

Albeit many studies have been made, the conclusions seem to differ somewhat depending of the methodology like, for instance, the benchmark used for comparing returns and the time-frame of the analysis.

Studies for everyone's taste

Some studies are more "positive" on their conclusions. For instance, Healy, Palepu and Ruback (1992) focused on the acquirer's performance and found evidence that asset productivity improved after the deal, indicating that, despite dubious impact on returns, the acquirer's fundamentals seem to benefit from these operations.

Jensen and Ruback (1983) also found evidence supporting M&A advocates. They analyzed thirteen studies from several authors and found an average abnormal return of 15,9 % for mergers and 29,1 % for tender offers during a period of up to two months after the transactions. On the other hand, they also state that this short-term gains could not hold in the long-term due to a possible overestimation of future efficiency gains and, consequently, leading to post-outcome negative abnormal returns.

There are also more “neutral” studies like the one performed by Franks, Harris and Titman (1991). They found that there was no evidence of abnormal returns three years after the bids.

A study performed by Bruner (2004) confirmed what seems to be the most common anecdotal knowledge about M&A. He revised the conclusions from 25 previous studies performed by other authors and found evidence for stating that M&A provides abnormal returns to target firm shareholders. As for the wealth of acquirer’s shareholders, only a minority of the studies Bruner revised seem to have found evidence for value creation but he states that, on average, the adjusted return from M&A activities to acquirer’s shareholders is around zero.

Studies about energy M&A

Becker-Blease, Golderberg and Kaen (2008) analyzed several energy related company transactions between 1992 and 2001 and found little evidence that mergers and acquisitions created long-term value for fully diversified investors. Additionally, they found that the stock price and operating performance of the acquirers under performed as compared to utilities that were not involved in M&A activities.

Leggio and Lien (2000) findings on electric companies also seem to be close to the other non-industry specific studies. They analyzed 76 merger announcements involving publicly traded electric firms and say have found evidence of merger announcement returns being significantly positive for targets of acquiring electric utility industry firms and significantly negative for electric utility acquirers when acquiring other electric utilities.

Additionally, they concluded that acquirers from the electric utility industry earn negative returns and that the returns of targets in the electric utility industry are smaller, but nevertheless positive, when the business is regulated. They explain this could happen due to the additional hurdles the parties need to overcome in obtaining approval from regulators.

2.3.3.2. What can make the difference?

Having sound motivations for a deal could be the primary driver to set the difference. For instance, Bruner (2004) comments that entering an unprofitable industry because of momentum or glamour will hardly add value.

But, even assuming there is a rationale for the operational, there are several factors regarding the deal structuring that could influence greatly the success of an M&A deal.

2.3.3.2.1. General Factors

Price

It comes without saying that paying the right price is paramount. One of the major challenges when structuring a deal is to define the maximum price to bid in the best and final offer.

Warren Buffet shed some light in why some bidders over pay on the 1997 Berkshire Hathaway annual report:

“In some mergers there truly are major synergies – though often times the acquirer pays too much to obtain them – but at other times the cost and revenue benefits that are projected prove illusory. Of one thing, however, be certain: If a CEO is enthused about a particularly foolish acquisition, both his internal staff and his outside advisers will come up with whatever projections are needed to justify his stance. Only in fairy tales are emperors told that they are naked”

Damodaran (2005) also makes some statements that go in the same direction as Warren Buffet’s.

He says that overpricing could exist and be driven by biases in evaluation processes or by managers wanting to do the deal at any price. On top of that comes the apparent belief managers usually have that they are immune to the challenges of implementing the planned synergies.

Therefore, a sound assessment of the possible hurdles of implementing the synergies and an unbiased fairness opinion by external advisors can impact the price to be paid, and consequently the value created for the acquirer’s shareholders.

Mode of Payment

Some studies point to the fact that the mode of payment could influence the value created.

For example, Loughran and Vijh (1997) conclude in a study that acquirer stock returns are superior to benchmark only for tender offers paid with cash and that target stock returns diminish over time, particularly when payment is in stock.

Srower and Sahni (2006) say that paying with stocks sends a message that the acquirer has doubts about the materialization of synergy and thus wants to share the risk with the seller’s shareholders.

On the other hand, Myers and Majluf (1984) say that acquirers prefer to pay with cash if their stock is undervalued and with stock if it is overvalued. Thus, the apparent increased value creation for acquirers that pay with cash could just be a consequence of markets self-correcting undervaluation of the acquirer after the deal and not a consequence of the payment method.

In addition to the mode of payment, Bruner (2004) also identifies the use of earn outs (contingent payments) and the use of collars (renegotiation of deal if certain values are surpassed) as contributors to profitability of an M&A deal.

Alignment amongst all agents

Bruner (2004) says that having deal-doers that are not aligned with the organization and the shareholder’s interests could compromise the success of an operation. Wruck (2008) adds a concrete example, namely by pointing out that there are incentives to dealmakers to make overpriced deals because of the fees received despite the value created.

Also very relevant to the success of the transaction is the alignment between the management of the target company and the new shareholders, namely the shareholders of the acquiring company. For instance, in LBOs, where managers typically commit their own capital in the transaction, Jensen (1989) found evidence for equity returns over 700%. This is an expressive example of how, when management is fully aligned with shareholder’s interest, shareholder’s

wealth benefits greatly. More recently, Shivdasani and Zak (2007) also state that LBOs are a good example of how aligning the management with the shareholder objectives is a driver of value. However, it is important to notice that in LBOs management has usually a big part of their net worth invested in the company and this could be difficult to replicate in an M&A operation where the buyer is a company.

Type of Operation

Tender offers appear to be more successful than mergers according to several studies. Agrawal, Jaffe and Mandelker (1992) found that, after 5 years from the acquisition date, tender offers returns are higher in about 10% (absolute) than mergers.

Loughran and Vijh (1997) also found that tender offers are more prone to create value than mergers, possibly due to appointment of new managers in the former.

Bruner (2004) adds that tender offers, more precisely hostile bids, report superior returns not only by the replacing management but also due to a realignment of the strategy of the firm.

Target Size

Anecdotal knowledge tells us that the size of the target could influence the success of the operation. This could come from smaller companies being easier to integrate and synergies more easily accomplished and controlled for less complex situations. Damodaran (2005) says that a merger of firms of equal size could be more difficult to succeed due to cultural clashes.

In fact, Loughran and Vijh (1997) found that abnormal returns for acquirers would depend, amongst other factors, of the relative size of the target versus the acquirer, decreasing when the relative size of the target increases.

Sirower and Sahni (2006) add that relative size could also be measured under Shareholder Value at Risk in acquisitions (“SVAR”), which represents the premium offered in a bid divided by the market value of the acquiring company before the announcement. A smaller SVAR makes it easier to create value for the acquiring shareholders.

Focus

For setting up an acquisitions strategy, choosing between diversified or focused acquisitions seems to make a difference.

Doukas, Holmen and Travlos (2001) found that markets react negatively to the announcement of diversifying acquisitions. Bruner (2004) states this could happen because focused acquisitions are a better way to potentiate existent capabilities and enhance implementation of synergies than acquiring unrelated businesses.

In fact, Berger and Ofek (1995) and Lang and Stulz (1994) had already found evidence of this on previous studies, namely when they identified a “market discount” on the market valuation for diversified companies of 5% to 15%.

Exogenous factors

The reader should be aware that, in addition to the above mentioned issues, sometimes there are additional uncontrollable factors that could influence greatly a deal being successful. Just as an example, Mitchell and Mulherin (1996) identified exogenous factors like deregulation or technological change as potential influencers of deal success. But, of course, many more can exist.

2.3.3.2.2. Energy M&A Factors

In energy M&A transactions in particular there are usually additional layers of complexity when comparing to non-utility deals. McDermot Will & Emery, an international law firm that advises on M&A transactions, points out the following critical issues to be addressed in order to enhance value creation on energy M&A deals:

A) Broad Knowledge Base

The energy industry has a high degree of complexity, involving not only energy itself but also environment, health, safety and other regulations affecting the industry.

It is important to assess limitations on the intended use of the assets after closing and address fines, penalties and other unforeseen liabilities. Natural gas fired, coal fired, wind, solar and biomass power projects have specific risks and issues to be tackled.

These factors imply the acquirer to have a broad knowledge base, or be properly advised, in order to limit overvaluation of the business or assets being acquired.

B) Understanding the Risks Involved with Project Based Assets

Most energy industry deals involve a portfolio of projects or development assets with own financing, interconnection rights, permits and real property rights.

Additionally, development assets have incremental risks associated to the conclusion of several stages before becoming fully operational, namely regarding licensing, completion of interconnection, construction and commissioning.

Even for assets under operation there is a risk of revenue delivery. Revenue contracts could be subject to performance guarantees, off-takers' right to refuse performance, early termination rights and the allocation of risk between seller and buyer for *force majeure* events.

A wide and profound risk assessment should be made in order to enable adequate risk-return evaluations of the deal.

C) Identifying Energy Regulatory Issues

Rules and regulations affecting the energy business are very different around the globe. The regulatory knowledge necessary to enable a thorough M&A transaction analysis will depend on the business or assets being acquired and the jurisdiction in which they are located.

M&A transactions that involve several countries should address local regulatory specificities, namely regarding licenses, permits and approvals necessary to operate. Additionally, regulatory approvals and notices may also be required in the various countries the target operates. For instance, EDP acquisition implies approvals from European, US and Brazilian regulators.

D) Understanding the Full Legal Picture

Last, but not least, the energy industry is affected by legal issues beyond energy regulations, namely environment, health and safety, tax, employee benefits and real property issues. The acquirer's team and advisors should dominate a multitude of legal knowledge in order to assure the success of the transaction and the continuation of the business after its completion.

2.4. Literature Review Conclusion

Valuation techniques are useful to decide the bidding price interval the buyer can afford whilst pursuing shareholder wealth creation.

There are several alternative valuation approaches than can be used on an acquisition deal context. The literature review included some of the most relevant and recurrently used by academics and practitioners:

- Single rate discounting cash-flow models (Equity and Firm Valuation);
- Multiple rate discounting cash-flow models (Adjusted Present Value);
- Relative valuation (Market multiples and Transaction Multiples).

The conclusion one can make after reading the valuation chapter, namely the methodologies and particularities of each approach, is that it is always more robust to use more than one approach and compare the results each one yields.

For example, using a combination of discounted cash flow models complemented with relative valuation tools allows the potential buyer to:

- Estimate a fair price interval considering the target forecasted activity;
- Determine if that “fair” price is reasonable under current market conditions;
- Compare the values obtained with recent similar transactions.

I am going to use both Firm Valuation and Relative Valuation for EDP and E.ON further on.

Overcoming the challenging tasks of correctly valuing the target and completing the deal at a fair price are just the first steps of a long and puzzling journey for accomplishing value creation from a deal.

As we saw in the Mergers & Acquisitions chapter, the overall conclusion from studies regarding M&A value creation is that appears to be evidence that acquisitions add value for target shareholders only in the short-term. In the long-term, wealth gains are less consistent and seem to differ with particular characteristics of the transaction.

For acquirer’s shareholders, only tender offers paid with cash seem to increase wealth in the long-term.

Additionally, it seems also evident that there are no “average” transactions.

In order to an acquisition to generate value for the acquirer, by achieving above “average” performances, it is very important that the deal makers structure with detail the operation and be confident about their motivations and ability to plan and implement business plans and synergies.

The overall conclusion one can make after reading this literature review is that acquiring a company is a complex operation.

The potential deal should be thoroughly assessed, strategically relevant and clearly create value for the acquirer’s shareholders. If these conditions are not all met, there is good chance a bad deal will be made.

3. Industry and Companies Background

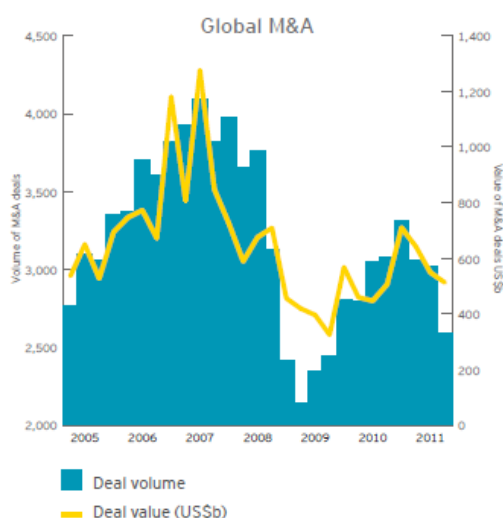
3.1. M&A Activity

3.1.1. Global evolution and drivers

On the past decade, the US has taken center stage for global M&A, despite the share of global deals transacted in the US decreased from 38% to 28% between 2002 and 2011.

UK and other developed countries have also reduced their share of global M&A as opposed to the BRICs that are increasing their importance in the global arena. China, for example, is now responsible for 5% of the deals, rising from 1.4% in 2002.

But, according to Ernest & Young, we have not reached a point where developed countries are all falling and emerging countries are all increasing their share of global M&A. M&A is still more robust in economies that have mature debt and equity capital markets, favorable regulatory frameworks and political stability. In other words, fast growth by itself is not a sufficient driver to make emerging markets as the preferential stage for M&A.



We can see on the chart on the left that global M&A reached its peak in the pinnacle of the credit bubble in mid-2007 and was followed by two years of steep decline, especially after the collapse of Lehman Brothers. The apparent resurgence in 2010 appears to be slowing down amid the sovereign debt crisis.

In 2011, global M&A volumes decreased more than 9% from the second to the third quarter, but it was Europe who saw the biggest drop in deal values, from US\$ 230 billion in the second quarter to US\$ 130 billion in the third.

On its Q4 2011 Capital Insight report, Ernest & Young points that it's an economic impossibility for the public and private sectors to deleverage at the same time without affecting growth severely.

Bank financing for companies continues to constrict, leading to companies choosing to retain cash. Additionally, according to Ernest & Young's last survey related to its Capital Confidence Barometer (CCB) companies are restructuring in order to increase resilience through improved operational performance and greater liquidity.

Despite this not very favorable background, there are still some who advocate this is the best time to make acquisitions.

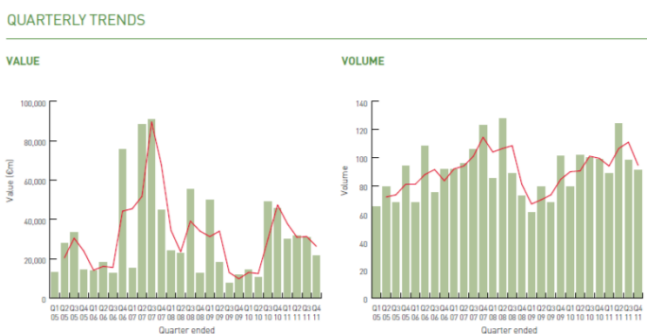
For example, Professor Scott Moeller, Director of the M&A Research Center at Cass Business School, anticipates that now it is a good time to bet on M&A. He said in late 2011 "If you're waiting for a better time and a better price for your deal, be prepared to see your deal snapped up by a competitor. Do the deal now or wave it goodbye". Professor Scott Moeller backs his view point with Bloomberg estimation that corporates worldwide have circa US\$ 3,3

trillion of cash and cash equivalents on their balance sheet and that private equity funds have cash reserves of around US\$ 1 trillion.

Ernest & Young backs this line of thought and says that corporates with cash on their balance sheets are making bolt-on acquisitions that are easy to integrate and are cheaper alternatives to buy capacity than build it organically.

3.1.2. European energy sector evolution and drivers

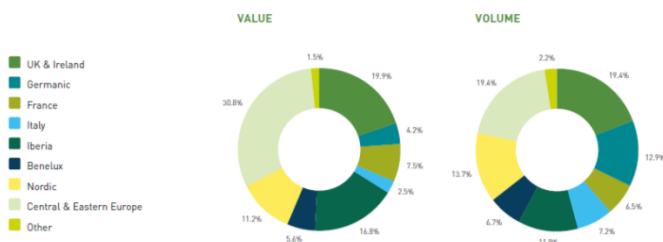
On 2011, energy sector experienced some recovery in European M&A volumes and values, albeit not reaching pre credit crisis levels. Central and Eastern Europe where the main stage for energy deals in 2011 in terms of total value, but when looking to the number of deals there is no clear leading geography.



Source: Rodl & Partner

ENERGY, MINING & UTILITIES

MIX OF DEALS BY GEOGRAPHIC REGION



Source: Rodl & Partner

Deals within the energy sector have been driven by high commodity prices, divestments and a number of well capitalized players. Merger Market, a leading M&A research company, expects that a mix of companies looking to divest and a spectrum of buyers wanting to build strategic portfolios will drive energy sector M&A movements.

Additionally, we are assisting to an increased interest from private equities in investing in the energy sector, attracted by diversification into a more resilient business.

Other expected trend is an increasingly dominant role of Asian players acting as potential investors in European public utilities, specifically considering the context of the current Eurozone crisis and subsequent divestment programs relating to European utility companies as is the case of EDP.

Companies seeking access to different geographies, technologies and customers are seen as the bigger drivers for M&A by industry players, according to Merger Market. Additionally, it is expected that the phasing out of nuclear energy promoted by the German Government will contribute for German utility players to look to acquire new assets relating to renewable energy and fossil fuels.

According to a report from Rodl & Partner and Merger Market, senior M&A practitioners expect a significant increase (over 70%) of energy relating M&A activity in 2012, including across Europe. Despite this positive confidence, the current economic turmoil in Europe and perceived regulatory uncertainty could impact the future deal pipeline.

3.1.3. What drives cross-border M&A?

Despite the credit crunch having constrained somewhat the action from private equities, another set of players have emerged in the last few years: emerging-market corporates and sovereign wealth funds.

Higher relative valuations, as compared to developed market peers, stronger currencies, high commodity prices and growing economies are some of the drivers that led to an increased relevance of these players in global M&A.

Additionally, there are also some long term drivers for cross-border M&A that have been becoming stronger. Zenner *et al* (2008) highlight the following:

- Globalization: acquisitions can be a cheaper way than the greenfield alternative for the companies that search for new markets and/or lower cost of production;
- Geographic diversification: emerging market players wanting to reduce sovereign exposure and diversify from commodities by acquiring companies in developed markets are good examples of how this driver enables cross-border M&A;
- Deregulation: the reduction of barriers to the free flow of capitals and goods and the opening of capital of public infrastructure companies to foreigners are strong drivers for companies searching new markets.

Of course there are also some obstacles to cross-border M&A, namely regarding protectionist sentiments, tax complexities, cultural factors and equity flow back constraints but these are becoming minor along the time.

Portuguese current economic situation is itself a driver for cross-border deals, of course not because of its resilience but because foreign investment is needed to substitute domestic financing (being equity or debt).

Portuguese companies are being impacted by a severe economic recession, increase of perceived risk of Portuguese assets and scarce and costly financing due to funding restrictions from national banks.

Portugal based companies have seen access to funding severely constrained and the Government itself, in light of the MoU signed between the Portuguese Government the IMF, ECB and the European Commission, needs to divest from several fully and partially state owned companies.

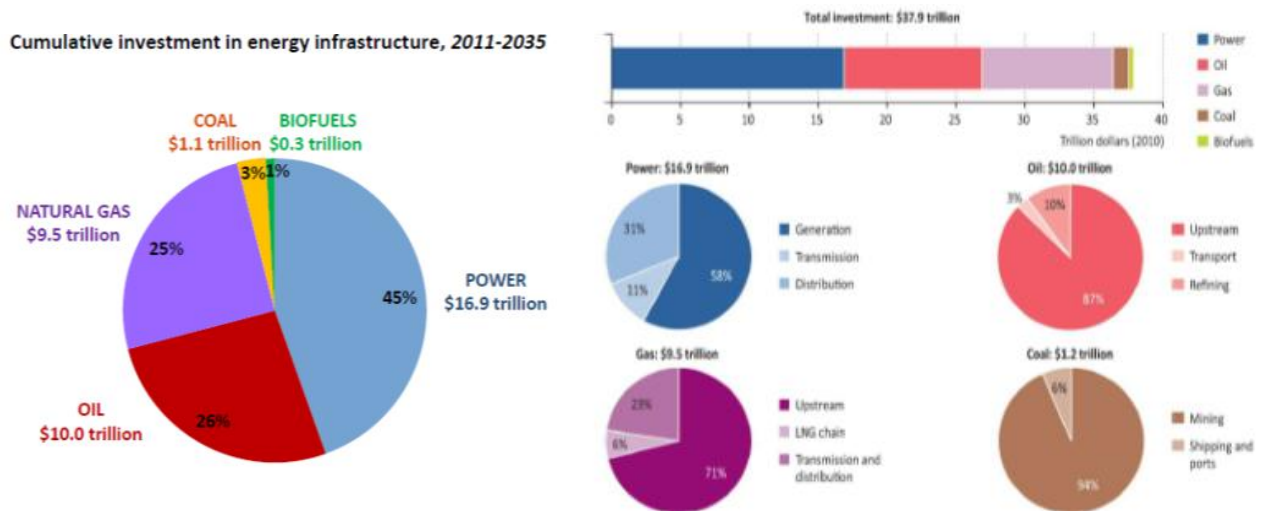
The current economic and financial environment will favor M&A transactions promoted by both the Public and the Private sectors in order to decrease leverage and increase liquidity/solvency levels, creating value opportunities to invest in Portuguese assets at attractive prices.

3.2. Energy sector: evolution and future drivers

Recent economic events, particularly lower rates of economic growth, have had an impact on short and medium term energy trends but should not impact the increase demand for energy in the long term.

The base case scenario anticipated by the International Energy Agency assumes increases in world primary energy demand of one-third between 2010 and 2035.

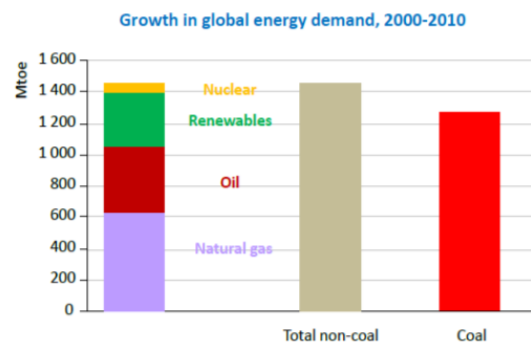
The capacity expansion to meet this demand will drive an USD 38 trillion in global investment in energy-supply infrastructure from 2011 to 2035 (average of USD 1,5 trillion per year), with the power sector alone accounting for 45%.



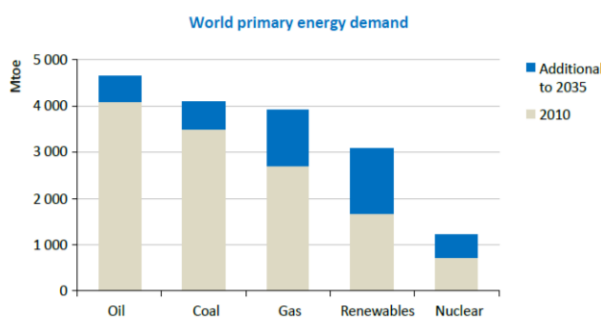
Source: International Energy Agency

The evolution of the level and pattern of energy use worldwide will differ according to government policies on energy and climate change. For example, if there is a strong reduction in nuclear, as is it increasingly expected, renewable energy will be given a boost.

In the past decade, coal accounted for almost half of the increase in global energy use.



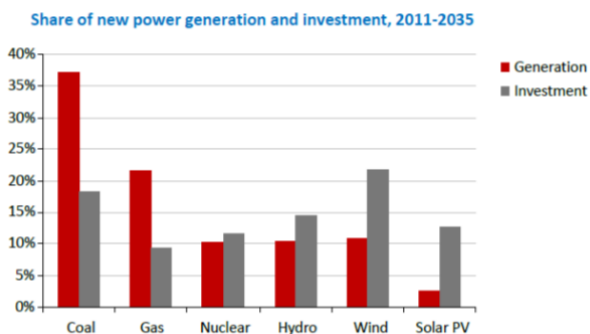
Source: International Energy Agency



Source: International Energy Agency

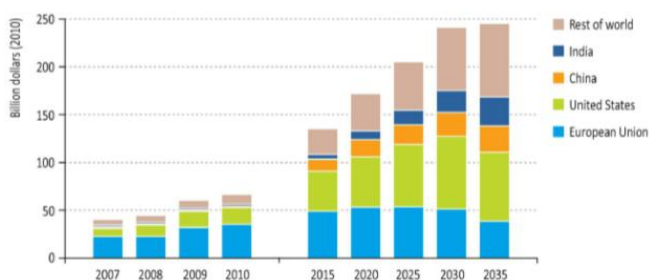
It is expected that renewables and natural gas become increasingly important, meeting approximately two-thirds of incremental energy demand in the 2010-2035.

Ernest & Young says there are an increasing number of large companies making plans about switching to renewables before the forthcoming “post-peak-oil” era. Renewables provide a good opportunity to corporates to manage their exposure to volatile energy costs and reduce their carbon footprint. Conversely, some of the emerging countries that have a strong growing energy demand are betting already in renewables and bypassing fossil-fuel generation investments.



Source: International Energy Agency

There is a trend to reduce fossil-fuel consumption subsidies and reallocate them to renewable energy. In 2035, subsidies to renewable energy are expected to reach USD 250 billion, up from USD 66 billion in 2010. These subsidies derive from long-term economic and environmental benefits associated to renewable energy but are necessary to meet existing targets for renewable energy production targets. Only onshore wind energy is expected to become competitive before 2035 and only in some geographies (around 2020 in the European Union and 2030 in China). All others will require continuing subsidies.



Source: International Energy Agency

Such subsidies impose a large financial burden on public finances and on consumers and there is some discussion if it is the most economically efficient way of reducing emissions.

Governments are trying to balance having secure, sustainable and low-cost energy with reducing direct and indirect incentives that are costly such as feed-in-tariffs and loan guarantees.

The European Commission identifies the following key trends for the next 40 years:

- Increase in renewable energy demand;
- Energy savings will be crucial;
- The role for electricity will increase;
- Capital investments will increase;
- The fossil fuel bill will decrease.

Increasing connectivity of markets allowing to trade energy across borders is essential to ensure that electricity is produced where it is most economical. Connectivity is also important to allow for flexible management of electricity (demand management, storage and back-up power plants) derived from the increased share of renewable energy, which typically is less constant.

It is expected that electricity prices will rise in the next decades either if the current energy mix is maintained or even if there is a bet on decarbonisation:

- Under current energy mix, electricity prices will be higher due to increases in fossil fuel prices (gas, coal and oil) derived from increased worldwide demand, especially from Asia;
- If the energy mix is changed for promoting decarbonisation (bet on efficiency, high renewables, low nuclear and diversified supply technologies), electricity prices will also be higher due to heavy investments in new infrastructure and technologies.

3.3. Companies Profiles

3.3.1. E.On

E.On is a German vertically integrated power company with Generation, Transmission and Supply activities mainly in Europe.

E.ON was formed in June 2000 by the merger of VEBA and VIAG, two of Germany's largest industrial groups. Following the merger, E.ON executed a far-reaching focused strategy and today is one of the world-wide largest investor-owned energy companies.

E.ON is a global provider of specialized energy solutions. It has facilities across Europe, Russia, and North America, and nearly 79,000 employees.

E.ON has five global units: Generation, Renewables, New Build & Technology, Gas, and Trading.

Generation

E.ON's generation fleet is one of the biggest in Europe with major asset positions in Germany, the United Kingdom, Sweden, Italy, Spain, France, and the Benelux countries and is considered one of the broadest and most balanced fuel mixes in the industry with 370 steam, gas-CCGT, hydro and nuclear power plant units throughout Europe at around 300 locations with a total generation capacity of over 60 GW. E.ON produces power from many sources, primarily from nuclear energy and hard coal, but also from gas, oil and renewable sources. E.ON's priority in power production is to guarantee a secure supply, be environmentally and climate friendly and remain affordable.



In 2011 the E.ON Group's attributable generation capacity increased by 2 percent, from almost 68 GW at year-end 2010 to over 69 GW at year-end 2011.

Renewables

Renewables global unit is responsible for expanding renewables capacity across Europe and North America. E.ON has almost 6 GW hydro and almost 5 GW wind and other renewables such as solar energy and bio energy of installed capacity. E.ON also has a foothold in wind, solar, biomass, biomethane, and marine energies and intends to be a global leader in renewables.

New Build & Technology

This global unit brings together the project-management and engineering expertise to support the construction of new power plants and the operation of existing plants across E.ON.

Research and development projects for the E.ON Innovation Center are also encompassed in this global unit.

Gas

E.ON's gas global unit operates along the entire gas value chain namely by having an exploration and production business and being also active in the global liquefied natural gas business. E.ON has a geographically diverse portfolio of long-term supply contracts with key producing countries making it a mainstay of gas supply security in Europe. This unit is also responsible for gas storage in Germany, Austria, Hungary, and the U.K. and gas transmission in Germany.

Trading

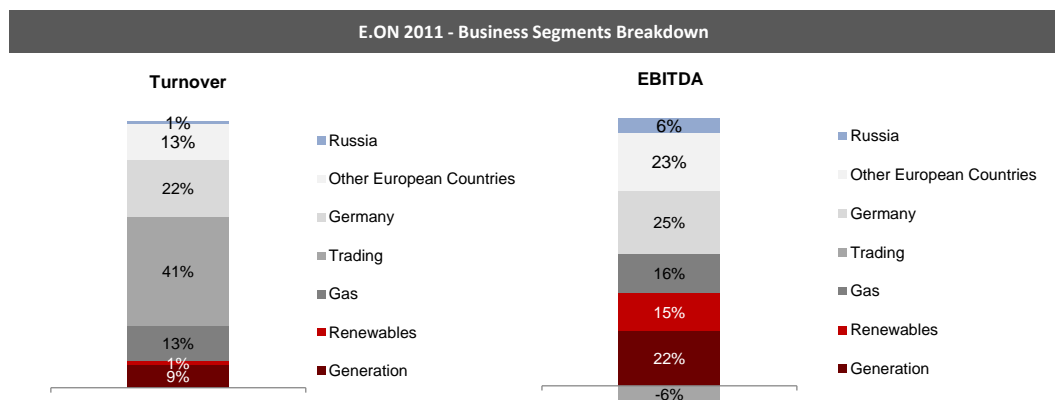
The Trading global unit buys and sells electricity, natural gas, oil, coal, freight, biomass, and carbon allowances. It has the objective of optimizing the utilization of the generation fleet in Europe, trading and procuring worldwide the fuel and carbon allowances needed to operate this fleet, and locks in margins for its generation business in forward markets. This global unit has as ultimate purpose to aggregate and reduce E.ON's commodity price risk.

E.ON's Key Financials

E.ON has been able to grow rapidly its business in the last 3 years (compound annual growth rate of 19%) but at the expense of reducing the company's profitability. Despite the drive for growth, E.ON's management has been committed to maintaining leverage at very conservative levels.

<i>E.ON - Consolidated Data (€ Million)</i>	2009	2010	2011	CAGR %
Turnover	79.974	92.863	112.954	19%
EBITDA	12.975	13.346	9.293	-15%
% Turnover	16%	14%	8%	
EBIT	9.291	9.454	5.438	-23%
% Turnover	12%	10%	5%	
Net Profit	8.669	6.281	-1.861	n.a.
% Turnover	11%	7%	-2%	
Capex	8.655	8.286	6.524	-13%
Net Financial Debt	28.000	20.315	17.990	-20%
Equity Book Value	40.348	41.653	35.737	-6%
Total Equity	43.955	45.585	39.613	-5%
Net Debt/ EBITDA	2,16	1,52	1,94	-5%
Net Debt/ Total Equity	0,64	0,45	0,45	-16%

In 2001, Trading activities contributed to more than 40% of E.ON's Turnover but had a negative impact on the company's EBITDA. On the other hand, Russia, Renewables and Generation contributed very positively for E.ON's EBITDA despite representing a smaller percentage of the company's turnover:



Strategic Priorities

Under the motto cleaner & better energy, E.ON has defined four strategic priorities for the next years:

Europe

E.ON intends to focus more on competitive businesses and converging markets where it is possible to benefit from scale advantages and leverage synergies within and across regions and businesses, namely by:

- Pursuing an integrated optimization of individual businesses;
- Benefiting from economies of scale;
- Capture cross-border synergies;
- Better transform assets into value.

E.ON's expects that in 2015, Europe will still deliver the majority of its EBITDA.

Outside Europe

E.ON currently operates businesses in two regions outside Europe: renewables generation in North America and conventional generation in Russia. Going forward, E.ON intends to expand into additional attractive and fast growing regions to build renewable and conventional generating capacity. E.ON plans to focus on offering solutions that significantly improve the energy supplies in these regions.

In selecting new regions, E.ON expects to follow well defined criteria: large markets with above-average growth, a need for E.ON's superior skills and systems expertise, a stable legal and regulatory environment, and cultural compatibility.

With this plan, E.ON aims to increase EBITDA from operations outside Europe from about 5 percent today to 25 percent by 2015.

Performance

E.ON intends to foster and sustain a high-performance corporate culture and enhance efficiency and transparency with a new organizational setup as a response to an increasingly

competitive and demanding environment. Improving efficiency will become an ongoing process and a top priority across E.ON.

The new setup will make E.ON leaner and more efficient and will ensure that the strategy is implemented faster and with greater clarity. The objective of this restructuring is to deliver 0.6 billion euros in additional annual performance improvements from 2013 on.

Investment

The focus will be to create more value with less capital by deploying expertise and skills more effectively rather than simply relying on the balance sheet.

E.ON's capital will serve as an enabler, allowing it to focus on processes that create the most value but there will be more room to design partnerships that require less than full ownership and that enable each partner to contribute what they do best. E.ON plans to set demanding investment hurdles to ensure that its new growth projects create significant value, namely by demanding returns significantly above each project cost of capital.

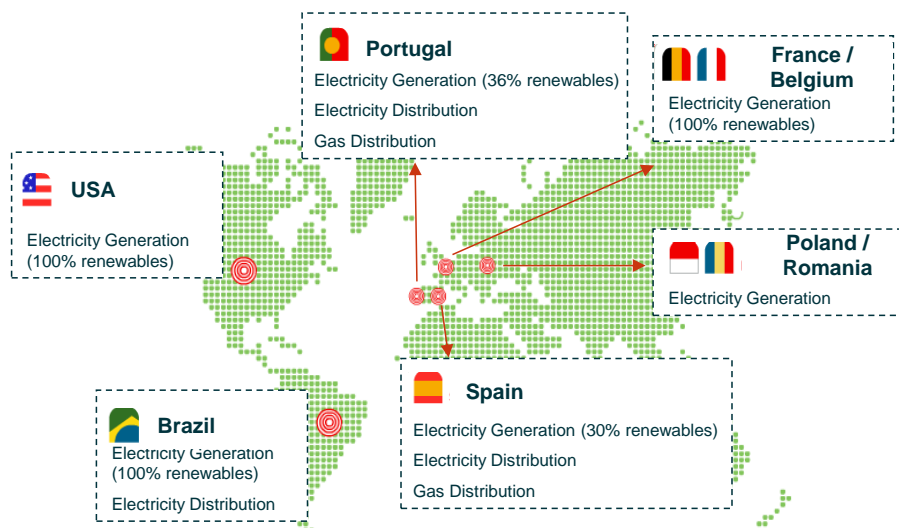
3.3.2. EDP

EDP is a Portuguese based integrated energy player with international dimension. The company is one of the largest players in the Iberian market and the 3rd largest producer of renewable energy worldwide.

EDP's activity across different continents and countries comprises the following business segments:

- Electricity Generation (23 GW installed capacity): EDP is the third largest wind power operator worldwide with wind farms in Europe (Portugal, Spain, France, Belgium, Poland and Romania), the United States and Brazil totaling 6,9 GW of generation assets. Additionally, EDP owns and operates hydroelectric plants (Iberia, Brazil), coal power stations and natural gas combined cycle power plants (Iberia);
- Electricity Distribution: EDP is engaged in low, medium and high-voltage electricity distribution in Portugal (market leader), Spain and Brazil;
- Electricity Supply: EDP is the largest electricity seller in Portugal, it is among the top five sellers in Spain, and is the third largest private electricity supply company in Brazil;
- Gas Distribution: EDP has a relevant presence in Spain through Naturgas, the second largest operator in the Spanish market, and in Portugal, through EDP Gás, the second largest Portuguese distribution company.

The following diagram depicts EDP's international presence:

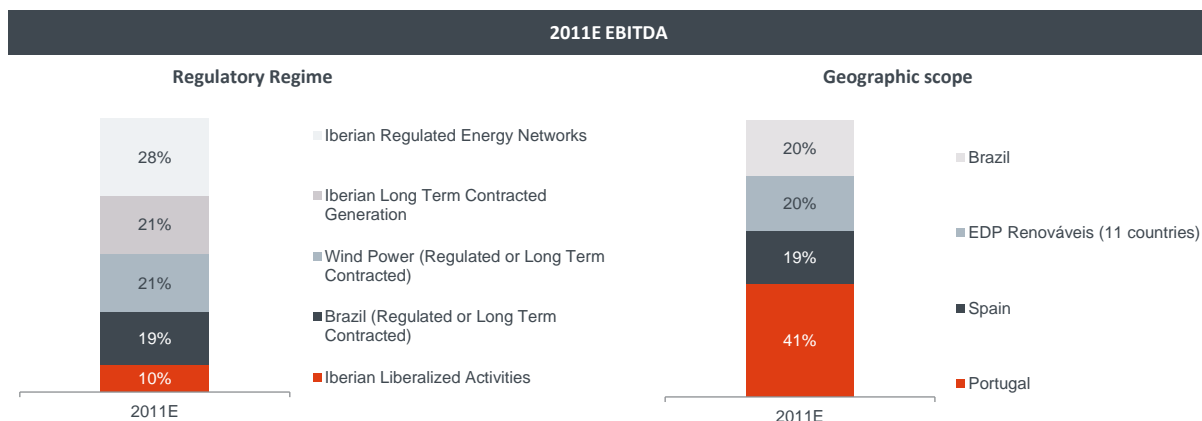


Source: EDP 2011 Investors presentation

Over the past years, EDP has delivered a sound operating performance. The company reduced slightly its operating margins in the last two years but the Turnover growth has enabled EDP to perform an EBITDA compound annual growth rate ("CAGR") of 6% on the last 3 years.

EDP - Consolidated Data (€ Million)	2009	2010	2011	CAGR %
Turnover	12.198	14.171	15.121	11%
EBITDA	3.363	3.613	3.756	6%
% Turnover	28%	25%	25%	
EBIT	1.970	2.063	2.267	7%
% Turnover	16%	15%	15%	
Net Profit	1.024	1.079	1.125	5%
% Turnover	8%	8%	7%	
Capex	3.235	2.667	2.161	-18%
Net Financial Debt	14.007	16.345	16.948	10%
Equity Book Value	7.294	7.855	8.110	5%
Total Equity	9.978	10.785	11.387	7%
Net Debt/ EBITDA	4,17	4,52	4,51	4%
Net Debt/ Total Equity	1,40	1,52	1,49	3%

EDP’s operating performance presents a low risk profile, with the Company’s EBITDA being approximately 90% originated from regulated activities or long term contracts. Additionally, the company has relevant geographical diversification (59% of EBITDA generated from operations outside Portugal).



EDP’s current strategic guidelines are focused on the following three pillars:

- Controlled risk, aiming at managing the regulatory agenda in order to maintain a low risk profile of cash flows;
- Superior efficiency, with a goal of further enhancing efficiency improvement in all businesses and geographies;
- Focused growth, entailing a selective analysis of new opportunities, focused on high return projects and the execution of existing pipeline.

3.4. Deal rationale

Becker-Blease, Golderberg and Kaen (2008) say that industry shocks are one of the main drivers for industry clustering.

It is possible to identify clearly one recent relevant industry shock that is the fled from nuclear power after the Fukushima disaster. E.On has a major exposure to nuclear energy generation and is now pressed to diversify its generation mix. EDP is a good target to help achieve this purpose as it has a relevant exposure to renewable energy and no nuclear power generation.

Financial Times published an article on November 2011 where it was stated that *“EDP’s strategic and regional profile ticks several boxes on Eon’s wish-list. It has operations in Brazil, a country Eon identified as one of three markets of interest, and it is a big player in renewable energy, a sector in which Eon wants a bigger footprint.”*

In addition, the merger would also make sense for EDP. HSBC analysts say that E.ON has a big potential for developing value creation partnerships with EDP, namely by having a strong European presence. Additionally, E.ON could bring a relevant contribute for improving EDPs credit rating due to Germany’s sovereign rating.

On the past few years, E.On made several domestic and cross-border acquisitions in order to gain exposure to new markets and strengthen its energy core business. In many cases, these acquisitions resulted from buying stakes from public institutions or sovereign shareholders, as it is the case of EDP from where the Portuguese Government intended to divest.

In fact, one of the many conditions imposed to Portugal in order to benefit from financial assistance provided by the European Commission, European Central Bank and International Monetary Fund was the implementation of an ambitious privatization program, including the full divestment of public sector shares in EDP.

Becker-Blease, Golderberg and Kaen (2008) found that many electric utilities implemented acquisition programs of other electric or gas utilities as a response to the deregulation of the electric power industry. In Portugal, albeit the energy sector is under regulation that limits players being fully vertical, tariffs are being liberalized in order to promote competition amongst electricity and gas merchants.

Additionally, Leggio and Lien (2000) say that industry players look at takeovers or mergers as cost efficient means of restructuring and that many electric utility companies used mergers as a way to adapt to a competitive future. This fits to the case of E.On that is pressured to include environmentally friendlier forms of power generation in its energy-mix.

A study from CERNA (Centre d’économie industrielle) that surveyed 135 M&A electricity sector deals in the European Union identified some interesting patterns in these operations that support the rationale of E.On buying EDP:

- Cross-border M&A is responsible for about 35% of the deals;
- Germany is the country with more domestic companies making acquisitions abroad;
- In Portugal, electricity M&A is usually driven by foreign acquirers;
- Liberalization and growth potential are important M&A drivers;
- Vertically integrated companies (as is the case of E.On) are the most frequent purchasers in M&A operations;
- Remedies are infrequent in electricity M&A;
- Trend of concentration in the European electricity market and increasingly frequent large electricity companies acquiring other large companies.

4. Valuation

On this chapter, I will start by determining a valuation interval for both E.ON and EDP.

For each company, I will estimate financial forecasts and then define the valuation interval based on the outputs yielded by implementing three valuation techniques, namely:

- WACC based Discounted Cash Flows;
- Market Multiples;
- Transaction Multiples.

Additionally, I will identify and value potential synergies generated from the business combination and conclude the chapter by comparing the real bid E.ON made for EDP with the theoretical bid it could have made according to the valuation outputs I obtained.

4.1. E.ON Valuation

4.1.1. E.ON - Financial Projections

E.ON performed a restructuring of its reporting segments in 2011, so drilled down information by current reporting segments is only available for the last two years.

Fortunately, E.ON's management forecasts main Profit and Loss and lines for each segment so it was possible to estimate E.ON's financial projections using the management views for the business. To add an independent perspective, I also considered the consensus from analysts that follow E.ON for estimating the main cash flow drivers.

I estimated financial projections for each segment (Generation, Renewables, Gas, trading, Germany, Other European Countries and Group Management) but I opted to present only the pro-forma consolidated projections on the body of the thesis to limit the amount of numerical information for the reader to process. Additional detail by segment can be found on the Annexes section.

	€ million						
Income Statement - E.ON	2009	2010	2011	2012	2013	2014	2015
Sales	79.974	92.863	112.954	107.704	108.634	111.678	114.722
Operating Costs	66.999	79.517	103.661	97.704	96.894	99.461	101.967
EBITDA	12.975	13.346	9.293	10.000	11.739	12.217	12.755
Depreciation and Amortization	3.684	3.892	3.855	3.937	4.345	4.165	4.279
EBIT	9.291	9.454	5.438	6.064	7.395	8.052	8.476

Globally, E.ON forecasted activity is estimated to slow down in the next few years, albeit it is expected that operating profitability can improve due to cost reduction initiatives that are being implemented at a companywide level and one-off costs that happened in 2011 relating to nuclear phasing-out.

After a year where Trading activities grew expressively mainly due to CO2 certificates negotiation, sales relating to this segment are expected to decrease in the coming years for values closer to 2010 levels.

On the other hand, Russia, Renewables and Gas are expected to be the segments who will contribute the most for the company's sale growth. In the first two cases, growth will come

from an increased allocation of company's resources and investments, whilst in the later, price increases, rather than volume, are expected to be the biggest growth driver.

All things considered, total Sales should decrease in 2012 and recover towards positive growth gradually in the following years.

P&L E.ON - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Sales - Annual Growth rate	n.a.	16%	22%	-5%	1%	3%	3%
Generation - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	2%	2%
Renewables - Annual Growth Rate	n.a.	n.a.	26%	17%	11%	13%	11%
Gas - Annual Growth Rate	n.a.	n.a.	8%	7%	10%	8%	7%
Trading - Annual Growth Rate	n.a.	n.a.	47%	-12%	-8%	0%	0%
Germany - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	3%	3%
Other European Countries - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	2%	2%
Russia - Annual Growth Rate	n.a.	n.a.	29%	20%	12%	8%	8%
Group Management/Consolidation - Annual Growth Rate	n.a.	n.a.	12%	-1%	1%	3%	3%
EBITDA Margin - % of Total Sales	16%	14%	8%	9%	11%	11%	11%
Generation - % of Segment Sales	n.a.	25%	14%	14%	15%	14%	14%
Renewables - % of Segment Sales	n.a.	62%	60%	57%	61%	60%	58%
Gas - % of Segment Sales	n.a.	9%	7%	6%	7%	7%	7%
Trading - % of Segment Sales	n.a.	3%	-1%	0%	0%	0%	0%
Germany - % of Segment Sales	n.a.	7%	7%	6%	7%	7%	7%
Other European Countries - % of Segment Sales	n.a.	11%	10%	9%	10%	10%	11%
Russia - % of Segment Sales	n.a.	30%	34%	35%	36%	36%	36%
Group Management/Consolidation - % of Segment Sales	n.a.	0%	1%	1%	1%	1%	1%
EBIT Margin - % of Total Sales	12%	10%	5%	6%	7%	7%	7%
Effective tax rate (% Pre-tax profit)	n.a.	21%	36%	33,0%	33,0%	33,0%	33,0%

Note: I considered that E.ON's effective tax-rate in the forecasted period would be equal to Germany's current corporate tax rate.

As to operating profitability, it is expected that operating margins recover slightly in the next few years, mainly benefiting from the increased contribution from Renewables and Russia, the two segments with higher EBITDA margins, to E.ON's total EBITDA.

E.ON strategy encompasses stricter investment criteria within the coming years in order to assure greater profitability of invested capital, which will lead to less investment opportunities. Based both on the management projections as well as on market expectations (reflected in analyst's forecasts) I estimate that Capital Expenditures will decrease in the next few years until reaching less than 50% of EBITDA in 2015.

	€ million						
E.ON Capex - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment	60.787	60.870	55.869	58.663	60.823	62.935	64.706
Total Capex	8.655	8.286	6.524	6.731	6.504	6.277	6.050
% total EBITDA	67%	62%	70%	67%	55%	51%	47%
% Property, plant and Equipment	14%	14%	12%	11%	11%	10%	9%
Depreciation and amortizations							
% Property, plant and Equipment	6%	6%	7%	7%	7%	7%	7%

For estimating E.ON's working capital, I assumed that total net working capital in each year would be equal to circa 5,7% of the company's Sales (equal to the average observed on the last three years).

	€ million						
E.ON Working capital	2009	2010	2011	2012	2013	2014	2015
Net working capital	4.708	5.299	6.068	6.091	6.143	6.315	6.488
Investment in working capital	0	591	769	23	53	172	172
Working capital (% of Sales)	5,9%	5,7%	5,4%	5,7%	5,7%	5,7%	5,7%

4.1.2. Discounted Cash Flows

4.1.2.1. Free Cash Flows Estimation

Below I present the Free Cash Flow to the Firm estimation for E.ON for the period of 2012-2015, resulting from the company's financial projections I estimated on the previous chapter.

In addition to an explicit forecasted period, I estimated a perpetuity cash flow using the following assumptions:

- Growth rate: I considered that it would be 1,9%, equal to the European Union inflation estimation for 2016 onwards (IMF Economic Outlook, April 2012);
- EBIT: Equal to 2015's estimated EBIT plus 1,9% growth,
- Tax on EBIT: same tax rate than used on the 2011-2015 period,
- Depreciation and Amortization: Equal to 2015's estimated amount,
- Capital Expenditures: Equal to 2015's estimated amount,
- Investment in Working Capital: Equal to 2015's estimation plus 1,9% growth.

The projections below will be used to value EDP's Equity using the Discounted Cash Flow Model.

Cashflows - E.ON					€ Millions
	2012	2013	2014	2015	Perpetuity
(+) EBIT	6.064	7.395	8.052	8.476	8.639
(-) Tax on Ebit	2.001	2.440	2.657	2.797	2.851
(+) D&A	3.937	4.345	4.165	4.279	4.279
(-) Capex	6.731	6.504	6.277	6.050	6.050
(-) Investment in WK	23	53	172	172	175
(=) Free Cash Flow to the Firm	1.245	2.742	3.111	3.736	3.842

4.1.2.2. Weighted Average Cost of Capital – WACC

These are challenging times for estimating cash flow discount rates but E.ON being listed on the Germany stock exchange, which has a mature capital in a country benefiting from stable economic conditions, allowed me to use some straight forward assumptions:

- Risk Free Rate: 2011 average Germany 10 year government bonds yield;
- Beta: Calculation based on two years weekly observations of the relationship between the domestic market index DAX and E.ON's stock quote;
- Equity Market Risk Premium: 6% (Professor Aswath Damodaran latest estimate for mature capital markets);
- Cost of Debt: Average cost of E.ON's short-term and long-term debt during 2011.
- Short term and long term debt amounts refer to 31-12-2011 as recorded on the company's balance sheet;
- Tax rate: Germany marginal Corporate Tax Rate.

Considering a Debt-to-(Equity+Debt) Ratio of 49%, as of 31-12-2011, I estimate that E.ON WACC is 6,12%.

Risk free rate	2,65%
Equity risk premium	6,18%
Beta	1,03
Equity Market Risk Premium	6,00%
Cost of equity = RF + β X MRP	8,83%
Pre-tax Short term cost of debt	2,50%
ST debt to total debt	20%
Pre-tax Long term cost of debt	5,47%
LT debt to total debt	80%
Pre-tax average cost of debt	4,89%
Marginal tax rate	33,00%
Cost of debt	3,27%
Wacc	6,12%

Values in € million

31/12/2011 - capital structure	
Market cap	31.490
Debt	29.914
ST Debt	5.885
LT Debt	24.029
E/ (D+E)	51%
D/ (D+E)	49%

4.1.2.3. Valuation – Base Case

Valuation - E.ON @ 31/12/2011	
Wacc	6,1%
EV - explicit Period	9.157
Growth Rate	1,9%
EV - perpetuity	72.089
EV (€ million)	81.246
Financial Net Debt (€ million)	17.990
Equity value (€ million)	63.256
# of shares (million)	1.905
value per share €	33,21

Considering the above mentioned assumptions, I estimate that E.ON equity value is circa € 63 billion, or € 33,21 per share.

4.1.2.4. Scenario analysis

I stressed E.ON's equity valuation by using alternative perpetuity growth rates and WACC, namely 50 basis points above and below their respective values considered in the base case above.

Scenario Analysis E.ON		Equity Value - € million		
		WACC		
		5,62%	6,12%	6,62%
g	1,4%	64.753	55.590	48.194
	1,9%	74.676	63.256	54.271
	2,4%	87.698	72.994	61.794

Scenario Analysis E.ON		Share Value - €		
		WACC		
		5,62%	6,12%	6,62%
g	1,4%	33,99	29,18	25,30
	1,9%	39,20	33,21	28,49
	2,4%	46,04	38,32	32,44

It is possible to observe that both of these components used in the discounted cash flow methodology have a great impact on determining the company's equity value.

4.1.3. Multiples Valuation

In order to validate the results obtained with the DCF methodology, I also used Market and Transaction Multiples to value E.ON.

On both cases I used operating cash flow proxy multiples that are not influenced by the companies' financial structures or taxation. Namely, I selected Enterprise Value / EBITDA and Enterprise Value / EBIT to determine E.ON's fundamental value.

I estimated the company's Enterprise Value using the average and median of multiples obtained from a selected sample of companies (additional detail can be found on the Annexes). To calculate E.ON's Equity Value at 31/12/2011, I then deducted the company's end of year financial net debt.

4.1.3.1. Market multiples

In order to obtain comparable market multiples, I used a sample of 10 international energy companies with diversified operations and geographies and, in most cases, with headquarters in Europe (sample used can be found in the Annexes).

Market Multiples Summary	Statistics	EV/ EBITDA	EV/ EBIT
	Average (except E.ON)	6,4	10,7
	Median (except E.ON)	6,1	10,1

E.ON 2011 Financial Indicators	€ million	
	EBITDA	EBIT
	9.293	5.438
EV based on average multiple	59.270	58.024
EV based on median multiple	56.273	54.792
Average EV	57.771	56.408
Financial Net Debt @ 31/12/2011	17.990	17.990
Equity Value @ 31/12/2011	39.781	38.418
Value per share (€)	20,88	20,17

Using Market Multiples methodology, E.ON's estimated Equity Value should be circa € 38 – 40 billion, or € 20 -21 per share.

When looking to these values it is important to be aware how market sentiment impacts valuing a company using this methodology. At the end of 2011, period that serves as reference for this analysis, equity markets were severely depressed which caused a reduction on implied market multiples.

On top of that, E.ON had a series of one-off effects, related to nuclear production phasing-out and trading activities losses, leading to the company having the lowest EBITDA and EBIT for the last 3 years in 2011.

4.1.3.2. Transaction multiples

For determining comparable transaction multiples, I used a sample of 20 transactions originated in the period of 2009-2011 and encompassing companies with diversified operations in electricity and gas (sample used can be found in the Annexes).

Due to the existence of some outliers, as it can be seen on the Min-Max spread on the table below, I used an adjusted average and median from the sample in order to obtain more consistent multiples.

Transaction Multiples Summary	Statistics	EV/ EBITDA	EV/ EBIT
	Average	12,1	22,7
	Median	8,5	17,1
	Max	71,3	98,8
	Min	2,1	3,0
	Average - Without outliers	9,08	14,89
	Median - without outliers	8,68	16,71

E.ON 2011 Financial Indicators	€ million	
	EBITDA	EBIT
	9.293	5.438
EV based on average multiple	84.342	80.976
EV based on median multiple	80.625	90.884
Average EV	82.483	85.930
Financial Net Debt @ 31/12/2011	17.990	17.990
Equity Value @ 31/12/2011	64.493	67.940
Value per share (€)	33,85	35,66

Based on the Transaction Multiples methodology, E.ON's Equity Value could amount to circa € 65 – 68 billion, or € 33 -36 per share.

4.1.4. Valuation Summary

Below, I present the valuation summary for E.ON obtained from using the three different methodologies, which on average result in a valuation range of € 50 – 65 billion.

E.ON Equity Valuation Summary (€ million)			
Methodology	Minimum	Base Case	Maximum
Discounted Cash Flow	48.194	63.256	87.698
Transaction Multiples	64.493		67.940
Market Multiples	38.418		39.781
Average	50.368	57.754	65.140

E.ON Value per Share Summary (€)			
Methodology	Minimum	Base Case	Maximum
Discounted Cash Flow	25,30	33,21	46,04
Transaction Multiples	33,85		35,66
Market Multiples	20,17		20,88
Average	26,44	30,32	34,19



All cases yield a valuation above E.ON’s stock price range in 2011 (chart above) which can be justified by investors not been fond of the Company due to the lack of growth drivers and a history of market underperformance.

4.2. EDP Valuation

4.2.1. EDP - Financial Projections

Below, the reader will find Profit and Loss, Capital Expenditures and Working Capital financial projections for:

- EDP Brasil,
- EDP Renováveis,
- EDP Iberian Business Lines.

I followed a bottom-up approach for estimating EDP’s financial projections, using information relating to the business lines that compose each reportable segment of the Company. This enabled me to define detailed assumptions for estimating the company’s cash flows.

Additionally I intended to incorporate a neutral market view that would enable me to estimate EDP’s unbiased fundamental value. To accomplish this purpose, I estimated EDP’s financial projections based on three sources of information:

- Operating and financial historic evolution: I depicted the evolution of each reporting segment (by type of business and/ or geography, when available), namely relating to

growth, profitability and investment outlays (working capital and capital expenditures).

- Analysts best estimates: EDP is broadly followed by financial analysts from different national and international investment banks and research houses. To benefit from this, I consulted the analyst's consensus available on Bloomberg database regarding EDP's main cash flow drivers.
- Specific economic and market related drivers: I considered the impact of specific issues, such as economic downturn and expected inflation, which influence each business line performance depending of their particular idiosyncrasies, namely geography and business scopes of each business line.

EDP Brasil Financial Projections

EDP Brasil financial projections were estimated in the local currency, Brazilian Real.

	R\$ million						
Income Statement - Energias do Brasil	2009	2010	2011	2012	2013	2014	2015
Revenues	4.622	5.034	5.402	5.803	6.245	6.662	7.290
Gross Profit	2.274	2.269	2.396	2.587	2.785	2.973	3.254
Operating costs	743	697	810	916	1.006	1.089	1.128
EBITDA	1.531	1.571	1.586	1.671	1.779	1.884	2.126
Net depreciation and amortisation	329	374	325	403	425	435	492
EBIT	1.167	1.178	1.213	1.269	1.353	1.448	1.633

I estimate that EDP Brasil revenues will continue to perform annual increases of circa 7%, 2% above the forecasted annual inflation of 5% for Brazil in the next 4 years according to International Monetary Fund latest projections.

According to the company's management, Electricity Generation and Supply will be the bigger drivers for the EDP Brasil's growth in the following years. This idea was recently restated at EDP Brasil investor's day in May 2012.

Relating to the company's operating profitability in the next few years, recent performance should be a good benchmark as the company is still undergoing a growth stage but increased competition should limit margin upside. Therefore, I assume future operating margins will maintain 2011 levels.

For estimating the company's operating tax expenses for the financial projections time horizon I used the current Brazilian corporate tax rate because the company has only operations in this country.

Additional detail concerning Profit and Loss main lines key indicators is displayed in the table below.

P&L - Energias do Brasil - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues Annual growth rate		9%	7%	7%	8%	7%	9%
Gross Profit - % of Revenues	49%	45%	44%	45%	45%	45%	45%
EBITDA Margin - % of Revenues	33%	31%	29%	29%	28%	28%	29%
EBIT Margin - % of Revenues	25%	23%	22%	22%	22%	22%	22%
Effective tax rate (% Pre-tax profit)	23%	26%	23%	34%	34%	34%	34%

In order to sustain Electricity Generation and Supply activity growth, it is expected that this segment should be responsible for the majority of EDP Brasil's capital expenditures in the 2012-2015 period.

I estimate that the company's capital expenditures will peak in 2012 and then decrease annually until reaching circa R\$ 664 million in 2015.

	R\$ million						
Capex - Energias do Brasil	2009	2010	2011	2012	2013	2014	2015
Capex (net of subsidies) R\$ m	714	995	792	874	800	783	664
Electricity Distribution	306	388	324	355	325	318	270
Electricity Generation and Supply	408	607	468	519	474	464	394
Maintenance	45	67	82	68	63	61	52
Expansion	363	540	386	450	412	403	342

It was assumed that the fixed assets relating to Property, Plant and Equipment would maintain an average useful life of circa 15 years. Therefore, the company's depreciations should amount to circa 7% of each year estimated Property, Plant and Equipment value.

	R\$ million						
Capex - Energias do Brasil - Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment	4.804	5.304	5.660	6.131	6.505	6.853	7.025
Total Capex							
<i>% total Revenues</i>	15%	20%	15%	15%	13%	12%	9%
<i>% Property, plant and Equipment</i>	15%	19%	14%	14%	12%	11%	9%
Depreciation and amortizations							
<i>% Property, plant and Equipment</i>	7%	7%	6%	7%	7%	6%	7%

Working capital investment was estimated assuming that each year's net working capital would amount to circa 3% of each year Revenues, in line with the average proportion verified in the preceding couple of years.

	R\$ million						
Working capital - EDP Brasil	2009	2010	2011	2012	2013	2014	2015
Net working capital	395	218	77	167	179	191	210
Investment in working capital		-177	-141	90	13	12	18
<i>Working capital (% Revenues)</i>	8,5%	4,3%	1,4%	2,9%	2,9%	2,9%	2,9%

EDP Renováveis Financial Projections

EDP Renováveis comprises 2 business segments defined by their geographic scope: United States of America and Europe.

	€ million						
Income Statement - EDP Renováveis	2009	2010	2011	2012	2013	2014	2015
Total Revenues	725	948	1.069	1.254	1.450	1.699	1.912
Europe	436	562	635	743	853	993	1.110
US	276	378	415	494	577	682	775
Others & adjustments	12	7	19	18	20	24	27
Operating costs	182	235	268	323	370	443	460
Europe	88	101	96	137	155	186	183
US	69	93	145	142	165	198	210
Others & adjustments	25	42	28	44	51	59	68
EBITDA	543	713	801	931	1.080	1.256	1.452
Europe	348	462	539	606	698	807	927
US	207	285	271	351	412	484	565
Others & adjustments	-13	-34	-9	-26	-30	-35	-41
Provisions	0	0	0	0	0	0	0
Net Depreciation and amortisation	312	423	454	451	479	503	528
Europe	153	208	251	232	251	267	283
US	152	210	196	212	222	231	241
Others & adjustments	7	5	6	7	6	5	4
EBIT	231	290	348	480	601	753	924
Europe	195	254	289	374	447	540	644
US	55	75	74	139	190	253	324
Others & adjustments	-19	-39	-16	-33	-36	-40	-45

Both segments are expected to increase revenues at a fast pace due to entrance in operation of installed, under construction and identified pipeline wind farms. Albeit the existent growth opportunities available to the company, I assumed that increasingly limited access to funds and uncertainty regarding regulatory framework of renewable energy would limit growth and therefore 2010 annual growth rate would not be repeated on the forecasted period.

P&L - EDP R - Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues - Annual growth rate		31%	13%	17%	16%	17%	13%
EBITDA Margin	75%	75%	75%	74%	74%	74%	76%
EBIT Margin	32%	31%	33%	38%	41%	44%	48%
Effective tax rate (% Pre-tax profit)	28%	31%	24%	32,5%	32,5%	32,5%	32,5%

According to the majority of analysts that follow EDP Renováveis, it is expected that operating profitability will increase in the next years mainly due to a stronger bet in Eastern and Central European countries that have favorable feed-in tariffs for wind power.

I assumed the corporate tax rate applicable to EDP Renováveis would be 32,5%, corresponding to the average of the current corporate tax applied in USA and Spain, the countries were EDP Renováveis has most of its operations.

It is expected that EDP Renováveis will continue to have higher investment outflows in Europe, not necessarily due to a disproportionate bet in this geography but because USA has a favorable investment scheme that reduces the company's net capital expenditures. I assumed

that, from 2012 onwards, the company would reduce moderately its capital expenditures to levels amounting less than 100% of each year EBITDA.

	€ million						
Capex - EDP Renováveis	2009	2010	2011	2012	2013	2014	2015
Europe	1.014	539	368	509	469	470	443
USA - net Capex	670	614	405	447	412	413	390
Other	6	79	56	37	34	35	33
Total	1.690	1.232	829	993	915	918	866

Regarding Depreciation estimation, I assumed that the company's yearly Depreciation would be circa 4% of each year estimated Property, Plant and Equipment values, which implies an average useful life of circa 25 years for the company's main equipment.

	€ million						
Capex - EDP Renováveis - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment, net	8.635	9.982	10.455	11.240	11.997	12.727	13.431
Total Capex							
% total EBITDA	312%	173%	104%	107%	85%	73%	60%
% Property, Plant and Equipment	20%	12%	8%	9%	8%	7%	6%
Depreciation and amortizations							
% Property, plant and Equipment	4%	4%	4%	4%	4%	4%	4%

Working capital is estimated to amount to circa minus 1,3 times each year's Revenues, which will contribute to partially fund the company's operating activity, as it has happened in previous years.

	€ million						
Working capital - EDP Renováveis	2009	2010	2011	2012	2013	2014	2015
Net working capital	-1.209	-1.626	-1.382	-1.622	-1.876	-2.197	-2.472
Investment in working capital		-417	244	-240	-254	-322	-275
Working capital (% Revenues)	-167%	-172%	-129%	-129%	-129%	-129%	-129%

EDP Iberian Business Lines Financial Projections

EDP Iberian Business lines comprise 3 major segments:

- Long Term Contract Generation;
- Iberian Liberalised Activities, which include Electricity Generation, Electricity Supply and Gas Supply;
- Regulated Networks Iberia, which include Electricity Distribution and Last Resort Supply in Portugal, Electricity Distribution in Spain and Gas Regulated Activity.

Albeit EDP does not report aggregate information for its Iberian Businesses, I estimated pro-forma projections for the Iberian Business Lines (excluding wind farms electricity generation in Iberia, that is included in EDP Renováveis) in order to facilitate the reader's understanding of the company's financial information.

No disregarding additional detail the reader will find in the Annexes regarding my estimates for each one of the Iberian Business Lines financial projections, below I explain the main drivers sustaining EDP's Iberian Business financial projections:

- **Economic context:** economic outlook for Iberia is very conservative and it is expected to limit revenue growth;
- **Regulation:** albeit it is expected that some changes in regulation may happen in the next couple of years in Iberia, namely regarding additional liberalization in business segments in which EDP operates, these changes should have a limited negative impact on EDP. In fact, they should focus mainly in the residential segment, which has a minor contribution for the company's Iberian revenues;
- **Resilience:** EDP's Iberian business lines performance is backed by long-term asset based remuneration with limited correlation to changes in market prices and volumes.

	€ million						
Income Statement - Iberian Business Lines	2009	2010	2011	2012	2013	2014	2015
Revenues	11.670	13.877	15.095	14.938	15.209	15.861	16.218
LT Contract Generation	1.827	1.708	2.035	1.954	1.957	2.013	2.031
Liberalised Activities Iberia	3.885	5.300	5.807	5.842	5.992	6.262	6.414
Regulated Networks Iberia	5.958	6.869	7.254	7.142	7.260	7.587	7.772
Gross Profit	3.791	3.736	3.585	3.563	3.503	3.543	3.548
LT Contract Generation	1.030	1.076	1.009	1.045	1.043	1.067	1.082
Liberalised Activities Iberia	1.018	820	769	701	652	634	616
Regulated Networks Iberia	1.744	1.840	1.807	1.818	1.808	1.842	1.850
EBITDA	2.318	2.264	2.362	2.276	2.249	2.283	2.303
LT Contract Generation	823	877	824	862	861	880	893
Liberalised Activities Iberia	666	449	392	399	374	368	363
Regulated Networks Iberia	829	939	1.145	1.015	1.014	1.035	1.046
EBIT	1.480	1.377	1.575	1.481	1.462	1.499	1.544
LT Contract Generation	560	663	615	640	637	655	673
Liberalised Activities Iberia	421	131	158	172	158	158	163
Regulated Networks Iberia	499	584	803	669	666	686	708

Revenue growth is expected to be slightly negative in 2012 and very limited in the following years. Liberalised Activities should perform the higher revenue growths in Iberia, although with more conservative growth rates than observed in previous years.

Nevertheless, Long-Term Contract Generation and Regulated Networks should continue to be the biggest contributors for Iberian operating margin due to favorable contract and

remuneration schemes locked by EDP in previous years. This should allow EDP Iberian Business lines to sustain its operating profitability at levels close to recent past years.

P&L- Iberian Business Lines - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues - Annual Growth rate	n.a.	19%	9%	-1%	2%	4%	2%
LT Cont. Gen.- Annual Growth rate	n.a.	-7%	19%	-4%	0%	3%	1%
Lib.Act.Iberia - Annual Growth rate	n.a.	36%	10%	1%	3%	4%	2%
Reg. Net. Iberia- Annual Growth rate	n.a.	15%	6%	-2%	2%	4%	2%
EBITDA Margin - % of Revenues	20%	16%	16%	15%	15%	14%	14%
LT Cont. Gen.- EBITDA % of Revenues	45%	51%	41%	44%	44%	44%	44%
Lib.Act.Iberia - EBITDA % of Revenues	17%	8%	7%	7%	6%	6%	6%
Reg. Net. Iberia- EBITDA % of Revenues	14%	14%	16%	14%	14%	14%	13%
EBIT Margin - % of Revenues	13%	10%	10%	10%	10%	9%	10%
LT Cont. Gen.- EBIT % of Revenues	31%	39%	30%	33%	33%	33%	33%
Lib.Act.Iberia - EBIT % of Revenues	11%	2%	3%	3%	3%	3%	3%
Reg. Net. Iberia- EBIT % of Revenues	8%	8%	11%	9%	9%	9%	9%

It is expected that the slowdown in forecasted activity will allow the company to lower capital expenditures particularly in the Liberalised Activities segment. The Regulated Networks business is expected to continue to demand recurrent investments that are crucial to assure a stable remuneration scheme of the regulated asset base.

Capex - Iberian Business Lines	2009	2010	2011	2012	2013	2014	2015
Total Capex	1.199	933	935	904	818	808	767
LT Contract Generation	128	96	59	74	75	80	82
Liberalised Activities Iberia	713	467	466	463	375	331	281
Regulated Networks Iberia	359	371	411	367	368	397	404

Capex - Iberian Business Lines - Key indicators	2009	2010	2011	2012	2013	2014	2015
Total Capex - % EBITDA	52%	41%	40%	40%	36%	35%	33%
LT Contract Generation Capex							
% LT Contract Generation EBITDA	15%	11%	7%	9%	9%	9%	9%
Liberalised Activities Iberia Capex							
% Liberalised Activities Iberia EBITDA	107%	104%	119%	116%	100%	90%	77%
Regulated Networks Iberia Capex							
% Regulated Networks Iberia EBITDA	43%	39%	36%	36%	36%	38%	39%

As EDP does not report working capital for its Iberian Business Lines, I deducted EDP Brasil and EDP Renováveis working capital from EDP's consolidated Working Capital to determine historic pro-forma Net Working Capital levels for this business segment.

For estimating Working Capital investment for the projections period, I considered that working capital would amount to circa minus 4% of each year total Iberian Business Lines revenues. This approach results in minor working capital variations within the forecasted time horizon, which is consistent with the maintenance of the no upside/ no downside *status quo* of EDP's Iberian business lines.

Working capital - - Iberian Business Lines - Pro-forma	2009	2010	2011	2012	2013	2014	2015
EDP - Working Capital	-4.128	-3.009	-2.003	-2.199	-2.459	-2.804	-3.087
EDP Brasil Working Capital	157	98	32	69	74	79	87
EDP Renováveis Working capital	-1.209	-1.626	-1.382	-1.622	-1.876	-2.197	-2.472
Iberia - Pro-forma Working Capital	-3.076	-1.481	-653	-646	-658	-686	-701
Iberia - Pro-forma Working Capital							
% Iberia pro-forma Revenues	-26%	-11%	-4%	-4%	-4%	-4%	-4%
Investment in working capital		1.595	829	7	-12	-28	-15

4.2.2. Discounted Cash Flows

4.2.2.1. Free Cash Flows Estimation

Below I present the Free Cash Flow to the Firm estimation for EDP Brasil, EDP Renováveis and EDP's Iberian Business Lines for 2012-2015 according to the Financial Projections presented previously.

For each segment, I additionally estimated a perpetuity cash flow using the following assumptions:

- Growth rate: I considered different growth rates for each business segment in order to reflect their specificities;
- EBIT: Equal to 2015's estimated EBIT plus each segment estimated growth;
- Tax on EBIT: same tax rate than used on the 2011-2015 period;
- Depreciation and Amortization: Equal to 2015's estimated amount;
- Capital Expenditures: Equal to 2015's estimated amount;
- Investment in Working Capital: Equal to 2015's estimation plus each segment estimated growth.

These projections will be used to value EDP's Equity using a Sum-of-Parts approach based on the Discounted Cash Flow Model.

EDP Brasil

Considering the above mentioned assumptions and a perpetuity growth rate of 4,5%, (equivalent to the estimated inflation for Brasil from 2016 onwards, source IMF), EDP Brasil's cash flows are estimated below (in Brazilian Real):

Cashflows - EDP Brasil					R\$ Million
	2012	2013	2014	2015	Perpetuity
(+) EBIT	1.269	1.353	1.448	1.633	1.707
(-) Tax on Ebit	431	460	492	555	580
(+) D&A	403	425	435	492	492
(-) Capex	874	800	783	664	664
(-) Investment in WK	90	13	12	18	19
(=) Free Cash Flow to the Firm	276	506	596	888	936

EDP Renováveis

I assumed a perpetuity growth rate of 4% for EDP Renováveis, which is equal to the average of IMF's long term growth estimations for GDP in USA, Euro Area and Eastern Europe, EDPR Renováveis' main current and prospective markets.

Cashflows - EDP Renováveis					€ Million
	2012	2013	2014	2015	Perpetuity
(+) EBIT	480	601	753	924	961
(-) Tax on Ebit	156	195	245	300	312
(+) D&A	451	479	503	528	528
(-) Capex	993	915	918	866	866
(-) Investment in WK	-240	-254	-322	-275	-286
(=) Free Cash Flow to the Firm	22	223	415	561	597

EDP Iberian Business Lines

I considered a perpetuity growth rate of 3,5% for Iberia, which is equal to the average GDP growth estimated by IMF for Portugal and Spain for 2016 onwards.

Cashflows - Iberian Business Lines					€ Million
	2012	2013	2014	2015	Perpetuity
(+) EBIT	1.481	1.462	1.499	1.544	1.599
(-) Tax on Ebit	452	446	457	471	488
(+) D&A	795	787	784	758	758
(-) Capex	904	818	808	767	767
(-) Investment in WK	69	74	79	87	90
(=) Free Cash Flow to the Firm	851	911	939	978	1.012

4.2.2.2. Weighted Average Cost of Capital – WACC

As one of the purposes of my thesis is to analyze if E.ON's bid for EDP had economic reasoning, I intend to be as market neutral as possible. In light of this, I will use standard market measures to calculate each segment's cost of capital:

- Risk Free Rate + Country Risk Premium: domestic government bonds yield (Brasil for EDP Brasil and Portugal for the remaining);
- Beta: Calculation based on two years weekly observations of the relation between the respective domestic market index (Bovespa for EDP Brasil and PSI-20 for the remaining) and stock quotes (EDP Brasil and EDP Renováveis are listed; for Iberian Business Lines I used EDP's stock quote);
- Equity Market Risk Premium: 6% (Professor Aswath Damodaran latest estimate for mature capital markets);
- Cost of Debt: Average cost of debt in 2011 for each business segment. For Iberian Business Lines I used EDP's average cost of debt (this indicator is not reported by EDP for this business segment);
- Debt amounts refer to 31-12-2011 as recorded on the company's balance sheets;
- Tax rate: current corporate marginal tax rates applicable for each segment's main markets.

EDP Brasil WACC

Risk free rate + country risk premium	10,27%
Equity risk premium	2,88%
Beta	0,48
Equity Market Risk Premium	6,00%
Cost of equity = RF + β X MRP	13,15%
Pre-tax average cost of debt	8,49%
Marginal tax rate	34,00%
Cost of debt (after tax)	5,60%
Wacc	10,48%

Values in R\$ million	
31/12/2011 - capital structure	
Market cap	6.590
Debt	3.614
E/ (D+E)	65%
D/ (D+E)	35%

Assuming a Debt-to-(Equity+Debt) Ratio of 35%, as of 31-12-2011, EDP Brasil WACC is 10,48%.

EDP Renováveis WACC

I used Portuguese 10 year government bond yield as a reference for EDP Renováveis risk free rate + country risk premium because the company's shareholders are mainly Portuguese (EDP and other private and institutional investors hold more than 80% of EDPR's shares).

I considered a marginal tax rate of 32,5% corresponding to the average of USA and Spain marginal corporate tax rates, as these markets are currently the biggest contributors for the company's income (EDP Renováveis management estimates that the effective tax rate in the coming years will be on average 31% but they do not disclose how they obtain that value).

Risk free rate + country risk premium	10,17%
Equity risk premium	5,40%
Beta	0,9
Equity Market Risk Premium	6,00%
Cost of equity = RF + β X MRP	15,57%
Pre-tax average cost of debt	7,02%
Marginal tax rate	32,50%
Cost of debt	4,74%

Wacc	10,36%
-------------	---------------

Values in € million	
31/12/2011 - capital structure	
Market cap	4.124
Debt	3.826
E/ (D+E)	52%
D/ (D+E)	48%

Assuming a Debt-to-(Equity+Debt) Ratio of 48%, as of 31-12-2011, EDP Renováveis WACC is 10,36%.

EDP Iberian Business Lines WACC

I used market and company data relating to EDP to estimate this business segment WACC, namely regarding cost of equity, pre-tax cost of debt and current Portuguese marginal corporate tax rate.

Risk free rate + country risk premium	10,17%
Equity risk premium	5,46%
Beta	0,91
Equity Market Risk Premium	6,00%
Cost of equity = RF + β X MRP	15,63%
Pre-tax Short term cost of debt	2,59%
ST debt to total debt	16%
Pre-tax Long term cost of debt	6,67%
LT debt to total debt	84%
Pre-tax average cost of debt	6,02%
Marginal Tax rate	30,50%
Cost of debt (after tax)	4,18%
Wacc	7,82%

Values in € million	
31/12/2011 - capital structure	
Market cap	8.743
Debt	18.785
ST Debt	2.999
LT Debt	15.786
E/ (D+E)	32%
D/ (D+E)	68%

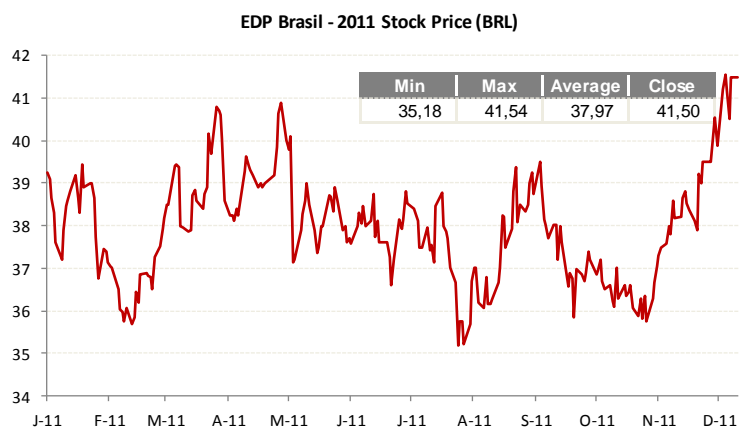
Assuming EDP's Debt-to-(Equity+Debt) Ratio of 68%, as of 31-12-2011, EDP Iberian Business Lines WACC is 7,82%.

4.2.2.3. Valuation – Base Case

EDP Brasil Valuation

EDP Brasil’s Enterprise Value was calculated in Brazilian Reais and converted to Euros at the end of year spot rate, yielding an estimated Equity Value for EDP’s share capital amounting to circa € 2 billion after deducting financial net debt and accounting only the percentage of issued capital owned by EDP (51%).

Valuation - EDP Brasil @ 31/12/2011	
Wacc	10,5%
EV - explicit Period	1.703
Growth Rate	4,5%
EV - perpetuity	10.511
EV (BRL million)	12.215
EUR/ BRL - 31/12/2011	2,42
EV (€ million)	5.047
Financial Net Debt (€ million)	1.063
Equity value (€ million)	3.985
% held by EDP	51%
Equity value for EDP (€ million)	2.032
# of shares (million)	159
value per share (€)	25,09
value per share (BRL)	60,72

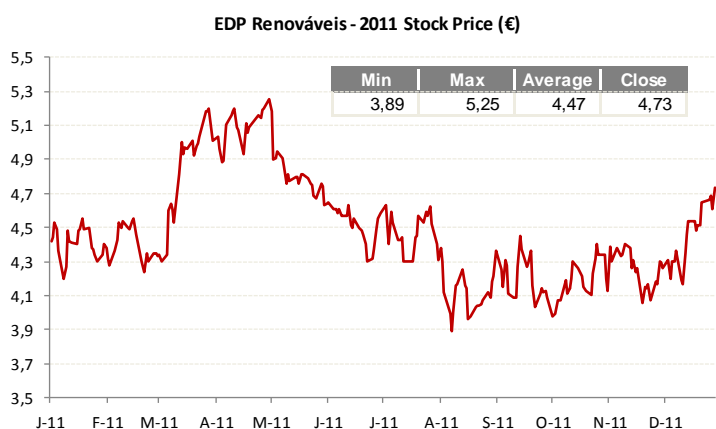


EDP Brasil’s valuation using the DCF methodology outputs an implied value per share of circa 60,72 Brazilian Real, above the average 2011 stock price (the company is listed in Brazil stock exchange Bovespa). Nevertheless, it is possible to see in the chart above that the stock was rallying at the end of the year towards values closer to the DCF valuation output.

EDP Renováveis Valuation

Considering the assumptions explained on the EDP Financial Projections chapter above, I estimate EDP Renováveis Equity Value for EDP to be circa € 3 billion (EDP owns 77,5% of EDP Renováveis).

Valuation - EDP Renováveis @ 31/12/2011	
Wacc	10,4%
EV - explicit Period	890
Growth Rate	4,0%
EV - perpetuity	6.338
EV (€ million)	7.228
Financial Net Debt (€ million)	3.387
Equity value (€ million)	3.841
% held by EDP	77,5%
Equity value for EDP (€ million)	2.977
# of shares (million)	872
value per share €	4,40



EDP Renováveis’ average stock price during 2011 (€ 4,47 - chart above) is very close to the value per share calculated using the DCF (€ 4,40 – table above).

EDP Iberian Business Lines Valuation

I used EDP WACC to discount EDP Iberian Business Lines projected cash flows.

As the company does not report net debt for this business segment, I deducted EDP Renováveis and EDP Brasil's net debt from EDP's total net debt.

Valuation - EDP Iberian Business Lines @ 31/12/2011	
Wacc	7,8%
EV - explicit Period	3.045
Growth Rate	3,5%
EV - perpetuity	17.377
EV (€ million)	20.423
Financial Net Debt (ex EDPR and Brasil) € M	12.498
Equity value (€ million)	7.925

Considering all the above mentioned assumptions, I estimate an Equity Value of circa € 7,9 billion for EDP Iberian Business Lines.

EDP Sum-of-Parts Valuation

EDP Sum-of-Parts Valuation at 31/12/2011 amounts to circa € 12,9 billion, equivalent to a value of € 3,54 per share.

Valuation - EDP Sum-of-Parts @ 31/12/2011		€ Million
Equity value - EDP Renováveis		2.977
Equity value - EDP Brasil		2.032
Equity value - Iberia		7.925
Total Equity value		12.934
# of shares (million)		3.657
value per share		3,54

4.2.2.4. Scenario Analysis

I made scenario analysis for each business segment considering alternative perpetuity growth rates and WACCs, 50 basis points above and below their respective values considered in the base case. The Sum-of-Parts impact of this analysis is presented below.

Scenario Analysis EDP (Sum-of-Parts)		Equity Value - € million		
		WACC		
		-0,50%	Base case	+ 0,5%
g	-0,5%	13.441	10.598	8.258
	Base case	16.397	12.934	10.146
	+ 0,5%	20.177	15.836	12.439

Scenario Analysis EDP (Sum-of-Parts)		Share Value - €		
		WACC		
		-0,50%	Base case	+ 0,5%
g	-0,5%	3,68	2,90	2,26
	Base case	4,48	3,54	2,77
	+ 0,5%	5,52	4,33	3,40

Due to the complexity of the business and the multiple of assumptions needed to obtain a DCF valuation of EDP, it is no surprise that there is a considerable range for the company's equity valuation using this methodology.

4.2.1. Multiples Valuation

As I am going to use EDP valuation to base the comparison between E.ON's real bid for EDP and the maximum potential theoretical bid it could have made, incorporating the outputs of a multiples valuation is very relevant as is a sound way to assess market perception of the company's potential value.

I used the same multiples and methodologies for valuing EDP as I used previously to value E.ON (please see additional detail on the Annexes).

4.2.1.1. Market multiples

I used the same sample of companies I considered previously to value E.On, but for valuing EDP I also included E.ON in the sample of comparable companies (sample used can be found on the Annexes).

Market Multiples Summary	Statistics	EV/ EBITDA	EV/ EBIT
	Average	6,6	11,7
	Median	6,3	10,5
	Max	9,7	22,3
	Min	3,4	5,3

EDP 2011 Financial Indicators	€ million	
	EBITDA	EBIT
	3.756	2.267
EV based on average multiple	24.747	26.581
EV based on median multiple	23.579	23.719
Average EV	24.163	25.150
Financial Net Debt @ 31/12/2011	16.948	16.948
Equity Value @ 31/12/2011	7.215	8.202
Value per share (€)	1,97	2,24

Using Market Multiples methodology EDP's Equity Value should be circa € 7 – 8 billion, or € 2 - 2,2 per share.

As mentioned previously, market multiples translate the prevailing market sentiment at the time of the valuation. As equity markets are globally depressed, with no exception for energy companies, EDP's valuation using this methodology is quite below the company's fundamental value calculated under the DCF method.

4.2.1.2. Transaction multiples

The comparable transactions I used for determining transaction multiples were the same used previously to value E.ON and can be found on the Annexes. The methodology followed to value E.ON was also maintained for EDP.

Transaction Multiples Summary	Statistics	EV/ EBITDA	EV/ EBIT
	Average	12,1	22,7
	Median	8,5	17,1
	Max	71,3	98,8
	Min	2,1	3,0
	Average - Without outliers	9,08	14,89
	Median - without outliers	8,68	16,71

EDP 2011 Financial Indicators	€ million	
	EBITDA	EBIT
	3.756	2.267
EV based on average multiple	34.085	33.763
EV based on median multiple	32.583	37.895
Average EV	33.334	35.829
Financial Net Debt @ 31/12/2011	16.948	16.948
Equity Value @ 31/12/2011	16.386	18.881
Value per share (€)	4,48	5,16

Using Transaction Multiples methodology, EDP’s Equity Value could amount to circa € 16 – 19 billion, or € 4,5 -5,2 per share.

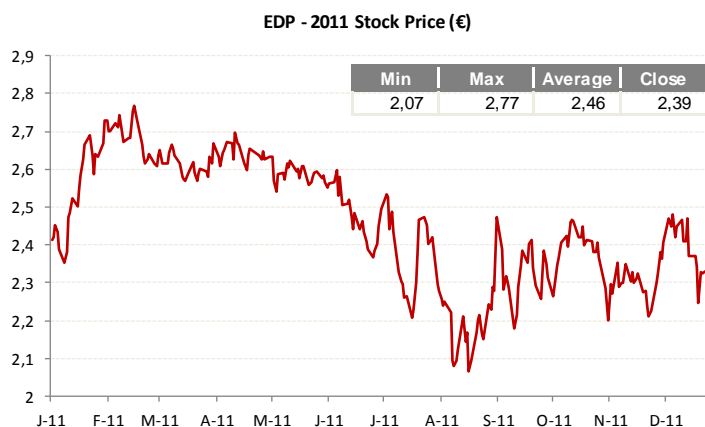
The fact this method yields a higher valuation than obtained from DCF methodology is explained by EDP having higher operating margins than comparable companies but also high capital expenditures, which is captured by the DCF but not by the transaction multiples used.

4.2.2. Valuation Summary

Below I present the valuation summary for EDP considering the three different methodologies.

EDP Equity Valuation Summary (€ million)			
Methodology	Minimum	Base Case	Maximum
Discounted Cash Flow	8.258	12.934	20.177
Transaction Multiples	16.386		18.881
Market Multiples	7.215		8.202
Average	10.620	13.186	15.753

EDP Value per Share Summary (€)			
Methodology	Minimum	Base Case	Maximum
Discounted Cash Flow	2,26	3,54	5,52
Transaction Multiples	4,48		5,16
Market Multiples	1,97		2,24
Average	2,90	3,61	4,31



It is interesting to observe that EDP's stock was, on average, quoted at a higher value during 2011 than the output yield from market multiples valuation. This could indicate that, despite EDP's exposure to the struggling Portuguese and Spanish economies, investors seem to recognize the growth potential of the Renewables and Brazil business, thus valuing the company at a premium over other energy companies.

DCF valuation outputs an average EDP equity value above the one yielded from market multiples valuation but below transaction multiples valuation, which is a "common place".

All things considered, it is fairly reasonable to say that, at end of 2011 share quote levels, EDP could present a good investment opportunity.

On top of that, as we saw above, transaction multiples are usually higher than market multiples, indicating that generally acquisitions of public companies, as is the case, are made at a premium over the market valuation.

The next step of this thesis will be trying to assess what would the maximum reasonable price E.ON could pay to acquire EDP and compare it with the real bid E.ON made on EDP's privatization.

To make this assessment, first we have to identify and value the synergies from the business combination.

4.3. Synergies

Synergies can come from a multitude of sources, as it is explained on my literature review. Access to new markets and new business lines, cost optimization and financial synergies are some examples, but naming them or theorizing about them is much easier than in fact accomplish them and realizing their potential value.

I opted to follow a conservative approach and consider only synergies that have a solid and clear rationale for creating value.

I compared thoroughly the profile of both companies (detail in annex) and concluded that potential synergies of an acquisition of EDP by E.ON could come from two main sources:

- 1) Increased profitability from EDP's project capital expenditures,
- 2) Financial synergies associated to lowering EDP's cost of debt.

Obviously, other synergies could be identified but given the risk of not being accomplished and the smaller impact they would have, I opted not to include them on this analysis.

One could ask why I identified deal generated synergies that would only favor EDP's operation and financial situation and not E.ON's. The fact is that E.ON is much bigger than EDP and has already in place several cost optimization initiatives.

From E.ON stand-point, EDP acquisition would allow access to growing markets and business lines, as is the case of Brazil and the renewable business. But these factors are already considered in EDP's stand-alone valuation, so considering them again on this chapter would be duplication.

For example, EDP has higher operating profitability than E.ON but, E.ON is about 7 times bigger (as to revenues) and its current management practices would probably dominate over the acquired target (EDP) practices. Therefore, I considered that it would be over optimistic to assume that the merger would contribute to an increase in E.ON's operating profitability within a short to medium term time frame.

I estimated that the two above mentioned sources of synergy could add circa € 1,3 billion to EDP Equity value if E.ON is the acquirer, as detailed below.

Regarding the first synergy identified, I assumed that EDP would maintain the same level of projected capital expenditures but that investments would be more productive. This would be possible through a better allocation of invested capital and increased procurement capabilities.

For estimating the impact on cash flows, I considered that EDP's capital expenditures would yield an Asset Turnover (Sales/Assets) increasingly closer to E.ON's forecasted Asset Turnover until reaching a value of 113% in 2015 (still significantly below that of E.ON's - 177% in the same year). The impact on cash flows would then be materialized through an increase in sales and, consequently in EDP's EBIT.

Increased profitability of capex					€ Millions
	2012	2013	2014	2015	Perpetuity
Capex	2.259	2.063	2.050	1.907	1.907
Estimated EDP asset turnover (Base case)	73%	74%	76%	78%	78%
Estimated E.ON Asset Turnover	184%	179%	177%	177%	
Enhanced EDP Asset Turnover	83%	93%	103%	113%	113%
Impact on Sales (increase)	226	397	550	664	664
EDP Estimated EBIT margin	15%	15%	16%	17%	17%
(+) Impact on annual EBIT	34	60	86	110	110
(-) Increase in tax	10	18	26	34	34
(=) Impact on Free cash flows	23	42	60	77	77

I assumed that synergy cash flows should be discounted considering E.ON operating risks because if E.ON's business does not continue to perform, synergies will not be generated, despite their nature being operational or financial.

I estimate this synergy could add up to € 1,2 billion (€ 0,32/ per share) to EDP's stand-alone value.

€ Million	
Impact on EDP Valuation @ 31/12/2011	
Wacc	6,1%
EV - explicit Period	170
Growth Rate	0,0%
EV - perpetuity	989
EV	1.159
Financial Net Debt	0
Equity value	1.159
# of shares (million)	3.657
value per share €	0,32

Regarding the financial synergies, I assumed that EDP's debt that matures within the period 2012-2015 would be refinanced at a lower cost, namely equal to E.ON current cost of debt.

Due to the high uncertainty of forecasting cost of funding nowadays, I considered only the debt maturing within the explicit forecasted period of financial projections, thus not impacting perpetuity value.

Financing synergies - lower cost of debt	€ Millions			
	2012	2013	2014	2015
Estimated total net debt	17.217	17.000	16.492	15.662
Debt maturing in year	2.761	2.761	3.313	2.393
Accumulated debt matured since deal	2.761	5.522	8.836	11.229
Current cost of debt for EDP	6,0%	6,0%	6,0%	6,0%
Current cost of debt for E.ON	4,9%	4,9%	4,9%	4,9%
Cost reduction of refinanced debt	1,1%	1,1%	1,1%	1,1%
(+) Impact on annual cost savings	31	63	100	127
(-) Increase in tax	10	19	31	39
(=) Impact on Free cash flows	22	43	70	88

A lower cost of debt could contribute to an additional € 0,2 billion (€ 0,05/ per share) to EDP's stand-alone value, already considering the consequent reduction of tax-shields.

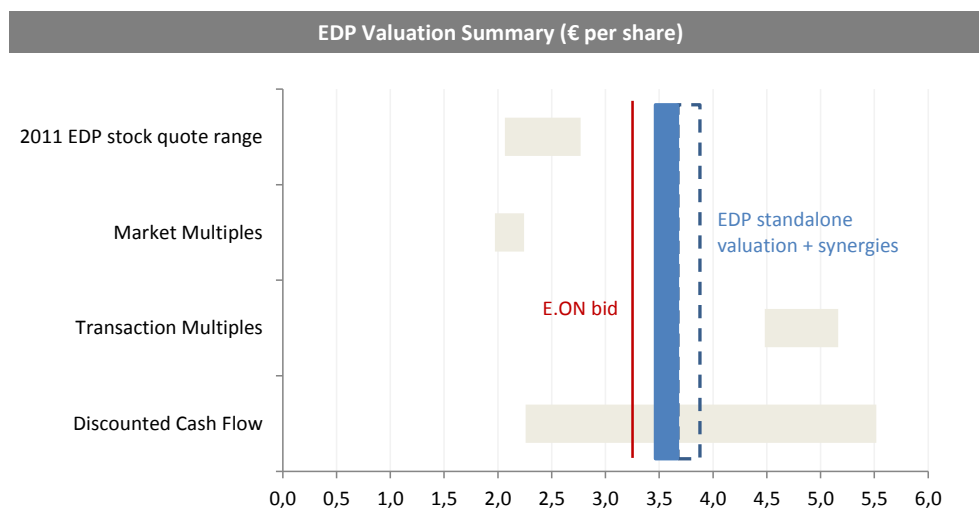
€ Million	
Impact on EDP Valuation @ 31/12/2011	
Wacc	6,1%
EV - explicit Period	187
Growth Rate	0,0%
EV - perpetuity	0
EV	187
Financial Net Debt	0
Equity value	187
# of shares (million)	3.657
value per share €	0,05

4.4. Bid: real vs. theoretical

When E.ON made a bid for EDP in late 2011 there was some speculation if the interest in the deal had strategic motivations or if the bid was driven from political pressures by Berlin.

For now, let's focus on the real bid conditions, namely regarding price, and compare them with the maximum theoretical price they could have presented.

On the chart below we can see a summary of EDP valuation, including potential synergies from E.ON acquiring EDP.



The average valuation obtained using DCF and Relative Valuation (market and transaction multiples) is circa € 3,6 per share (marked with blue filling on the chart above).

If we add synergies to the stand alone valuation, EDP value for E.ON would amount up to € 3,95 per share (marked with blue dash on the chart above).

E.ON's real bid presented to the Portuguese Government (signaled on the chart above with a red line) was € 3,25 per share and had an implied premium of 32% over EDP average stock price in 2011.

Despite this premium, the 7,7x EV/EBITDA multiple implicit on E.ON's bid is significantly below the multiple of 9x found on comparable transactions.

Additionally, if we account for the potential synergies, E.ON could have bid up to € 3,95 per share and still acquire EDP at a multiple EV/EBITDA of 8,4X, below comparable transactions.

Regarding payment method, the theoretical scenario would point out to payment in cash as E.ON stocks seem undervalued (at the end of 2011 E.ON's stock price had an implied 5,3x EV/EBITDA which compared to an average of plus 6x EV/EBITDA from comparable companies). Additionally, E.ON has low leverage and unused credit lines, so payment in cash would in fact be a viable option.

On the real bid, E.ON opted to present a payment method that comprised a mix of 20% in cash and 80% with Iberian energy assets it hold on portfolio.

The business combination offered some execution risk to E.ON associated to regulatory uncertainty and economic growth, two very important drivers for utilities revenue and profitability performance. Thus it is understandable the bid offered was tilted towards a conservative view of the future of energy markets.

5. Conclusion

This thesis had two main goals:

1. Share with the readers an overview of M&A key ingredients: valuation techniques, analysis of company and industry backgrounds and deal rationale;
2. Assess if EON's bid for EDP had economic reasoning and, if so, if it was made at fair price or if there was margin for improvement.

Regarding the first point, it is possible to state indisputably that without previously analyzing thoroughly the "key ingredients" mentioned, only by chance an M&A deal could go right.

But the conclusion is not so clear cut. Adequately executing all the "key ingredients" is a troublesome and challenging task.

The Literature Review explained several valuation techniques that can be used to value companies (and synergies), but all of them are subject to some kind of decisions regarding assumptions that have to be made and, therefore, exposed to some degree of subjectivity.

It is almost impossible to obtain consensual results amongst analysts, stakeholders and observers of an M&A deal regarding the "correct" value of the target. Valuation techniques are useful to find a reasonable interval of values for a bid but there is no undisputable bull's-eye value for a bid.

Regarding the second point, I believe that, based on the previous chapters of my thesis, it is reasonable to state that the business combination made perfect sense for E.ON.

EDP fits within E.ON's current strategy of increasing exposure to renewables and markets where energy demand is growing. EDP is one of the major world players in renewables and has a growing exposure to Brazil.

The subject more open to discussion is to conclude if the bidding price was appropriate or if it was just enough to give it a go and hope for a bargain.

All in all, E.ON's bid was just enough not to cause embarrassment, but considering the price and payment conditions offered they lacked to show a real commitment in winning the bid.

Even using conservative assumptions, I believe I showed clearly that there was room for E.ON to have offered a higher price than € 3,25 per share.

E.ON could have bid as much as € 3,60 per share if they did not want to share any of the value of the synergies they would bring to the business combination. But E.ON bidding power could go as up as € 3,95, depending of the amount of synergies they would be willing to share with the seller, albeit E.ON being the sole responsible for the synergies identified.

On the other hand, considering the major uncertainty of economic and financial context it is understandable E.ON did not want to risk too much on the deal in the midst of an economic and financial crisis where liquidity management can be the decisive factor for striving. Acquiring EDP would imply a significant financial effort that would increase the company's leverage and constrain financial flexibility.

E.ON ultimately lost the bid to China Three Gorges, who offered a price of € 3,45 for EDP shares and proposed a 100% cash payment.

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6.1. E.ON Financial Projections: Additional Detail

	€ million						
Income Statement - E.ON	2009	2010	2011	2012	2013	2014	2015
Sales	79.974	92.863	112.954	107.704	108.634	111.678	114.722
Generation	n.a.	14.741	14.979	15.095	15.659	16.041	16.402
Renewables	n.a.	1.943	2.439	2.843	3.150	3.574	3.958
Gas	n.a.	21.348	23.012	24.601	27.072	29.207	31.244
Trading	n.a.	47.948	70.463	61.714	57.022	56.799	56.799
Germany	n.a.	36.403	37.244	37.790	39.470	40.711	41.910
Other European Countries	n.a.	22.654	23.032	23.223	24.104	24.705	25.274
Russia	n.a.	1.252	1.615	1.939	2.173	2.345	2.524
Group Management/Consolidation	n.a.	-53.426	-59.830	-59.507	-60.020	-61.702	-63.384
Operating Costs	66.999	79.517	103.661	97.704	96.894	99.461	101.967
Generation	n.a.	10.984	12.865	13.055	13.311	13.769	14.106
Renewables	n.a.	736	980	1.213	1.225	1.436	1.662
Gas	n.a.	19.373	21.479	23.010	25.194	27.261	29.212
Trading	n.a.	46.743	71.094	61.654	56.787	56.555	56.544
Germany	n.a.	33.940	34.823	35.490	36.888	38.023	39.104
Other European Countries	n.a.	20.071	20.773	21.091	21.650	22.115	22.582
Russia	n.a.	875	1.062	1.269	1.386	1.490	1.606
Group Management/Consolidation	n.a.	-53.205	-59.415	-59.084	-59.551	-61.186	-62.845
EBITDA	12.975	13.346	9.293	10.000	11.739	12.217	12.755
Generation	n.a.	3.757	2.114	2.040	2.348	2.272	2.296
Renewables	n.a.	1.207	1.459	1.630	1.925	2.138	2.296
Gas	n.a.	1.975	1.533	1.591	1.878	1.946	2.032
Trading	n.a.	1.205	-631	60	235	244	255
Germany	n.a.	2.463	2.421	2.300	2.583	2.688	2.806
Other European Countries	n.a.	2.583	2.259	2.132	2.454	2.590	2.691
Russia	n.a.	377	553	670	787	855	918
Group Management/Consolidation	n.a.	-221	-415	-423	-470	-516	-539
Depreciation and Amortization	3.684	3.892	3.855	3.937	4.345	4.165	4.279
Generation	n.a.	990	986	961	987	936	897
Renewables	n.a.	327	371	417	446	439	457
Gas	n.a.	560	536	621	658	642	676
Trading	n.a.	9	11	30	28	27	26
Germany	n.a.	922	951	845	982	973	1.027
Other European Countries	n.a.	870	768	793	915	850	877
Russia	n.a.	127	155	190	247	219	240
Group Management/Consolidation	n.a.	87	77	81	81	80	80
EBIT	9.291	9.454	5.438	6.064	7.395	8.052	8.476
Generation	n.a.	2.767	1.128	1.079	1.361	1.337	1.399
Renewables	n.a.	880	1.088	1.213	1.479	1.699	1.839
Gas	n.a.	1.415	997	970	1.220	1.304	1.356
Trading	n.a.	1.196	-642	30	207	217	229
Germany	n.a.	1.541	1.470	1.455	1.601	1.715	1.779
Other European Countries	n.a.	1.713	1.491	1.339	1.538	1.740	1.815
Russia	n.a.	250	398	480	540	636	678
Group Management/Consolidation	n.a.	-308	-492	-503	-551	-597	-619

P&L E.ON - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Sales - Segment Contribution	n.a.	100%	100,0%	100%	100%	100%	100%
Generation - % of Total Sales	n.a.	16%	13,3%	14%	14%	14%	14%
Renewables - % of Total Sales	n.a.	2%	2,2%	3%	3%	3%	3%
Gas - % of Total Sales	n.a.	23%	20,4%	23%	25%	26%	27%
Trading - % of Total Sales	n.a.	52%	62,4%	57%	52%	51%	50%
Germany - % of Total Sales	n.a.	39%	33,0%	35%	36%	36%	37%
Other European Countries - % of Total Sales	n.a.	24%	20,4%	22%	22%	22%	22%
Russia - % of Total Sales	n.a.	1%	1,4%	2%	2%	2%	2%
Group Management/Consolidation - % of Total Sales	n.a.	-58%	-53,0%	-55%	-55%	-55%	-55%
Sales - Annual Growth rate	n.a.	16%	22%	-5%	1%	3%	3%
Generation - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	2%	2%
Renewables - Annual Growth Rate	n.a.	n.a.	26%	17%	11%	13%	11%
Gas - Annual Growth Rate	n.a.	n.a.	8%	7%	10%	8%	7%
Trading - Annual Growth Rate	n.a.	n.a.	47%	-12%	-8%	0%	0%
Germany - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	3%	3%
Other European Countries - Annual Growth Rate	n.a.	n.a.	2%	1%	4%	2%	2%
Russia - Annual Growth Rate	n.a.	n.a.	29%	20%	12%	8%	8%
Group Management/Consolidation - Annual Growth Rate	n.a.	n.a.	12%	-1%	1%	3%	3%
Operating Costs - % of Total Sales	84%	86%	92%	91%	89%	89%	89%
Generation - % of Segment Sales	n.a.	75%	86%	86%	85%	86%	86%
Renewables - % of Segment Sales	n.a.	38%	40%	43%	39%	40%	42%
Gas - % of Segment Sales	n.a.	91%	93%	94%	93%	93%	93%
Trading - % of Segment Sales	n.a.	97%	101%	100%	100%	100%	100%
Germany - % of Segment Sales	n.a.	93%	93%	94%	93%	93%	93%
Other European Countries - % of Segment Sales	n.a.	89%	90%	91%	90%	90%	89%
Russia - % of Segment Sales	n.a.	70%	66%	65%	64%	64%	64%
Group Management/Consolidation - % of Segment Sales	n.a.	-2%	-2%	99%	99%	99%	99%
EBITDA Margin - % of Total Sales	16%	14%	8%	9%	11%	11%	11%
Generation - % of Segment Sales	n.a.	25%	14%	14%	15%	14%	14%
Renewables - % of Segment Sales	n.a.	62%	60%	57%	61%	60%	58%
Gas - % of Segment Sales	n.a.	9%	7%	6%	7%	7%	7%
Trading - % of Segment Sales	n.a.	3%	-1%	0%	0%	0%	0%
Germany - % of Segment Sales	n.a.	7%	7%	6%	7%	7%	7%
Other European Countries - % of Segment Sales	n.a.	11%	10%	9%	10%	10%	11%
Russia - % of Segment Sales	n.a.	30%	34%	35%	36%	36%	36%
Group Management/Consolidation - % of Segment Sales	n.a.	0%	1%	1%	1%	1%	1%
EBITDA Margin - Segment Contribution	n.a.	100%	100%	100%	100%	100%	100%
Generation - % of Total Ebitda	n.a.	28%	23%	20%	20%	19%	18%
Renewables - % of Total Ebitda	n.a.	9%	16%	16%	16%	18%	18%
Gas - % of Total Ebitda	n.a.	15%	16%	16%	16%	16%	16%
Trading - % of Total Ebitda	n.a.	9%	-7%	1%	2%	2%	2%
Germany - % of Total Ebitda	n.a.	18%	26%	23%	22%	22%	22%
Other European Countries - % of Total Ebitda	n.a.	19%	24%	21%	21%	21%	21%
Russia - % of Total Ebitda	n.a.	3%	6%	7%	7%	7%	7%
Group Management/Consolidation - % of Total Ebitda	n.a.	-2%	-4%	-4%	-4%	-4%	-4%
EBIT Margin - % of Total Sales	12%	10%	5%	6%	7%	7%	7%
Generation - % of Segment Sales	n.a.	19%	8%	7%	9%	8%	9%
Renewables - % of Segment Sales	n.a.	45%	45%	43%	47%	48%	46%
Gas - % of Segment Sales	n.a.	7%	4%	4%	5%	4%	4%
Trading - % of Segment Sales	n.a.	2%	-1%	0%	0%	0%	0%
Germany - % of Segment Sales	n.a.	4%	4%	4%	4%	4%	4%
Other European Countries - % of Segment Sales	n.a.	8%	6%	6%	6%	7%	7%
Russia - % of Segment Sales	n.a.	20%	25%	25%	25%	27%	27%
Group Management/Consolidation - % of Segment Sales	n.a.	1%	1%	1%	1%	1%	1%
EBIT Margin - Segment Contribution	0%	100%	100%	100%	100%	100%	100%
Generation - % of Total Ebit	n.a.	29%	21%	18%	18%	17%	17%
Renewables - % of Total Ebit	n.a.	9%	20%	20%	20%	21%	22%
Gas - % of Total Ebit	n.a.	15%	18%	16%	17%	16%	16%
Trading - % of Total Ebit	n.a.	13%	-12%	1%	3%	3%	3%
Germany - % of Total Ebit	n.a.	16%	27%	24%	22%	21%	21%
Other European Countries - % of Total Ebit	n.a.	18%	27%	22%	21%	22%	21%
Russia - % of Total Ebit	n.a.	3%	7%	8%	7%	8%	8%
Group Management/Consolidation - % of Total Ebit	n.a.	-3%	-9%	-8%	-7%	-7%	-7%
Effective tax rate (% Pre-tax profit)	n.a.	21%	36%	33%	33%	33%	33%

	€ million						
E.ON Capex - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment	60.787	60.870	55.869	58.663	60.823	62.935	64.706
Total Capex	8.655	8.286	6.524	6.731	6.504	6.277	6.050
% total sales	11%	9%	6%	6%	6%	6%	5%
% total EBITDA	67%	62%	70%	67%	55%	51%	47%
% Property, plant and Equipment	14%	14%	12%	11%	11%	10%	9%
Depreciation and amortizations							
% Property, plant and Equipment	6%	6%	7%	7%	7%	7%	7%
Weight per area							
Generation - % of total D&A		25%	26%	24%	23%	22%	21%
Renewables - % of total D&A		8%	10%	11%	10%	11%	11%
Gas - % of total D&A		14%	14%	16%	15%	15%	16%
Trading - % of total D&A		0%	0%	1%	1%	1%	1%
Germany - % of total D&A		24%	25%	21%	23%	23%	24%
Other European Countries - % of total D&A		22%	20%	20%	21%	20%	20%
Russia - % of total D&A		3%	4%	5%	6%	5%	6%
Group Management/Consolidation - % of total D&A		2%	2%	2%	2%	2%	2%

6.2. EDP Brasil Financial Projections – Additional Detail

	R\$ million						
Income Statement - Energias do Brasil	2009	2010	2011	2012	2013	2014	2015
Revenues	4.622	5.034	5.402	5.803	6.245	6.662	7.290
Electricity Distribution	3.446	3.763	3.929	4.227	4.536	4.825	5.265
Electricity Generation and Supply	1.747	1.752	2.025	2.197	2.377	2.550	2.805
Others & adjustments	-571	-480	-552	-621	-668	-713	-780
Gross Profit	2.274	2.269	2.396	2.587	2.785	2.973	3.254
Electricity Distribution	1.383	1.402	1.437	1.547	1.660	1.766	1.926
Electricity Generation and Supply	832	832	910	988	1.069	1.146	1.261
Others & adjustments	59	35	48	53	57	61	66
Operating costs	743	697	810	916	1.006	1.089	1.128
Electricity Distribution	553	524	637	678	740	795	836
Electricity Generation and Supply	109	100	95	149	173	194	182
Others & adjustments	81	74	78	88	94	100	111
EBITDA	1.531	1.571	1.586	1.671	1.779	1.884	2.126
Electricity Distribution	830	878	801	868	920	970	1.090
Electricity Generation and Supply	723	732	815	839	896	953	1.080
Others & adjustments	-22	-39	-30	-35	-37	-39	-44
Provisions	36	19	48	0	0	0	0
Net depreciation and amortisation	329	374	325	403	425	435	492
Electricity Distribution	176	188	207	225	237	243	273
Electricity Generation and Supply	140	152	156	176	187	191	218
Others & adjustments	13	34	-38	2	2	2	1
EBIT	1.167	1.178	1.213	1.269	1.353	1.448	1.633
Electricity Distribution	643	683	551	643	683	728	817
Electricity Generation and Supply	582	578	652	663	709	762	862
Others & adjustments	-58	-84	10	-37	-39	-41	-46

P&L - Energias do Brasil - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues							
Total - Annual Growth rate		9%	7%	7%	8%	7%	9%
Electricity Distribution - Annual Growth rate		9%	4%	8%	7%	6%	9%
Elect. Gen. and Supply - Annual Growth rate		0%	16%	8%	8%	7%	10%
Others & adjustments (% of Total Revenues)	-12%	-10%	-10%	-11%	-11%	-11%	-11%
Gross Profit - % of Revenues							
Total		45%	44%	45%	45%	45%	45%
Electricity Distribution		37%	37%	37%	37%	37%	37%
Elect. Gen. and Supply		48%	45%	45%	45%	45%	45%
Others & adjustments	-10%	-7%	-9%	-8%	-9%	-9%	-9%
EBITDA Margin							
Total (% Revenues)	33%	31%	29%	29%	28%	28%	29%
E. Distribution (% E. Distribution Revenues)	24%	23%	20%	21%	20%	20%	21%
E. Gen & Supply (% Gen & Supply Revenues)	41%	42%	40%	38%	38%	37%	38%
EBIT Margin							
Total (% Revenues)	25%	23%	22%	22%	22%	22%	22%
E. Distribution (% E. Distribution Revenues)	19%	18%	14%	15%	15%	15%	16%
E. Gen & Supply (% Gen & Supply Revenues)	33%	33%	32%	30%	30%	30%	31%
Effective tax rate (% Pre-tax profit)	23%	26%	23%	34%	34%	34%	34%

	R\$ million						
Capex - Energias do Brasil - Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment	4.804	5.304	5.660	6.131	6.505	6.853	7.025
Total Capex							
% <i>total Revenues</i>	15%	20%	15%	15%	13%	12%	9%
% <i>Property, plant and Equipment</i>	15%	19%	14%	14%	12%	11%	9%
Electricity Distribution Capex							
% <i>Electricity Distribution Revenues</i>	9%	10%	8%	8%	7%	7%	5%
% <i>Property, plant and Equipment</i>	6%	7%	6%	6%	5%	5%	4%
Electricity Generation and Supply							
% <i>Electr. Gen. and Supply Revenues</i>	23%	35%	23%	24%	20%	18%	14%
% <i>Property, plant and Equipment</i>	8%	11%	8%	8%	7%	7%	6%
Maint. Capex (% El. Gen. & Supply Capex)	11%	11%	18%	13%	13%	13%	13%
Expans. Capex (% El. Gen. & Supply Capex)	89%	89%	82%	87%	87%	87%	87%
Depreciation and amortizations							
% <i>Property, plant and Equipment</i>	7%	7%	6%	7%	7%	6%	7%
Weight per area							
Electricity Distribution	54%	50%	64%	56%	56%	56%	55%
Electricity Generation and Supply	42%	41%	48%	44%	44%	44%	44%
Others & adjustments	4%	9%	-12%	0%	0%	0%	0%

6.3. EDP Renováveis Financial Projections: Additional Detail

P&L - EDP R - Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues							
Total - Annual Growth rate	n.a.	31%	13%	17%	16%	17%	13%
Europe - Annual Growth rate	n.a.	29%	13%	17%	15%	16%	12%
US - Annual Growth rate	n.a.	37%	10%	19%	17%	18%	14%
Others & adjustments (% of Total Revenues)	2%	1%	2%	1%	1%	1%	1%
EBITDA Margin							
Total (% Revenues)	75%	75%	75%	74%	74%	74%	76%
Europe (% Europe Revenues)	80%	82%	85%	82%	82%	81%	84%
US (% US Revenues)	75%	75%	65%	71%	71%	71%	73%
EBIT Margin							
Total (% Revenues)	32%	31%	33%	38%	41%	44%	48%
Europe (% Europe Revenues)	45%	45%	45%	50%	52%	54%	58%
US (% US Revenues)	20%	20%	18%	28%	33%	37%	42%
Effective tax rate (% Pre-tax profit)	28%	31%	24%	32,5%	32,5%	32,5%	32,5%

	€ million						
Capex - EDP Renováveis - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment, net	8.635	9.982	10.455	11.240	11.997	12.727	13.431
Total Capex							
% total Revenues	233%	130%	78%	79%	63%	54%	45%
% total EBITDA	312%	173%	104%	107%	85%	73%	60%
% Property, Plant and Equipment	20%	12%	8%	9%	8%	7%	6%
Europe Capex							
% Europe Revenues	232%	96%	58%	68%	55%	47%	40%
% Property, plant and Equipment	12%	5%	4%	5%	4%	4%	3%
US							
% US Revenues	243%	162%	98%	91%	71%	61%	50%
% Property, plant and Equipment	8%	6%	4%	4%	3%	3%	3%
Depreciation and amortizations							
% Property, plant and Equipment	4%	4%	4%	4%	4%	4%	4%
Weight per area							
Europe	49%	49%	55%	51%	52%	53%	54%
US	49%	50%	43%	47%	46%	46%	46%
Others & adjustments	2%	1%	1%	2%	1%	1%	1%

6.4. EDP Iberian Business Lines Financial Projections: Additional Detail

	€ million						
Income Statement - Iberian Business Lines	2009	2010	2011	2012	2013	2014	2015
Revenues	11.670	13.877	15.095	14.938	15.209	15.861	16.218
LT Contract Generation	1.827	1.708	2.035	1.954	1.957	2.013	2.031
Liberalised Activities Iberia	3.885	5.300	5.807	5.842	5.992	6.262	6.414
Regulated Networks Iberia	5.958	6.869	7.254	7.142	7.260	7.587	7.772
Gross Profit	3.791	3.736	3.585	3.563	3.503	3.543	3.548
LT Contract Generation	1.030	1.076	1.009	1.045	1.043	1.067	1.082
Liberalised Activities Iberia	1.018	820	769	701	652	634	616
Regulated Networks Iberia	1.744	1.840	1.807	1.818	1.808	1.842	1.850
Operating costs	1.473	1.472	1.224	1.287	1.254	1.260	1.245
LT Contract Generation	206	200	185	182	182	187	189
Liberalised Activities Iberia	352	371	377	301	278	266	252
Regulated Networks Iberia	915	901	662	804	794	807	804
EBITDA	2.318	2.264	2.362	2.276	2.249	2.283	2.303
LT Contract Generation	823	877	824	862	861	880	893
Liberalised Activities Iberia	666	449	392	399	374	368	363
Regulated Networks Iberia	829	939	1.145	1.015	1.014	1.035	1.046
Provisions	61	97	-31	0	0	0	0
Net depreciation	778	790	817	795	787	784	758
LT Contract Generation	263	216	212	222	224	225	220
Liberalised Activities Iberia	198	225	256	228	216	210	201
Regulated Networks Iberia	318	349	349	346	348	349	338
EBIT	1.480	1.377	1.575	1.481	1.462	1.499	1.544
LT Contract Generation	560	663	615	640	637	655	673
Liberalised Activities Iberia	421	131	158	172	158	158	163
Regulated Networks Iberia	499	584	803	669	666	686	708

P&L - Iberian Business Lines - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues - Annual Growth rate	n.a.	19%	9%	-1%	2%	4%	2%
LT Cont. Gen.- Annual Growth rate	n.a.	-7%	19%	-4%	0%	3%	1%
Lib.Act.Iberia - Annual Growth rate	n.a.	36%	10%	1%	3%	4%	2%
Reg. Net. Iberia- Annual Growth rate	n.a.	15%	6%	-2%	2%	4%	2%
Gross Profit - % of Revenues	32%	27%	24%	24%	23%	22%	22%
LT Cont. Gen.- % of segment revenues	56%	63%	50%	53%	53%	53%	53%
Lib.Act.Iberia - % of segment revenues	26%	15%	13%	12%	11%	10%	10%
Reg. Net. Iberia- % of segment revenues	29%	27%	25%	25%	25%	24%	24%
Gross Profit - Segment Contribution	100%	100%	100%	100%	100%	100%	100%
LT Cont. Gen.- % of Total Gross Profit	27%	29%	28%	29%	30%	30%	31%
Lib.Act.Iberia - % of Total Gross Profit	27%	22%	21%	20%	19%	18%	17%
Reg. Net. Iberia- % of Total Gross Profit	46%	49%	50%	51%	52%	52%	52%
EBITDA Margin - % of Revenues	20%	16%	16%	15%	15%	14%	14%
LT Cont. Gen.- EBITDA % of Revenues	45%	51%	41%	44%	44%	44%	44%
Lib.Act.Iberia - EBITDA % of Revenues	17%	8%	7%	7%	6%	6%	6%
Reg. Net. Iberia- EBITDA % of Revenues	14%	14%	16%	14%	14%	14%	13%
EBIT Margin - % of Revenues	13%	10%	10%	10%	10%	9%	10%
LT Cont. Gen.- EBIT % of Revenues	31%	39%	30%	33%	33%	33%	33%
Lib.Act.Iberia - EBIT % of Revenues	11%	2%	3%	3%	3%	3%	3%
Reg. Net. Iberia- EBIT % of Revenues	8%	8%	11%	9%	9%	9%	9%

Capex - Iberian Business Lines - Key indicators	2009	2010	2011	2012	2013	2014	2015
Total Capex							
% Revenues	10%	7%	6%	6%	5%	5%	5%
% EBITDA	52%	41%	40%	40%	36%	35%	33%
LT Contract Generation Capex							
% LT Contract Generation Revenues	7%	6%	3%	4%	4%	4%	4%
% LT Contract Generation EBITDA	15%	11%	7%	9%	9%	9%	9%
Liberalised Activities Iberia Capex							
% Liberalised Activities Iberia Revenues	18%	9%	8%	8%	6%	5%	4%
% Liberalised Activities Iberia EBITDA	107%	104%	119%	116%	100%	90%	77%
Regulated Networks Iberia Capex							
% Regulated Networks Iberia Revenues	6%	5%	6%	5%	5%	5%	5%
% Regulated Networks Iberia EBITDA	43%	39%	36%	36%	36%	38%	39%

Long Term Contract Generation

	€ million						
Income Statement - LT Contract Generation	2009	2010	2011	2012	2013	2014	2015
Gross Profit	1.030	1.076	1.009	1.045	1.043	1.067	1.082
PPA/CMEC	946	962	900	915	894	894	882
Special Regime	84	114	109	130	148	173	200
Operating costs	206	200	185	182	182	187	189
EBITDA	823	877	824	862	861	880	893
Provisions	1	-3	-2	0	0	0	0
Net depreciation	263	216	212	222	224	225	220
EBIT	560	663	615	640	637	655	673

P&L LT Contract Generation - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate		5%	-6%	4%	0%	2%	1%
PPA/CMEC - Annual Growth rate		2%	-6%	2%	-2%	0%	-1%
Special Regime- Annual Growth rate		36%	-6%	19%	14%	17%	15%
Operating Costs - % of gross profit	20%	19%	18%	17%	17%	18%	17%
EBITDA Margin - % of gross profit	80%	81%	82%	83%	83%	82%	83%
EBIT Margin - % of gross profit	54%	62%	61%	61%	61%	61%	62%

	€ million						
Capex - LT Contract Generation	2009	2010	2011	2012	2013	2014	2015
PPA/ CMEC Generation	84	80	48	61	61	66	67
Hydro recurrent	21	23	26	22	22	24	25
Thermal recurrent	36	22	6	13	13	14	15
Non recurrent (environmental)	27	35	17	25	26	28	28
Special Regime	44	16	11	13	13	14	15
Expansion	36	12	2	7	7	7	7
Maintenance	8	4	9	7	7	7	7
Total	128	96	59	74	75	80	82

LT Contract Generation Capex - Key indicators	2009	2010	2011	2012	2013	2014	2015
PPA/ CMEC Generation Capex							
% PPA/ CMEC Generation Gross Profit	9%	8%	5%	6%	6%	6%	6%
Annual growth	n.a.	-5%	-40%	27%	0%	8%	2%
Hydro recurrent							
Annual growth	n.a.	9%	11%	-12%	0%	8%	2%
% of PPA/CMEC Capex	25%	29%	53%	37%	37%	37%	37%
Thermal recurrent							
Annual growth	n.a.	-39%	-73%	128%	0%	8%	2%
% of PPA/CMEC Capex	43%	27%	12%	22%	22%	22%	22%
Non recurrent (environmental)							
Annual growth	n.a.	-66%	-87%	319%	0%	8%	2%
% of PPA/CMEC Capex	43%	15%	3%	42%	42%	42%	42%
Special Regime Capex							
% Special Regime Gross Profit	52%	14%	10%	10%	9%	8%	7%
Annual growth	n.a.	-63%	-33%	24%	0%	8%	2%
Expansion							
Annual growth	n.a.	-66%	-87%	319%	0%	8%	2%
% of Special Regime Capex	83%	76%	15%	50%	50%	50%	50%
Maintenance							
Annual growth	n.a.	-49%	136%	-28%	0%	8%	2%
% of Special Regime Capex	17%	24%	85%	50%	50%	50%	50%
Total Capex							
% Gross Profit	12%	9%	6%	7%	7%	8%	8%
Annual growth	n.a.	-25%	-39%	27%	0%	8%	2%

Iberian Liberalised Activities

Consolidated Pro-Forma

	€ million						
Income Statement - Liberalised Activities Iberia	2009	2010	2011	2012	2013	2014	2015
Gross Profit	1 018	820	769	701	652	634	616
Electricity Generation	676	474	486	439	414	412	410
<i>Portugal</i>	253	172	146	126	117	116	115
<i>Spain</i>	441	293	350	317	300	300	299
<i>Adjustments</i>	-18	9	-10	-4	-4	-4	-4
Electricity Supply	246	273	206	191	175	164	151
Gas Supply	95	73	77	71	64	59	54
Operating costs	352	371	377	301	278	266	252
EBITDA	666	449	392	399	374	368	363
Provisions	46	93	-22	0	0	0	0
Net Depreciation and amortisation	198	225	256	228	216	210	201
EBIT	421	131	158	172	158	158	163

P&L - Liberalised Activities Iberia -Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	n.a.	-19%	-6%	-9%	-7%	-3%	-3%
Operating Costs - % of gross profit	35%	45%	49%	43%	43%	42%	41%
EBITDA Margin - % of gross profit	65%	55%	51%	57%	57%	58%	59%
EBIT Margin - % of gross profit	41%	16%	21%	25%	24%	25%	26%

	€ million						
Capex - Liberalised Activities Iberia	2009	2010	2011	2012	2013	2014	2015
Electricity Generation	695	453	451	449	361	316	266
% Gross Profit	103%	96%	93%	102%	87%	77%	65%
Annual growth		-35%	-1%	0%	-20%	-12%	-16%
Electricity and Gas Supply	17	14	15	14	14	15	15
% Gross Profit	5%	4%	5%	5%	6%	7%	7%
Annual growth		-21%	10%	-8%	0%	8%	2%
Total	713	467	466	463	375	331	281
% Gross Profit	70%	57%	61%	66%	57%	52%	46%
Annual growth		-35%	0%	0%	-19%	-12%	-15%

Iberian Liberalised Activities: Electricity Generation

	€ million						
Income Statement - Electricity Generation	2009	2010	2011	2012	2013	2014	2015
Gross Profit	676	474	486	439	414	412	410
Portugal	253	172	146	126	117	116	115
Spain	441	293	350	317	300	300	299
Adjustments	-18	9	-10	-4	-4	-4	-4
Operating costs	124	116	123	103	97	97	96
EBITDA	552	358	363	336	316	315	314
Provisions	25	32	-4	0	0	0	0
Net Depreciation and amortisation	178	204	234	210	200	196	188
EBIT	349	122	133	125	116	119	126

P&L - Electricity Generation - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	<i>n.a.</i>	-30%	3%	-10%	-6%	0%	0%
Gross Profit Portugal - Annual Growth rate	<i>n.a.</i>	-32%	-15%	-14%	-7%	-1%	-1%
Gross Profit Spain- Annual Growth rate	<i>n.a.</i>	-34%	20%	-10%	-5%	0%	0%
Gross Profit Adjustments - % total gross profit	-3%	2%	-2%	-1%	-1%	-1%	-1%
Operating Costs - % of gross profit	18%	24%	25%	24%	24%	24%	23%
EBITDA Margin - % of gross profit	82%	76%	75%	76%	76%	76%	77%
EBIT Margin - % of gross profit	52%	26%	27%	29%	28%	29%	31%

	€ million						
Capex - Electricity Generation	2009	2010	2011	2012	2013	2014	2015
Expansion	648	390	412	413	324	276	224
CCGT	246	84	0	42	42	46	47
Hydro	402	306	412	371	282	230	177
Maintenance	47	63	39	50	51	55	57
Recurrent	49	64	39	50	51	55	57
Non recurrent (environmental)	-1	0	0	0	0	0	0
Total	695	453	451	463	375	331	281

	€ million						
Capex - Electricity Generation - Indicators	2009	2010	2011	2012	2013	2014	2015
Expansion Capex							
% Gross Profit	96%	82%	85%	94%	78%	67%	55%
Annual growth	n.a.	-40%	6%	0%	-22%	-15%	-19%
CCGT Expansion Capex							
% Gross Profit	36%	18%	0%	10%	10%	11%	12%
Annual growth	n.a.	-66%	-100%	n.a.	1%	9%	3%
Hydro Expansion Capex							
% Gross Profit	59%	64%	85%	85%	68%	56%	43%
Annual growth	n.a.	-24%	35%	-10%	-24%	-18%	-23%
Maintenance Capex							
% Gross Profit	7%	13%	8%	11%	12%	13%	14%
Annual growth	n.a.	34%	-39%	30%	1%	9%	3%
Recurrent Maintenance Capex							
% Gross Profit	7%	13%	8%	11%	12%	13%	14%
Annual growth	n.a.	31%	-39%	30%	1%	9%	3%
Non-Recurrent Maintenance Capex							
% Gross Profit	0%	0%	0%	0%	0%	0%	0%
Annual growth	n.a.	-77%	-100%	n.a.	n.a.	n.a.	n.a.

Iberian Liberalised Activities: Electricity and Gas Supply

	€ million						
Income Statement - Electricity Supply	2009	2010	2011	2012	2013	2014	2015
Gross Profit	246	273	206	191	175	164	151
Operating costs	192	215	220	167	153	144	133
EBITDA	55	58	-14	23	22	20	19
Provisions	21	25	-5	0	0	0	0
Net Depreciation and amortisation	20	21	21	9	8	7	7
EBIT	14	13	-31	15	14	12	12

P&L - Electricity Supply - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	n.a.	11%	-25%	-7%	-8%	-6%	-8%
Operating Costs - % of gross profit	78%	79%	107%	88%	88%	88%	88%
EBITDA Margin - % of gross profit	22%	21%	-7%	12%	12%	12%	12%
EBIT Margin - % of gross profit	6%	5%	-15%	8%	8%	8%	8%

	€ million						
Income Statement - Gas Supply	2009	2010	2011	2012	2013	2014	2015
Gross Profit	95	73	77	71	64	59	54
Operating costs	36	41	34	31	28	26	23
EBITDA	59	32	43	40	36	33	30
Provisions	0	37	-13	0	0	0	0
Net Depreciation and amortisation	1	1	1	8	8	7	6
EBIT	59	-5	56	32	29	26	24

P&L- Gas Supply - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	<i>n.a.</i>	-24%	6%	-9%	-10%	-8%	-9%
Operating Costs - % of gross profit	38%	56%	44%	43%	43%	43%	43%
EBITDA Margin - % of gross profit	62%	44%	56%	57%	57%	57%	57%
EBIT Margin - % of gross profit	61%	-7%	72%	45%	45%	45%	45%

	€ million						
Capex - Electricity and Gas Supply - Iberia	2009	2010	2011	2012	2013	2014	2015
Capex	17	14	15	14	14	15	15
% Gross Profit	5%	4%	5%	5%	6%	7%	7%
Annual growth	0%	-21%	10%	-8%	0%	8%	2%

Regulated Networks Iberia

Consolidated Pro-Forma

	€ million						
Income Statement - Regulated Networks Iberia	2009	2010	2011	2012	2013	2014	2015
Gross Profit	1.744	1.840	1.807	1.818	1.808	1.842	1.850
Operating costs	915	901	662	804	794	807	804
EBITDA	829	939	1.145	1.015	1.014	1.035	1.046
Provisions	13	6	-7	0	0	0	0
Net depreciation and amortisation	318	349	349	346	348	349	338
EBIT	499	584	803	669	666	686	708

P&L Regulated Networks Iberia - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	<i>n.a.</i>	5%	-2%	1%	-1%	2%	0%
Operating Costs - % of gross profit	52%	49%	37%	44%	44%	44%	43%
EBITDA Margin - % of gross profit	48%	51%	63%	56%	56%	56%	57%
EBIT Margin - % of gross profit	29%	32%	44%	37%	37%	37%	38%

	€ million						
Capex - Regulated Networks Iberia	2009	2010	2011	2012	2013	2014	2015
Capex (net of subsidies)	359	371	411	367	368	397	404
% Gross Profit	21%	20%	23%	20%	20%	22%	22%
Annual growth	<i>n.a.</i>	3%	11%	-11%	0%	8%	2%

Regulated Networks Iberia: Electricity Distribution and Last Resort Supply in Portugal

	€ million						
Income Statement - Elect. Distrib. & Last Resort Supply i	2009	2010	2011	2012	2013	2014	2015
Gross Profit	1.345	1.341	1.296	1.290	1.269	1.278	1.269
Operating costs	778	778	645	674	663	669	663
EBITDA	567	563	651	616	606	608	606
Provisions	7	5	-2	0	0	0	0
Net depreciation and amortisation	242	243	245	237	235	233	223
EBIT	318	315	408	379	371	375	383

P&L - Elect. Dis.. & L.Resort Sup. Pt - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate		0%	-3%	0%	-2%	1%	-1%
Operating Costs - % of gross profit	58%	58%	50%	52%	52%	52%	52%
EBITDA Margin - % of gross profit	42%	42%	50%	48%	48%	48%	48%
EBIT Margin - % of gross profit	24%	23%	31%	29%	29%	29%	30%

	€ million						
Capex - Elect. Distrib. & Last Resort Supply in Pt	2009	2010	2011	2012	2013	2014	2015
Capex (net of subsidies)	236	239	272	240	241	260	265
% Gross Profit	18%	18%	21%	19%	19%	20%	21%
Annual growth		1%	14%	-12%	0%	8%	2%

Regulated Networks Iberia: Electricity Distribution in Spain

	€ million						
Income Statement - Elect. Distrib. in Spain	2009	2010	2011	2012	2013	2014	2015
Gross Profit	179	184	179	182	183	187	190
Operating costs	75	49	-47	59	59	61	61
EBITDA	104	135	227	123	123	127	128
Provisions	5	1	-4	0	0	0	0
Net depreciation and amortisation	31	33	35	35	35	36	35
EBIT	68	101	196	88	88	91	93

P&L - Elect. Distrib. in Spain - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Gross Profit - Annual Growth rate	<i>n.a.</i>	3%	-2%	1%	0%	3%	1%
Operating Costs - % of gross profit	42%	26%	-26%	32%	32%	32%	32%
EBITDA Margin - % of gross profit	58%	74%	126%	68%	68%	68%	68%
EBIT Margin - % of gross profit	38%	55%	109%	48%	48%	49%	49%

	€ million						
Capex - Electricity Distribution in Spain	2009	2010	2011	2012	2013	2014	2015
Capex (net of subsidies) € m	44	40	61	47	47	51	52
% Gross Profit	25%	22%	34%	26%	26%	27%	27%
Annual growth	<i>n.a.</i>	-10%	52%	-23%	0%	8%	2%

Regulated Networks Iberia: Gas Regulated Activity

	€ million						
Income Statement - Gas regulated activity	2009	2010	2011	2012	2013	2014	2015
Gross Profit	220	315	332	346	357	377	392
Portugal	40	64	74	77	79	84	87
Spain	180	251	258	269	278	293	305
Operating costs	62	74	64	70	72	77	79
Portugal	19	16	19	18	19	20	21
Spain	43	59	46	52	54	57	59
EBITDA	158	241	268	276	285	300	312
Portugal	21	48	55	59	61	64	67
Spain	137	193	213	217	224	236	246
Provisions	1	1	-1	0	0	0	0
Net depreciation and amortisation	45	72	70	74	77	80	80
Portugal	11	11	13	13	14	14	14
Spain	34	61	57	61	63	66	66
EBIT	113	168	199	202	208	220	232
Portugal	9	36	44	46	47	50	52
Spain	103	132	156	156	161	170	180

P&L - Gas regulated activity - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Total Gross Profit - Annual Growth rate	<i>n.a.</i>	43%	5%	4%	3%	5%	4%
Portugal Gross Profit - Annual Growth rate	<i>n.a.</i>	60%	16%	4%	3%	5%	4%
Spain Gross Profit - Annual Growth rate	<i>n.a.</i>	39%	3%	4%	3%	5%	4%
Total Operating Costs - % of total gross profit	28%	24%	19%	20%	20%	20%	20%
Portugal Operating Costs - % of gross profit	47%	24%	25%	24%	24%	24%	24%
Spain Operating Costs - % of gross profit	24%	23%	18%	19%	19%	19%	19%
Total EBITDA Margin - % of total gross profit	72%	76%	81%	80%	80%	80%	80%
Portugal EBITDA Margin - % of gross profit	53%	76%	75%	76%	76%	76%	76%
Spain EBITDA Margin - % of gross profit	76%	77%	82%	81%	81%	81%	81%
Total EBIT Margin - % of gross profit	51%	53%	60%	58%	58%	58%	59%
Total Portugal EBIT Margin - % of gross profit	23%	57%	59%	59%	59%	59%	60%
Total Spain EBIT Margin - % of gross profit	57%	53%	60%	58%	58%	58%	59%

	€ million						
Capex - Gas regulated activity	2009	2010	2011	2012	2013	2014	2015
Capex (net of subsidies)	78	91	78	80	80	86	88
% Gross Profit	35%	29%	23%	23%	22%	23%	22%
Annual growth	<i>n.a.</i>	17%	-15%	2%	0%	8%	2%
Portugal	34	40	37	36	36	39	39
% Gross Profit	85%	63%	51%	46%	45%	46%	45%
Annual growth	<i>n.a.</i>	18%	-6%	-4%	0%	8%	2%
Spain	44	51	41	44	44	47	48
% Gross Profit	24%	20%	16%	16%	16%	16%	16%
Annual growth	<i>n.a.</i>	17%	-21%	8%	0%	8%	2%

6.5. EDP Consolidated Pro-Forma Financial Statements

	€ Millions						
P&L Statement - EDP Consolidated Pro-Forma	2009	2010	2011	2012	2013	2014	2015
Sales	12.198	14.171	15.121	15.702	16.251	17.158	17.857
Iberia	11.670	13.877	15.095	14.938	15.209	15.861	16.218
<i>LT Contract Generation</i>	1.827	1.708	2.035	1.954	1.957	2.013	2.031
<i>Liberalised Activities Iberia</i>	3.885	5.300	5.807	5.842	5.992	6.262	6.414
<i>Regulated Networks Iberia</i>	5.958	6.869	7.254	7.142	7.260	7.587	7.772
Wind Power	642	841	957	1.254	1.450	1.699	1.912
Brazil	1.680	2.148	2.313	2.398	2.580	2.753	3.012
Other	-1.794	-2.694	-3.244	-2.888	-2.989	-3.156	-3.284
Gross Profit	5.105	5.404	5.436	5.630	5.838	6.188	6.507
Iberia	3.791	3.736	3.585	3.563	3.503	3.543	3.548
<i>LT Contract Generation</i>	1.030	1.076	1.009	1.045	1.043	1.067	1.082
<i>Liberalised Activities Iberia</i>	1.018	820	769	701	652	634	616
<i>Regulated Networks Iberia</i>	1.744	1.840	1.807	1.818	1.808	1.842	1.850
Wind Power	725	948	1.069	1.254	1.450	1.699	1.912
Brazil	818	974	1.028	1.069	1.151	1.228	1.345
Other/ Consolidation Adjustments	-229	-253	-246	-257	-267	-283	-297
Ebitda	3.363	3.613	3.756	3.836	4.000	4.249	4.560
Iberia	2.318	2.264	2.362	2.276	2.249	2.283	2.303
<i>LT Contract Generation</i>	823	877	824	862	861	880	893
<i>Liberalised Activities Iberia</i>	666	449	392	399	374	368	363
<i>Regulated Networks Iberia</i>	829	939	1.145	1.015	1.014	1.035	1.046
Wind Power	543	713	801	931	1.080	1.256	1.452
Brazil	551	674	681	691	735	778	878
Other/ Consolidation Adjustments	-49	-37	-88	-62	-64	-68	-73
Provisions	75	104	1	0	0	0	0
Net depreciation and amortisation	1.319	1.447	1.488	1.507	1.537	1.565	1.589
Iberia	778	790	817	795	787	784	758
<i>LT Contract Generation</i>	263	216	212	222	224	225	220
<i>Liberalised Activities Iberia</i>	198	225	256	228	216	210	201
<i>Regulated Networks Iberia</i>	318	349	349	346	348	349	338
Wind Power	312	423	454	451	479	503	528
Brazil	118	161	139	166	176	180	203
Other/ Consolidation Adjustments	111	73	77	94	96	97	99
EBIT	1.970	2.063	2.267	2.330	2.462	2.685	2.971
Iberia	1.480	1.377	1.575	1.481	1.462	1.499	1.544
<i>LT Contract Generation</i>	560	663	615	640	637	655	673
<i>Liberalised Activities Iberia</i>	421	131	158	172	158	158	163
<i>Regulated Networks Iberia</i>	499	584	803	669	666	686	708
Wind Power	231	290	348	480	601	753	924
Brazil	420	505	521	524	559	598	675
Other	-161	-110	-176	-155	-160	-166	-172
Capital gains/(losses)	60	61	21	0	0	0	0
Financial Results	-487	-485	-715	-700	-701	-687	-659
Results from associated companies	25	23	20	20	20	20	20
Pre-tax Profit	1.568	1.662	1.592	1.649	1.780	2.017	2.331
Income taxes	400	427	260	503	543	615	711
Net Profit for the period	1.168	1.235	1.332	1.146	1.237	1.402	1.620
Net profit attributable to EDP Shareholders	1.024	1.079	1.125	968	1.045	1.184	1.368
Minority Interests	144	156	207	178	192	218	252

P&L Indicators - EDP Consolidated	2009	2010	2011	2012	2013	2014	2015
Sales - Annual Growth		16%	7%	4%	3%	6%	4%
Iberia		19%	9%	-1%	2%	4%	2%
LT Contract Generation - annual growth		-7%	19%	-4%	0%	3%	1%
Liberalised Activities Iberia - annual growth		36%	10%	1%	3%	4%	2%
Regulated Networks Iberia - annual growth		15%	6%	-2%	2%	4%	2%
Wind Power - annual growth		31%	14%	31%	16%	17%	13%
Brazil - annual growth		28%	8%	4%	8%	7%	9%
Other - annual growth		50%	20%	-11%	3%	6%	4%
Sales - segment contribution							
Iberia	96%	98%	100%	95%	94%	92%	91%
LT Contract Generation - % of total Revenues	15%	12%	13%	12%	12%	12%	11%
Liberalised Activities Iberia - % of total Revenues	32%	37%	38%	37%	37%	36%	36%
Regulated Networks Iberia - % of total Revenues	49%	48%	48%	45%	45%	44%	44%
Wind Power - % of total Revenues	5%	6%	6%	8%	9%	10%	11%
Brazil - % of total Revenues	14%	15%	15%	15%	16%	16%	17%
Other - % of total Revenues	-15%	-19%	-21%	-18%	-18%	-18%	-18%
EBITDA Margin - % of revenues	28%	25%	25%	24%	25%	25%	26%
Iberia	20%	16%	16%	15%	15%	14%	14%
LT Contract Generation - % of segment revenues	45%	51%	41%	44%	44%	44%	44%
Liberalised Activities Iberia - % of segment revenues	17%	8%	7%	7%	6%	6%	6%
Regulated Networks Iberia - % of segment revenues	14%	14%	16%	14%	14%	14%	13%
Wind Power - % of segment revenues	85%	85%	84%	74%	74%	74%	76%
Brazil - % of segment revenues	33%	31%	29%	29%	28%	28%	29%
Other - % of segment revenues	3%	1%	3%	2%	2%	2%	2%
EBITDA Margin - segment contribution							
Iberia	69%	63%	63%	59%	56%	54%	50%
LT Contract Generation - % of Total EBITDA	24%	24%	22%	22%	22%	21%	20%
Liberalised Activities Iberia - % of Total EBITDA	20%	12%	10%	10%	9%	9%	8%
Regulated Networks Iberia - % of Total EBITDA	25%	26%	30%	26%	25%	24%	23%
Wind Power - % of Total EBITDA	16%	20%	21%	24%	27%	30%	32%
Brazil - % of Total EBITDA	16%	19%	18%	18%	18%	18%	19%
Other - % of Total EBITDA	-1%	-1%	-2%	-2%	-2%	-2%	-2%
EBIT Margin - % of revenues	16%	15%	15%	15%	15%	16%	17%
Iberia	13%	10%	10%	10%	10%	9%	10%
LT Contract Generation - % of segment revenues	31%	39%	30%	33%	33%	33%	33%
Liberalised Activities Iberia - % of segment revenues	11%	2%	3%	3%	3%	3%	3%
Regulated Networks Iberia - % of segment revenues	8%	8%	11%	9%	9%	9%	9%
Wind Power - % of segment revenues	36%	34%	36%	38%	41%	44%	48%
Brazil - % of segment revenues	25%	24%	23%	22%	22%	22%	22%
Other - % of segment revenues	9%	4%	5%	5%	5%	5%	5%
EBIT Margin - segment contribution							
Iberia	75%	67%	69%	64%	59%	56%	52%
LT Contract Generation - % of Total DA	28%	32%	27%	27%	26%	24%	23%
Liberalised Activities Iberia - % of Total DA	21%	6%	7%	7%	6%	6%	5%
Regulated Networks Iberia - % of Total DA	25%	28%	35%	29%	27%	26%	24%
Wind Power - % of Total DA	12%	14%	15%	21%	24%	28%	31%
Brazil - % of Total DA	21%	25%	23%	23%	23%	22%	23%
Other - % of Total DA	-8%	-5%	-8%	-7%	-6%	-6%	-6%

	€ million						
Balance Sheet - EDP Consolidated Pro-Forma	2009	2010	2011	2012	2013	2014	2015
Property, plant and equipment, net	18.435	20.324	20.708	21.460	21.986	22.471	22.789
Intangible assets, net	9.627	9.963	10.128	10.128	10.128	10.128	10.128
Financial investments, net	618	591	332	332	332	332	332
Deferred tax asset	661	515	511	511	511	511	511
Assets held for sale	0	31	202	202	202	202	202
Inventories	273	357	346	380	425	484	533
Accounts receivable - trade, net	2.008	2.187	2.152	2.363	2.642	3.013	3.316
Accounts receivable - other, net	4.737	4.897	5.169	5.675	6.346	7.236	7.966
Financial assets held for Trading	85	36	0	0	0	0	0
Total Assets	36.444	38.901	39.548	41.051	42.572	44.377	45.777
Share capital	3.657	3.657	3.657	3.657	3.657	3.657	3.657
Treasury stock and share premium	382	388	392	392	392	392	392
Consol. Net profit, reserv, and retaining earnings	3.255	3.810	4.061	4.275	4.566	4.996	5.610
Equity Book Value	7.294	7.855	8.110	8.324	8.615	9.045	9.659
Minority Interest	2.684	2.930	3.277	3.455	3.647	3.865	4.117
Total Equity	9.978	10.785	11.387	11.779	12.262	12.910	13.776
Financial net debt	14.090	16.303	17.053	17.217	17.000	16.492	15.662
Provisions	344	431	415	415	415	415	415
Hydrological correction account	113	75	69	69	69	69	69
Deferred tax liability	772	856	954	954	954	954	954
Accounts payable - Other, net	11.146	10.450	9.670	10.617	11.872	13.537	14.902
Total Liabilities	26.466	28.116	28.161	29.272	30.310	31.467	32.001
Total Equity and Liabilities	36.444	38.901	39.548	41.051	42.572	44.377	45.777

6.6. Market Multiples

EDP - Comparable Companies			Financial Indicators (currency millions)				Market Multiples	
Company	Currency	Company Description	Enterprise Value	Sales	EBITDA	EBIT	EV/ EBITDA	EV/ EBIT
Iberdrola	EUR	Iberdrola S.A. generates, distributes, trades, and markets electricity in the United Kingdom, United States, Spain, Portugal, and Latin America. The Company specializes in clean energy and more specifically wind power.	48.191	31.648	7.000	3.855	6,9	12,5
Endesa	EUR	Endesa, S.A. generates, distributes, and trades electricity in Spain, Italy, France, Portugal, North Africa, and Latin America. The Company distributes natural gas, operates co-generation plants, and treats and distributes water.	24.753	32.686	7.265	4.653	3,4	5,3
E.ON	EUR	E.ON AG operates in power generation and gas production businesses. The Company's operations include electric generation at conventional, nuclear, and renewable-source facilities; electric transmission via high-voltage wires network; regional distribution of electricity, gas, and heat; power trading and electricity, gas, and heat sales.	60.356	112.954	6.935	2.712	8,7	22,3
ENEL	EUR	Enel S.p.A. generates, transmits, distributes, and trades electricity. The Company operates hydroelectric, geothermal, and other generating plants. Enel, through subsidiaries, also provides fixed-line and mobile telephone services, installs public lighting systems, and operates real estate, factoring, insurance, telecommunications, and Internet service provider businesses.	96.985	77.573	17.198	11.366	5,6	8,5
EDF	EUR	EDF SA (Electricite de France) produces, transmits, distributes, imports and exports electricity. The Company, using nuclear power, coal and gas, provides electricity for French energy consumers.	65.194	65.307	13.931	7.646	4,7	8,5
CEMIG	BRL	Companhia Energetica de Minas Gerais- CEMIG generates, transmits, and distributes electricity in the Brazilian State of Minas Gerais. Cemig serves industrial, commercial, residential, and rural customers. The Company generates electricity primarily through hydroelectric plants.	42.765	15.814	5.438	4.413	7,9	9,7
RWE	EUR	RWE AG generates, distributes, and trades electricity to municipal, industrial, commercial, and residential customers. The Company produces natural gas and oil, mines coal, delivers and distributes gas, and supplies drinking water. RWE AG operates mainly in Europe.	36.288	49.153	6.912	3.469	5,3	10,5
GAS Natural	EUR	Gas Natural SDG, S.A. distributes natural gas in Spain and Latin America. The Company also operates gas storage facilities, owns and operates a fiber optic backbone telecommunications network, markets energy management products and household gas appliances, and installs gas heating systems.	27.395	21.076	4.697	2.947	5,8	9,3
GDF Suez	EUR	GDF Suez offers a full range of electricity, gas and associated energy and environment services throughout the world. The Company produces, trades, transports, stores and distributes natural gas, and offers energy management and climatic and thermal engineering services.	100.901	90.673	16.071	8.978	6,3	11,2
International Power	GBp	International Power plc is an international power generating Company. The Company also provides wholesale production of fresh water through saltwater desalination, production and distribution of steam, district heating via cogeneration, gas transportation and renewable energy.	41.118	16.167	4.244	2.754	9,7	14,9
Centrica	GBp	Centrica PLC is an integrated energy company offering a wide range of home and business energy solutions. The Company sources, generates, processes, stores, trades, saves and supplies energy and provides a range of related services.	20.109	22.824	2.436	1.241	8,3	16,2

Note: For E.ON market multiples valuation, E.ON was excluded from the sample.

6.7. Transaction Multiples

Comparable Transactions - Energy utilities with diversified geographies and/or business lines								
Transaction Description							Transaction Multiples	
Year	Target Name	Target Country	Acquirer Name	Acquirer Country	Deal Status	Percent Sought	EV/ EBITDA	EV/ EBIT
2011	Southern Union Co	USA	Williams Cos Inc/The	USA	Terminated	100	12,5	18,7
2011	Southern Union Co	USA	Energy Transfer Equity LP	USA	Complete	100	12,5	18,7
2011	Constellation Energy Group Inc	USA	Exelon Corp	USA	Complete	100	10,4	20,6
2011	DPL Inc	USA	AES Corp/The	USA	Complete	100	8,7	11,7
2011	EDF Energies Nouvelles SA	France	Electricite de France SA	France	Complete	50	14,4	21,5
2011	Progress Energy Inc	USA	Duke Energy Corp	USA	Pending	100	12,2	18,9
2010	Nicor Inc	USA	AGL Resources Inc	USA	Complete	100	8,2	17,4
2010	NSTAR LLC	USA	Northeast Utilities	USA	Complete	100	8,8	13,6
2010	Prime Infrastructure Group	Australia	Brookfield Infrastructure Partners LP	USA	Complete	60	2,1	70,0
2010	Boralex Power Income Fund	Canada	Boralex Inc	Canada	Complete	100	7,7	16,7
2010	GenOn Energy Holdings Inc	USA	GenOn Energy Inc	USA	Complete	100	2,3	3,0
2010	Allegheny Energy Inc	USA	FirstEnergy Corp	USA	Complete	100	6,9	9,4
2010	Innergex Power Income Fund	Canada	Innergex Renewable Energy Inc	Canada	Complete	84	11,1	20,5
2009	AltaGas Utility Group Inc	Canada	AltaGas Ltd	Canada	Complete	80	7,8	13,4
2009	Thuega AG	Germany	Mainova AG,Stadtwerke Hannover AG,N-ERGIE	Germany	Complete	100	71,3	98,8
2009	Canadian Hydro Developers Inc	Canada	TransAlta Corp	Canada	Complete	100	26,2	54,3
2009	Venture Production PLC	Great Britain	Centrica PLC	Great Britain	Complete	71	4,3	6,9
2009	International Power Opatovice AS	Czech Republic	J&T Group	Czech Republic	Complete	100	3,5	5,1
2009	Kogeneracja	Poland	Electricite de France SA,EnBW Energie Baden-	France	Complete	100	4,8	7,4
2009	Italgas Hellas SpA	Italy	Snam SpA	Italy	Complete	100	6,0	8,0

Note: outliers not considered for transaction multiples valuation are signaled with orange filling.

6.8. E.ON – EDP Comparison

E.ON and EDP - Key Indicators	2009	2010	2011	2012	2013	2014	2015
Revenues							
E.ON	79.974	92.863	112.954	107.704	108.634	111.678	114.722
EDP	12.198	14.171	15.121	15.702	16.251	17.158	17.857
<i>EDP vs E.ON</i>	15%	15%	13%	15%	15%	15%	16%
Total Operating Costs							
E.ON	66.999	79.517	103.661	97.704	96.894	99.461	101.967
EDP	8.835	10.558	11.365	11.866	12.251	12.909	13.298
<i>EDP vs E.ON</i>	13%	13%	11%	12%	13%	13%	13%
EBITDA							
E.ON	12.975	13.346	9.293	10.000	11.739	12.217	12.755
EDP	3.363	3.613	3.756	3.836	4.000	4.249	4.560
<i>EDP vs E.ON</i>	26%	27%	40%	38%	34%	35%	36%
EBITDA margin							
E.ON	16%	14%	8%	9%	11%	11%	11%
EDP	28%	25%	25%	24%	25%	25%	26%
CAPEX							
E.ON	8.655	8.286	6.524	6.731	6.504	6.277	6.050
EDP	3.235	2.667	2.161	2.259	2.063	2.050	1.907
<i>EDP vs E.ON</i>	37%	32%	33%	34%	32%	33%	32%
EBITDA - CAPEX							
E.ON	4.320	5.060	2.769	3.269	5.235	5.940	6.705
EDP	128	946	1.595	1.578	1.936	2.200	2.652
<i>EDP vs E.ON</i>	3%	19%	58%	48%	37%	37%	40%

6.9. EDP Privatization: Summary of competing bids final terms

Adapted from "Chineses ganham corrida à EDP", Expresso, 22 Dezembro 2011, Anabela Campos

Chinese company China Three Gorges won the bid for EDP's public sector shares

The 3 finalists' bids are summarized below:

China Three Gorges:

- € 3,45 per share
- € 2.000 million line of credit to EDP by Chinese bank CDB
- Commitment to secure an additional € 2.000 million line of credit
- Commitment to acquire minority stakes in EDPs wind farms amounting up to € 2.000 million
- Commitment to building a wind turbine factory in Portugal

E.ON:

- € 3,25 per share
- Partial payment with shares of Spanish subsidiary (including thermoelectric and coal electricity generation and distribution) amounting to € 1.800 million
- Commitment to finance EDP in an amount up to € 400 million
- Commitment to acquire minority stakes in EDPs wind farms
- Commitment to create a renewable energy Research & Development Center

Electrobras:

- € 3,28 per share
- Offer subject to shareholder agreement with other shareholders in order to secure voting control
- Commitment to acquire minority stakes in EDPs wind in an investment up to € 1.000 million

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