



**MASTER OF SCIENCE IN
FINANCE**

**MASTERS FINAL WORK
PROJECT**

EQUITY RESEARCH - EDP RENOVÁVEIS

**JOSÉ ANTÓNIO CORTE-REAL GARCIA
GUERRA**

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Abstract

EDPR is a company that operates in the sector of the renewable energy and it is today one of the most important working in this area. Its main goal consists on being a reference in the industry for developing, building and operating the best wind farms and solar plants in the world. Unlike many other companies that are having some problems with the present economic framework, EDPR, by investing in a modern and most required sector, is successfully managing to overcome the difficulties and therefore it is building a significant and solid growth.

The elaboration of this study has the aim to achieve the intrinsic value of EDPR stocks, by making a research of the operational performance and its exogenous environment. The method adopted in order to determine this value consists on the Free Cash Flow to Firm, since, according with the literature review, this is the most suitable one to apply to EDPR.

The valuation performed led to the conclusion that on 31/12/2014, EDPR shares had an intrinsic value of € 6.49, being thus undervalued, since its quotation was € 5.40 at the time referred to. Therefore, with a potential appreciation of 20.2%, it was able to give a buy recommendation to the interested investors.

Keywords: Equity Research; Renewable Energy Sector; EDPR; Free Cash Flow to Firm; Enterprise Value; Equity Value

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List of abbreviations

APV – Adjusted Present Value

BC – Bankruptcy Costs

BR – Brazil

Capex – Capital Expenditures

CAPM – Capital Asset Pricing Model

CDS – Credit Default Swap

D – Debt

DCF – Discounted Cash Flow

DDM – Dividend Discount Model

E – Equity

EBIT – Earnings before Interest and Taxes

EBITDA – Earnings before Interests, Taxes, Depreciation and Amortization

EDP – Energias de Portugal

EDPR – Energias de Portugal Renováveis

EIA – U.S. Energy Information Administration

ENEOP – Eólicas de Portugal

EPS – Earnings per Share

EV- Enterprise Value

EVA – Economic Value Added

EU – European Union

EWEA – European Wind Energy Association

FCFE – Free Cash Flow to Equity

FCFF- Free Cash Flow to Firm

G – Growth Perpetuity Rate

GDP – Gross Domestic Product

IEA – International Energy Agency

IRENA – International Renewable Energy Agency

IMF – International Monetary Fund

Kd – Cost of Debt

Ke – Cost of Equity

MFS – Massachusetts Financial Services
NA – North America
NASDAQ – National Association of Securities Dealers Automated Quotations
NYSE – New York Stock Exchange
PBV – Price to Book Value
PEG – Price/Earnings to Growth
PER – Price-to-earnings-ratio
PP – Percentage Point
PPA – Power Purchase Agreements
PSR – Price to Sales ratio
PTC – Production tax Credits
PV – Present Value
REN21 – Renewable Energy Policy Network for the 21st Century
RES – Renewable Energy Source
Rf – Risk free rate
SOTP – Sum-of-the-Parts
SWOT – Strengths, Weaknesses, Opportunities and Threats
T – Tax rate
USA – United States of America
UK – United Kingdom
VTS –Value of Tax Shields
WACC – Weighted Average Cost of Capital

1. Introduction

The goal of this work consists on performing an equity research of the company EDPR and to determine the intrinsic value of its stocks on the date of 31/12/2014. In order to accomplish this project, it is necessary to analyze all the internal and external variables that can influence its value. So, at an internal level, it will be necessary to study the financial data, the different areas of business and the strategy that the company is developing and, at an external level, it will have to be considered the macroeconomic scenario and the industry in which the company operates.

EDPR is a global company, which works on the sector of the renewable energy. Its activities consist on developing, building and operating wind farms and solar plants in the world. It assumes a green concept in what respects the environment and at the same time defends self-sustainability regarding its own founding. It has become a leader in a sector that shows high perspectives of growth, in the near future.

The structure of this work is organized in six parts:

- i) In the first part a literature review is undertaken, where different valuation methods are presented and explained, according to essential publications covering the area;
- ii) Then, a presentation of EDPR follows, where its strategy, its different areas of business, operational performance and share performance are approached in detail;
- iii) Afterwards, the macroeconomic and industry framework of the countries in which EDPR is present is briefly analyzed;
- iv) A SWOT analysis and an analysis at Porter five forces are performed;
- v) In this section, the financial data are studied, prior theoretical assumptions explained and the valuation method chosen is applied;
- vi) Finally, results are achieved and a sensitivity analysis is performed as well as a relative valuation, that may help to confirm the results, allowing for recommendations to be given to the future investors.

2. Literature Review

2.1 Framework

Valuation plays a very important role in the financial world, since it is responsible for a significant task that consists on assigning a value to a certain firm. Its utility has different purposes concerning the financial area to be dealt with, and the three areas where it can be applied are the Portfolio Management, Mergers and Acquisitions and Corporate Finance (Damodaran 2002).

In the case of Portfolio Management, valuation is important for the active investors, since it will help them to manage their portfolio. In the acquisition analysis, valuation will be essential for both the bidding firm and the target firm, since both have to achieve what they consider to be a fair value. Finally, valuation has an important role in corporate finance too, since it is necessary to determine the value of a firm before and after the implementation of a strategy, so that its results can be tested (Damodaran 2002 and 2006).

Although, several models were developed aiming to turn valuation into a tool as objective as possible, there is still always some variables that escape these models and need to be considered in order to improve the final result (Goedhart et al 2010).

2.2. Valuation Methods

There are several methods that can be used in order to proceed to the valuation. According to Damodaran (2002), the following ones that are to be approached are also the most important and correspond to the Discounted Cash Flows, the Relative Valuation, the Contingent Claim Valuation and the Asset Based Valuation.

2.2.1. Discounted Cash Flows – DCF

Discounted cash flow valuation describes the value of an asset by estimating the cash flows it will create in the future and then discounting them at a discount rate that correspond to the flows risk (Fernández 2002). The methods most commonly used for valuing firms by discounting cash flows will achieve similar values, since they analyze the same reality and they differ only in the cash flows taken as the starting point of the valuation. (Fernández 2009). Though Booth (2002), Cooper and

Nyborg (2006) warned about the possibility of some invalid results, due to the inconsistent application of its assumptions, Kaplan and Ruback (1995) state that the discounted cash flow valuation methods are the ones that provide the best and more reliable estimations. According to Damodaran (2002), the DCF models that need to be enhanced are: the Equity Valuation Models; the Firm Valuation Models; the Adjusted Present Value Model.

2.2.1.1. Equity Valuation Models

This kind of models is defined by applying the valuation to the equity stake of a firm. Thus, the value of the firm can be reached through discounting expected cash flows to equity at the rate required return for the firm (k_e -cost of equity) (Fernández 2002). The Models that are included in this section are the Dividend Discounted Model (DDM) and the Free Cash Flow to Equity (FCFE).

Dividend Discounted Model – DDM

In the section of the equity valuation models, the simplest one that can be used corresponds to the DDM (Damodaran 2002). It states that valuing a stock consists on the present value of the expected dividends, discounted at a rate that corresponds to the cost of equity – k_e (that represent the riskiness of the cash flows).

Regarding different assumptions about the future growth, several sub models were developed. According to Damodaran (2002), the Gordon Growth Model (1962), which borrowed deeply from the work presented by Williams (1938) and Durand (1957), is used to value a firm in a "steady state", with dividends growing at a rate (g) that can be held forever. The Gordon model is more adapted to a context where firms are growing at a rate comparable or lower than the nominal growth in the economy and with well-defined payout policies for the future. Nevertheless its simplicity results at the same time, in its major limitation, since it has a high sensibility to the inputs of the growth rate.

[1]
$$\text{Value of Stock} = \frac{\text{Expected Dividends of next period}}{k_e - g}$$

A more complex model called Two Stage Dividend Discount Model was developed, whose main feature is its two stages of growth, since there is an initial one where the growth rate is not stable and then a steady state where the growth rate is stable and is expected to remain so for the long term. This model suits firms having a high growth, and that anticipate keeping that growth for a certain time period, until the reasons of this high growth vanish. However, its main limitation relies on its assumptions, since it is not easy to measure the extension of the growth period. Like the Two stage Dividend Model, the H model, developed by Fuller and Hsia (1984) is a two-stage model for growth, but in this case the growth rate in the initial growth phase is not constant and it decreases linearly over time to achieve the stable growth rate in a steady stage. Since this model incorporates a gradual reduction of the growth rates over time, it is more applicable to firms that are growing quickly, but are expected to decrease slowly over time, with the increase of the firm and reduction of the differential advantage over the other firms/competitors.

Free Cash Flow to Equity – FCFE

This model, unlike Dividend Discount Models, considers a wider concept and idea of cash flows to equity, since the cash flows used have in consideration the financial obligations, (debt payments, after covering capital expenditure and working capital needs). In other words, the FCFE models use the discount potential dividends rather than the actual dividends (Damodaran 2002).

$$\begin{aligned}
 [2] \quad FCFE = & \text{Net Income} - (\text{Capital Expenditures} - \text{Depreciation}) \\
 & - (\text{Change in Non cash Working Capital}) \\
 & + (\text{New Debt Issued} - \text{Debt Repayments})
 \end{aligned}$$

$$[3] \quad \text{Equity Value} = \sum_{t=1}^{t=\infty} \frac{FCFE_t}{(1 + ke)^t}$$

2.2.1.2 Firm Valuation Models

The Firm Valuation Model is characterized by applying the discounted cash flow valuation to value the entire firm, which includes not only the equity, but also the other claimholders of the firm (Damodaran 2002). The most significant models are the Free Cash Flow to Firm (FCFF) and Economic Value Added (EVA).

Free Cash Flow to Firm – FCFF

The FCFF consists on the sum of the cash flows to all claimholders in the firm, including stockholders, bondholders and preferred stockholders (Damodaran 2002). Therefore, the FCFF are the operational cash flows that can be represented as:

$$[4] \quad FCFF = EBIT(1 - tax\ rate) + Depreciation - Capital\ Expenditure - \Delta Working\ Capital$$

According to Fernández (2007), the stages that need to be followed in order to perform a valuation by this method are: undertake a historic and strategic analysis of the company and the industry, integrating two parts - the financial analysis and the strategic and competitive analysis; elaborate projections of future flows, in which the financial forecasts and the strategic and competitive forecasts are performed; determine the value of the WACC; estimate the net present value of future flows; finally make the interpretation of the results.

Enterprise Value

The enterprise value of a firm is based on one of the papers of Miller and Modigliani (1958), in which they state that the value of a firm can be obtained as the present value of its after-tax operating cash flows. Since then, a more complex model was developed and its calculation is divided in two periods, since it is considered that a firm will reach a steady state after n years and then it will start to grow at a stable growth rate (Damodaran 2006).

$$[5] \quad Enterprise\ Value = \sum_{t=1}^{t=n} \frac{FCFF_t}{(1 + WACC)^t} + \frac{FCFF_{n+1}/(WACC - g)}{(1 + WACC)^n}$$

$$[6] \quad FCFF_{n+1} = FCFF_n \times (1 + g)$$

WACC

The Weighted Average Cost of Capital consists on the weighted average of equity, debt and preferred stocks, which are the sources where a firm can raise its money.

$$[7] \quad WACC = \frac{E}{E + D} \times k_e + \frac{D}{E + D} \times k_d \times (1 - tax\ rate)$$

The mistakes in the calculation of WACC, and subsequent wrong valuation, are common, and in order to prevent them, it is required a right interpretation and use of its variables (Fernández 2011). The WACC approach is intuitive, easy to use and also efficient when the assumption that the capital structure will not change in the future, can be made (Bienfait 2005). Milles and Ezzell (1980) defend too that only when a fixed structure of capital exists, should this method be used.

WACC variables

Cost of Equity – ke

The cost of equity can be achieved by using a Risk and Return Model, and the main ones consist on the CAPM - Capital Asset Price Model, developed by Sharpe (1964), the APT - Arbitrage Price Model, developed by Ross (1976) and the Multi-Factor Models, in which the Fama-French (2004) three factor model highlights. They all need the same three inputs, which correspond to the Risk-free rate, the beta and the risk premium. According to Goedhart et al (2010), the CAPM is the most used model, for its reliability and efficiency.

[8]
$$E(R_i) = R_f + \beta_i(E(R_m) - R_f)$$

Risk free rate – Rf

The risk free rate has to be a default-free government zero coupon rate matched up to when the cash flows that are being discounted occur. Moreover, it is important that the currency of the risk free rate should be the same as the cash flows currency (both need to be in real or nominal terms) (Damodaran 2008 and Fernández and Bilan 2007).

Beta

The most used method to estimate the beta consists on making a regression on the returns of any asset against the returns of an index representing the market portfolio, over a reasonable time period (Damodaran 1999).

[9]

$$E(R_i) = \alpha + \beta_i \times E(R_m)$$

The choice of a market index, time period and return interval will constitute one of the limitations of regressing the betas, since they are going to vary, very much due to how the regression is defined (Fernández 2008). There are three alternatives to the regression betas: the modified regression betas, that reflect the firm current operating and financial features; the use of a measure of relative risk, without the use of historical prices on the stock and index; and finally the estimation of the bottom-up betas, that represent the business a firm is operating in and its current financial leverage (Damodaran 1999).

Risk Premium

Risk premiums are quite important since they reflect the assumptions that are made about the level of risk seen in a market and what value should be attributed to that risk. The main categories are historical and implied equity premiums. The historical premium, which corresponds to the difference between the actual returns earned on stocks over a long time period and the actual returns earned on a default-free asset, is easy to use and constitutes the preferred one. The difficulties in getting reliable information in the markets create some limitations to this approach. However, Damodaran (2015) provides a solution that consists on determining the historical premium of a developed country and add the risk premium of the country in question. The Implied Equity Premium does not use historical data and assumes that the market is correctly priced. Therefore, it has the advantage of not using the historical context and reflects the current market perceptions.

Cost of Debt – kd

The Cost of debt, which measures the current cost to the firm of borrowing finance projects, can be determined through the risk free rate, the default risk of a firm and the tax advantage associated with debt (Damodaran 2002). The cost of debt for firms will increase whenever the risk free rate and the default risk of a firm increase. However, the simplest way for estimating the cost of debt occurs when a firm has long term bonds outstanding that are widely traded (Damodaran 2006). The market

price of the bond, in conjunction with its coupon and maturity can serve to compute a yield that is used as cost of debt.

Economic Value Added – EVA

According to Damodaran (2002), the EVA is a measure of surplus value created on an investment, and it is calculated as the product of the “excess return” made on an investment and the capital invested in that investment.

$$[10] \quad \begin{aligned} EVA &= (\text{Return on Capital Invested} - \text{Cost of Capital}) \times (\text{Capital Invested}) \\ &= \text{After tax operating income} - (\text{Cost of Capital}) \times (\text{Capital Invested}) \end{aligned}$$

Nowadays, this is a widely used method that can lead to conclusions consistent with DCF valuation. However, its simplicity can bring some problems, since managers can take advantage of its limitations, like the ability to trade off less growth in the future for higher economic value added today and shift to riskier investments.

2.2.1.3. Adjusted Present Value Model – APV

The Adjusted Present Value Model (APV), presented initially by Myers (1974), values the firm in separate parts, starting with its operations and then summing the effects of debt and other non-equity claims. In other words, the first task to do is to value the firm, with the assumption that it was only financed with equity, and then adding the value of debt, by considering the present value of the tax benefits that flow from debt and the expected bankruptcy costs (Damodaran 2006).

$$[11] \quad \text{Enterprise Value} = \sum_{t=1}^{i=n} \frac{FCFF_t}{(1+k_u)^t} + \frac{FCFF_{n+1} \times (k_u - g)}{(1+k_u)^n} + PV(VTS) - PV(BC)$$

According to Luehrman (1997), despite its difficulty of being executed, the APV is the most reliable, realistic and better method to use. That happens due to its value additivity assumption that allows the managers to look at the firm in different perspectives and give them more objective information about its operation.

2.2.2. Relative Valuation

To achieve the value of a firm, relative valuation establishes a parallel between a firm and other possible comparable firms. Therefore, with the underlying

assumption of market efficiency, the value of a firm is obtained by first selecting a group of comparable firms. Then, it is observed how similar they are priced and thereafter the prices are standardized, by converting them into multiples (Damodaran 2002). Moreover, using different multiples leads to different valuation numbers, and according to each firm sector there is a suitable and more appropriate one to use (Jindal 2011). Fernández (2015) states that despite multiples broad dispersion might be a problem, it constitutes an useful tool in a second stage of the valuation, after performing it with the discounted cash flow method. That happens since the comparison of the multiples of similar firms allows standardizing the valuation performed and it points out differences among the firm values of the comparable firms. The main multiples used in relative valuation are: PER – Price-to-Earnings Ratio; PBV Price-to-Book Ratio; PSR – Price-to-Sales Ratio; EV/EBITDA - Enterprise Value to EBITDA; PEG – Price/Earnings to Growth Ratio.

2.2.3. Contingent Claim Valuation

This type of valuation states that the value of a firm may not be greater than the present value of the expected cash flows, if the cash flows are contingent on the occurrence or non-occurrence of an event (Damodaran 2006). The method followed consists on having an asset with the features of an option that is valued using an option pricing model, like the Black Scholes. According to Luerhman (1997), despite being a better method to follow, this type of valuation is less intuitive and it is hard to perform its application to corporate problems.

2.2.4. Asset Based Valuation

The valuation based on the Asset Based Valuation Model uses the assets owned by a firm to estimate its value. The main models used in this type of valuation are the liquidation value and the replacement cost. The first can be achieved by aggregating the estimated sale proceeds of the assets owned by a firm and the second evaluates what would be the cost to substitute all the assets of a firm. Damodaran (2002) did not considered this method to be an alternative to the discounted cash flow, relative or option pricing models because both liquidation and replacement value can only be achieved by using one of the models previously referred to.

3. Company Presentation

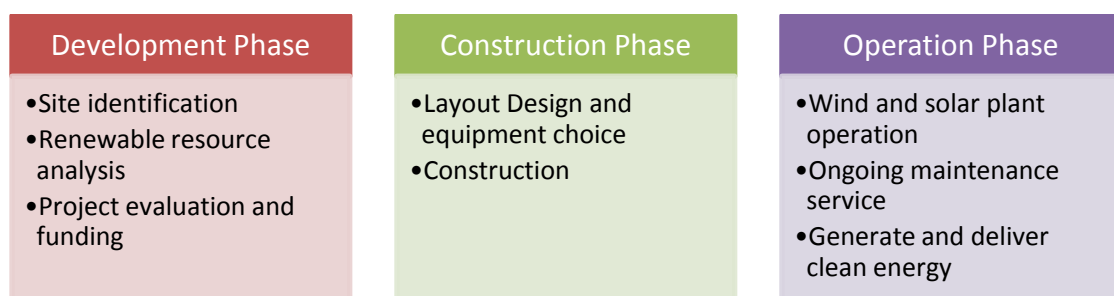
EDP Renováveis (EDPR) is a company within the universe of the EDP group that deals with the area of renewable energy. Since 1996 EDP, the major shareholder of EDPR, develops wind farms, but only in 2008 was EDPR founded and listed publicly.

Nowadays, EDPR is a global company, with two main parts: EDPR Europe & Brazil headquartered in Madrid, which deals with the European and Brazilian assets and the EDPR North America, headquartered in Houston, which manages the assets of United States, Canada and Mexico. However, it concentrates its activities mainly in Portugal, Spain, France, Poland, Romania, United States and Brazil (Appendix 1).

3.1. Business Portfolio

The main activities of EDPR consist on managing the development, the construction and the operation of its wind farms and solar plants. In the development phase, EDPR team of qualified workers tries to find a place with a renewable resource (solar or wind) and close electricity transmission lines, that can ensure the possibility of high construction quality. At the construction level, the engineering and construction teams proceed to the selection and building of the best wind turbines and solar panel systems applied to each project. In the Operation phase, EDPR manages the operations established aiming to achieve the success of the projects, and thereby benefit its shareholders and stakeholders.

Figure 1 - Business Description



Source: EDPR

3.2. Strategy

The value creation strategy followed by EDPR from 2014 and expected to proceed until 2017 is based on three pillars: Focused Growth, Superior Profitability and Self-funding Model. Regarding the Focused Growth, EDPR defined as a goal to achieve a

long-term profitable growth by consolidating its position in the current markets, entering in new markets with high growth potential and searching growth opportunities in different renewable energy technologies. Concerning the Superior Profitability, EDPR pursues the improvement of its operational processes, the encouragement of growth and the capacity of being profitable, aiming to become the best in the sector. Towards the Self-funding Model, EDPR has been committed to increase its growth through a program of asset rotation designed to stimulate value creation. This plan excludes any rise of corporate debt and depends on the blend of cash-flow from operating assets, external funds from tax equity and other structured project finances, as well as proceeds from asset rotation transactions to finance the profitable growth of the business.

The link between EDP and EDPR is very close since the management of the second is highly influenced by the strategy defined by the first. Moreover, the acquisition of 21.35% of EDP, made by China Three Gorgeous was a relevant factor for EDPR, since the Chinese company has the financial and liquidity capacity that will help to develop the Self-funding pillar that is part of EDPR strategy.

Figure 2 - Business Plan 2014-17



Source: EDPR

3.3. Operational Performance

The consequences of the economic crisis in the energy demand added to a few regulatory obstacles created some difficulties and cuts in EDPR revenues. However, the company still maintains a growth perspective, mainly due to the success of its overseas operations (Appendix 2).

-Revenues

In 2014, EDPR revenues suffered a decrease compared to 2013, mainly due to the lower selling price, although partly compensated by the 3% output increase. In Europe, the lower average selling price caused the decrease of 6% on EDPR's average selling price, but it was balanced by the higher average selling price in North America and Brazil. Moreover, the revenues evolution in Europe was very much impacted by the operations in Spain, with the change in the assets remuneration framework, plus the unfavorable pool prices. This obstacle was only minimized by EDP's younger assets and load factor.

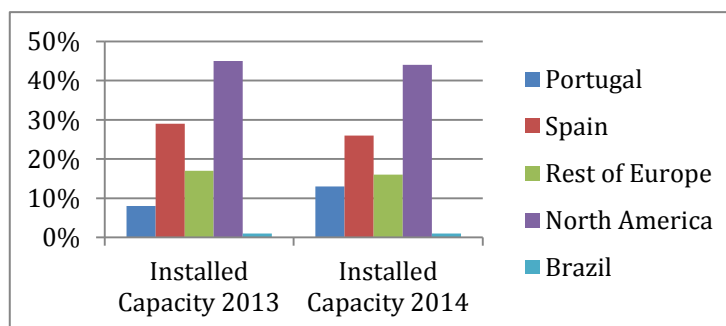
-EBITDA

The EBITDA suffer a 2% decrease in 2014 comparing with the value of 2013. This happened mainly due to the regulatory changes in Spain and to the exceptional low pool prices in the first months of the year.

-Electricity Generated and Installed Capacity

The EDPR's activities in North America had an important role in the electricity production growth in 2014,

Chart 1- Installed Capacity 2013-2014



Source: EDPR

representing 52% of the total output. In Europe, the EDPR operations represented 47% of the total output. Regarding the installed capacity, there was a small decrease in North America, Spain and in the rest of Europe, and an increase in Portugal.

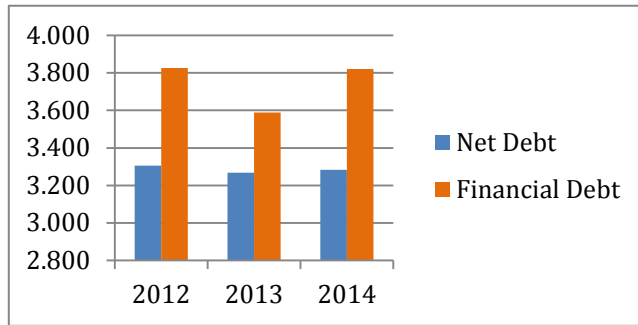
-Investments

EDPR defined a self-funding model from 2014 to 2017, wherein the company limits the financing of its investment plan only by the internal free cash flow from operating assets and the sale of minority stakes in its projects. Therefore, the investment plan has the target to raise € 700 million from the asset rotation proceeds that complement the amount of € 1.8 billion of operating cash flow. In the end, it will reach the final value of € 2.5 billion for the investment plan.

-Financial Debt

In 2014, the EDPR's total Financial Debt increased by 234 million euros to 3.8 billion euros, mainly due to the US Dollar appreciation, to investments done in the period and the

Chart 2 - Net and Financial Debt 2012-2014 (€ million)



Source: EDPR

proceeds from the execution of the asset rotation transactions. The main shareholder of EDPR's - EDP group- accounted for 76% of the debt, and the loans with financial institutions represented 24%.

EDPR's debt has a long-term profile, since 85% of the financial debt has a 2018 and beyond maturity. Furthermore, EDPR maintains a long term fixed rate funding strategy, combining the Operating Cash-Flow profile with its financial costs and thus alleviating the interest rate risk.

-Financial Structure

In 2014, the EDPR presented a debt-to equity ratio of 126%, an increase from the value of 114% in 2013. Moreover, it achieved an equity ratio of 44%, which represented a decrease comparing with the value of 47% in 2013. The Business Plan chosen by EDPR, with a self-funding model, gives it more financial autonomy and does not lead to high changes in the financial structure.

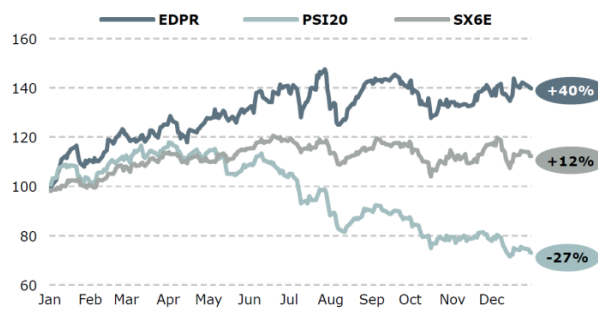
3.4. Market Performance

EDPR is a constituent of the following stock market indexes: PSI 20, PSI All-Shares (Gross Return), Euronext 100, NYSE Euronext Iberia, Bloomberg World Energy Alternative Source and NASDAQ QMX Clean Edge Global Wind Energy.

In the last 5 years, EDPR suffered some fluctuations in its share price. After a growing period registered in 2010 and 2011, the 2012 deceleration of the energy demand in the EDPR core markets, due to the broader economic crisis and to the idea of renewable energy as a costly energy source, led to a decrease in the share performance. Then, in 2013 the regulatory changes in Spain also had a substantial

impact in the financial results of the company. Finally, in 2014 the overcome of the main difficulties and the good future perspectives led to a good performance above the market. This fact was reflected in an

Chart 3 - Share Price Performance 2014

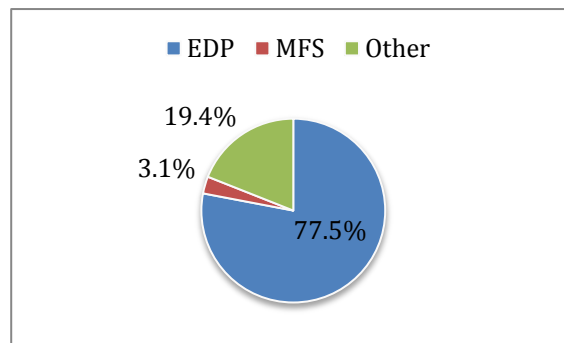


Source: EDPR

increase of 40% in the share price, eventually having a better performance of the NYSE Euronext Lisbon PSI 20 and Dow Jones Eurostoxx Utilities SX6E.

In the shareholder structure of EDPR, the main shareholder is the EDP Group, with 77.5% of share capital and voting right. Apart from EDPR, the MFS Investment Management, an American global investment company, constitutes the other qualified shareholder, with 3.1% in EDP share

Chart 4 - EDPR Shareholders 2014



Source: EDPR

capital and voting right. Without the EDP group and the MFS Investment Management, the EDPR shareholders include about 81,000 institutional and private investors disperse around more than 23 countries, with more prominence in United States, United Kingdom Portugal, Australia, Norway and France.

The number of EDPR shares listed is 872.3 million, traded in NYSE Euronext Lisbon. On December 31st 2014 EDPR had a market capitalization of 4.7 billion euro, +40% above from the 3.4 billion euro at the end of 2013, and equivalent to € 5.40 per share. The EDPR's General Shareholders Meeting approved a dividend policy to 2013-2015, which propose dividends distribution each year and will represent 25% to 35% of EDPR's distributable profit. Thus, in 2014 it was endorsed a dividend of € 34,892,326.48, that corresponded to €0.04 per share, matching a total shareholder return of 41% (Appendix 3).

4. Macroeconomic Framework and Sector Framework

4.1. Macroeconomic Framework

A macroeconomic framework applied to the year 2014 was elaborated for the main countries where EDPR operates, by using the financial and statistical information from the International Monetary Fund (IMF).

Portugal

The recent years in Portugal were deeply affected by the consequences of the financial crisis of 2008, which led to high levels of public deficit and excessive debt. This economic situation culminated in a financial bailout, established in April 2011, and as a result a program was defined with the IMF, the European Commission and the European Central Bank. The goals appointed by this plan were the achievement of budgetary consolidation and the implementation of structural reforms, which would restore the Portuguese economy and allow future growth prospects.

The program which was finished in May 2014 brought some confidence to the Portuguese economy and allowed the reduction of the public deficit. Furthermore, with the help of the European Central Bank program, there was a substantial decrease of the Portuguese debt interests. However, at the same time the increase of taxes and the consequent decrease of the investment and consumption led to an increase of the unemployment rate to about 17% in 2012 and to a cumulated decrease of the GDP of 7.4% between 2009 and 2013.

The economic recovery of Portugal is expected to be more consistent in 2015, mainly due to a favorable external environment and a gain of confidence, both reflected in the growth of 0.9% of the GDP and in the decrease of the unemployment rate of 2%, in 2014.

Table 1 - GDP change: Portugal

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	1.90%	-1.83%	-4.03%	-1.61%	0.90%	1.60%	1.54%	1.40%

Source: IMF, World Economic Outlook Database

Spain

Despite having suffered deeply with the financial crisis, Spain had success in the implementation of its reforms and the results are reflected on its economic recovery. In fact, after a continuous decrease of the GDP since 2010, there was a GDP growth of 1.4% and a decrease of 1.2 % in the unemployment rate in 2014, both situations being helped by stronger Euro Zone financial market conditions. Nevertheless, the level of unemployment, mainly among the youth, still presents very high levels and some specific issues in the Spanish economy, like the high public and private debts remain a problem. Thus, in the future additional fiscal measures and structural reforms are needed, in order to consolidate the economic recovery.

Table 2 - GDP change: Spain

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	0.02%	-0.62%	-2.09%	-1.23%	1.40%	2.46%	2.05%	1.77%

Source: IMF, World Economic Outlook Database

France

Unlike other European states, France had a slightly better performance through this troubled period, mainly due to the resilience of private consumption, the absence of financial fragmentation and also the reduced levels of corporate debt. However, unemployment rate became high, achieving 10.3% in 2014, and at the same time a loss of competitiveness was registered in the French economy. Afterwards, a slow short-term recovery took place in France, since there was a growth in GDP of 0.29%, in 2013, and 0.36%, in 2014. Important measures like reducing the tax wedge on labor and advancing supply-side reforms are expected to help this recovery to become more consistent in the future.

Table 3 - GDP change: France

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	1.97%	2.08%	0.33%	0.29%	0.36%	1.16%	1.49%	1.70%

Source: IMF, World Economic Outlook Database

Poland

Having passed through an economic slowdown in the period of 2012-2013, the economy of Poland performed a progressive recovery in 2014 based on solid economic policies and continued global integration. Therefore, despite its low inflation and high unemployment, a GDP growth of 3.3% was registered and it is expected to grow 3.48% in 2015. The geopolitical situation of that region is a

problem that can cause some instability in the Polish economy in the near future and therefore its probable effects should be taken into account.

Table 4 - GDP change: Poland

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	3.70%	4.76%	1.76%	1.67%	3.30%	3.48%	3.48%	3.55%

Source: IMF, World Economic Outlook Database

Romania

The macroeconomic policies implemented helped the Romanian economy to correct some internal and external imbalances, caused by the global crisis. The results were reflected in the GDP growth registered in 2013 and 2014, which was respectively 3.39% and 2.9%. However, weak public infrastructure and the vulnerability to external shocks are some problems that need to be considered.

Table 5 - GDP change: Romania

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	-0.80%	1.06%	0.64%	3.39%	2.90%	2.70%	2.90%	3.38%

Source: IMF, World Economic Outlook Database

Brazil

The growth of the Brazilian economy has lost strength recently, since in 2013 the GDP had grown 2.74% and in 2014, grew 0.15%. Therefore, the previous successful measures of expanding labor income and the propitious external conditions, that had increased consumption, stimulated the economy and led to a poverty reduction, all gradually lost intensity. Furthermore, the decrease of investment, a worst business environment installed and the reduction of commodity prices were all converging factors to this deceleration. For the future, the government is planning to apply some measures in order to strengthen macroeconomic policies and restore Brazil credibility and growth.

Table 6 - GDP change: Brazil

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	7.57%	3.92%	1.76%	2.74%	0.15%	-1.03%	0.98%	2.25%

Source: IMF, World Economic Outlook Database

Mexico

After having slow down its growth in 2013, the Mexican economy had a growth of 2.13%, in 2014. This increase was mainly explained by the recovery of the U.S. economy, that stimulated Mexico's manufacturing production, exports and public

investment on infrastructures. Henceforth, the good prospect maintains and therefore it is expected that the Mexican GDP growth continues.

Table 7 - GDP change: Mexico

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	5.11%	4.05%	4.01%	1.39%	2.13%	3.00%	3.32%	3.52%

Source: IMF, World Economic Outlook Database

USA

The U.S. economy had a good performance in 2014, since it grew at a rate of 2.39%. This growth was based on an accommodative monetary policy, on a considerable reduction in the fiscal drag, and on the improvement of labor and housing conditions. On the other hand, some risks still persist, like the pace of interests' rate increases, the market expectations and the competition caused by the growth prospects in other advanced and emerging market economies. The persistence of expansive economic policies makes believe that the U.S. economy growth will be consistent and maintained.

Table 8 - GDP change: USA

Description	Units	2010	2011	2012	2013	2014	2015F	2016F	2017F
Real GDP	Δ%	2.53%	1.60%	2.32%	2.22%	2.39%	3.14%	3.06%	2.66%

Source: IMF, World Economic Outlook Database

4.2. Sector Framework

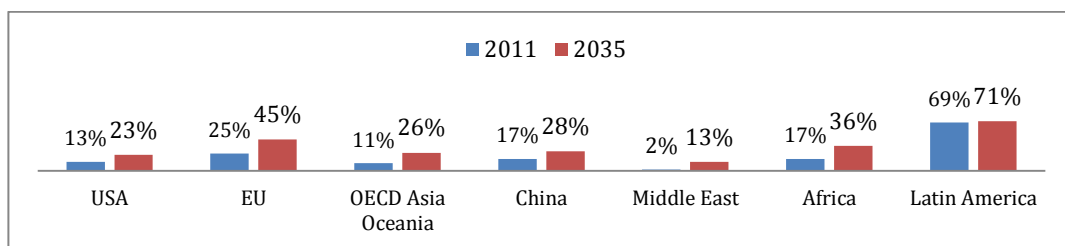
In the recent period, wherein the 2008 financial crisis affected almost every sector of the worldwide economy, the market of the renewable energy exceeded the main expectations. This success, reflected on the substantial increase of the installed capacity of renewable technologies, is mostly founded on three reasons: a global commitment in achieving environmental targets; a policy of incentives to the sector; a significant reduction of the costs for the majority of the renewable technologies.

In order to understand more specifically the importance of the sector, it is useful to resort to the Global Status Report 2014 from the Renewable Energy Policy Network for the 21st Century (REN21). According to this report, in 2013 the renewable energy was responsible for more than 56% of net additions to global power capacity and supplied around 19% of global consumption. The recent expansion of renewable energies, not only occurred in the most developed countries, but also in the developing countries, since it was fully realized by the governments the overall

importance that this type of energy can have. Moreover, the International Renewable Energy Agency (IRENA) predicted that the importance of the global renewable energy can overtake 30% in 2030, and that 40% of the total renewable energy potential in 2030 will be concentrated in power generation. On the other hand, the International Energy Agency (IEA) 2014 Energy Outlook expects that the percentage of renewables in total power generation will grow from 21% in 2012 to 33% in 2040, and will provide half of the growth in global electricity generation.

Among the renewable technologies, the wind onshore constitutes the lower cost option and according to the Global Renewable Energy Market Outlook 2013, from Bloomberg New Energy Finance it is expected to be responsible for the largest share of the 30% new renewables sum to the global power grid in 2030.

Chart 5 - Renewables over total electricity generation



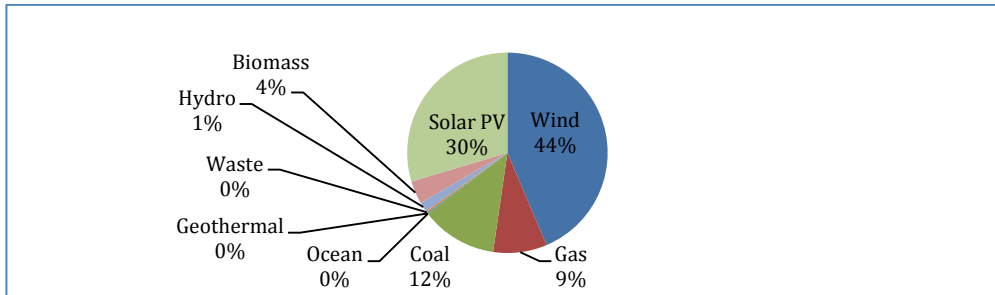
Source: International Energy Agency

Europe

Europe is a continent with low energetic resources, and thereby it suffers from a high dependence from the exterior. More specifically, the European Commission calculated that in 2012, € 545 billion were spent on importing fossil-fuels. Thus, having the purpose to reach a more energetic independence, the role of renewables achieved a major importance, and by 2010, according to the European Commission, renewables allowed the saving of €30 billion in imported fuel costs. In this process, the European Wind Energy Association (EWEA) enhanced the role played by wind energy, since in 2012, it avoided costs of €9.6 billion on fossil fuel. Still regarding EWEA reports, in 2014 wind accounted for 44% of new installations, totaling a cumulative installed capacity of 120 GW. Therefore, mainly due to remuneration schemes and incentives that had as a goal to answer to environmental and security of supply concerns, around 7% of power produced in Europe is now derived from wind energy. The European plan "20-20-20" was defined for each state and it

estimates that, by the end of 2020, it will be possible to achieve the following targets: a 20% reduction in greenhouse gas emissions from 1990 levels; a 20% share of renewables in total energy mix; a 20 % improvement in energy efficiency.

Chart 6 - Share of new power capacity installations in EU 2014

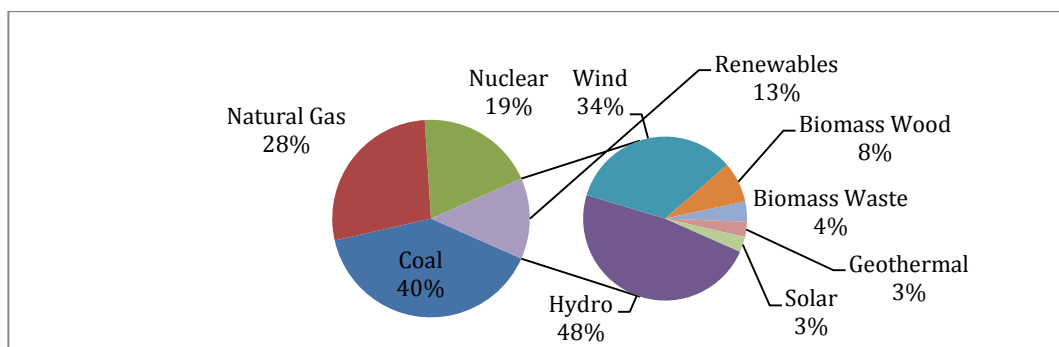


Source: European Wind Energy Association

North America

According to IEA, recently the market of North America has had a substantial and consistent growth in the renewable energy sector. Particularly, in USA, the growth in this sector has mainly been due to the need to achieve environmental targets and to the wind energy competitiveness. Moreover, the incentives as tax credits for production and the agreements of power purchase were also important to this development. Henceforth, there are too reasonable expectations of a higher growth in the North American market, which are founded on the planned coal capacity retirements (planning to be substituted by wind energy), on the increase of the wind energy competitiveness and on the requirement to the power suppliers to provide a minimum share of electricity from renewable sources.

Chart 7 - Sources of U.S.A. electricity generation 2014



Source: U.S. Energy Information Administration

Latin America

Until 2014, Latin America developed some renewables technologies, like hydropower, that had an important role in the increase of the power supply.

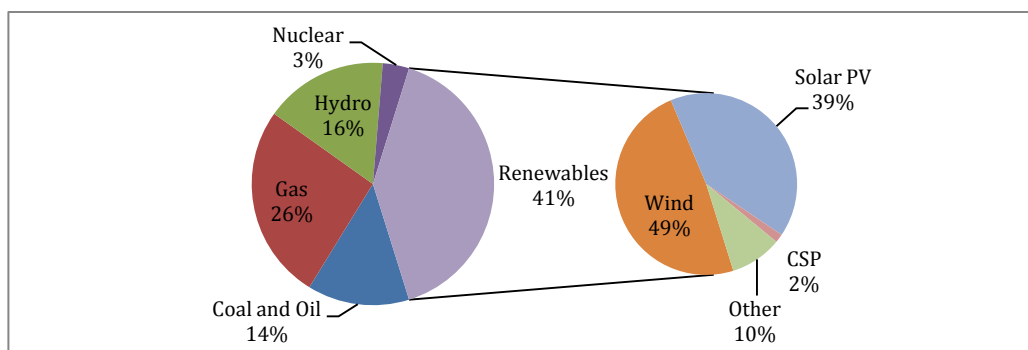
Regarding wind energy, this region had not the expansion as other regions did, but a scenario change is predicted, with an expected growth of almost 600% until 2020. According to IRENA, this expected growth will be mainly based on the large power generation capacity need. The quick growth on electricity consumption and great concern over the limited hydropower potential, added to excellent wind resource, low current implementation and limited access to cheap gas, are some of the factors that benefit the wind energy. Not to mention its relative competitiveness towards other sources of energy and its growing regulatory support. Furthermore, this region is being influenced by the intensive renewable growth occurring in the U.S., and it is foreseen that the main development will happen in Brazil and Mexico.

Future Prospects

The sector of the renewable energy already reached an important position in the worldwide economy. The disadvantages of the fossil fuels, a more political concern and the increase of the incentives to the sector make believe that a consistent growth in the renewable energy will be created.

Thus, the IEA World Energy Outlook 2014 predicts that the sector of renewable energy will be responsible for about 40% of worldwide capacity addition of 1.618 GW in the period of 2012-2020. The wind energy onshore will play a very important role, since it will account nearly for 50% of this increase, totaling 316 GW. Geographically, the expansion of the renewable sector will mainly take place in Europe, North America and Latin America.

Chart 8 - 2012-2020 Worldwide additions



Source: International Energy Agency World Energy Outlook 2014

5. Strategic Analysis

5.1. SWOT

Table 9 - EDPR SWOT analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> - Flexible and diversified portfolio; - Consistent growth targets; - Execution capacity and strong efficiency in fulfilment of the proposed targets; - Strong cash-flow generation capacity; - Above the average load factor in the Spanish market; - Very high availability levels and overall improvement in key operating metrics; - Low exposure to spot prices; - Self-funding capacity; - Financial support from EDP and China Three Gorges; - Strong notion of social responsibility. 	<ul style="list-style-type: none"> - Regulatory risks; - Low pool prices; - Results negatively influenced by changes in regulation; - Low price of the non-renewable energy sources.
Opportunities	Threats
<ul style="list-style-type: none"> - Asset rotation strategy; - Improved market conditions in the US; - PTCs extension supports of new demand for wind in the US; - Selective and profitable growth options to be developed; - Growing self-funding business; - Improvement in the shareholder's remuneration policy; - Expansion of activities in the Mexican energy market. 	<ul style="list-style-type: none"> - Negative changes in regulation; - Decrease in the whole sale prices in Iberia; - Deterioration of the market environment; - Economic risk of emerging countries where it operates; - Exchange rate risk.

5.2. Porter Five Forces Analysis

Figure 3 - Porter Five Forces Analysis



See Appendix 4

6. Evaluation

6.1. Methodology

In order to proceed to the valuation of the EDPR, the method Sum-of-the-Parts (SOTP) will be used. Therefore, the value of the company will be estimated, through the sum of its different geographic sections.

The valuation of each geographical section will be performed by using the FCFF method. This process seems to be the advisable one to follow, since it is the most used by the investors and financial analysts in the world and because it suits well to companies with a practically fixed capital structure, like the case of EDPR. Thus, the FCFF method will be applied to a time horizon of five years and it will be used a constant rate of WACC to discount the FCFF, that will be constant for the referred time horizon and for perpetuity.

6.2. Assumptions

Henceforward, to achieve the value of each geographical section, some assumptions will be introduced, concerning the application of the FCFF method and the discount rate - WACC.

6.2.1. Revenues

The revenues were calculated for the next five years (2015-2019), in the main markets where EDPR operates - Europe, USA and Brazil. Estimations were made according to the historical data of the specific market revenues, to the business plan defined by the company for 2014-2017 and to the expectations of the evolution of the renewable sector and the nominal GDP of each area.

Europe

In 2013, there was an increase of 5.4% in the European revenues, due to the growth of the production that overcame the decreasing effect of the average selling price. The good performance was registered in all the European countries in which EDPR operates. However, in 2014, despite the production increase, there was a decrease of 9% in the revenues, which was caused by a lower average selling price. The main

reasons for this decline were the Spanish changes in the remuneration framework for renewable assets and the lower realized price in Romania, with green certificates being sold at the floor of the regulated collar.

For the period 2014-2017, EDPR predicts a growth of 20% in the electricity generation, since some European markets give good growth prospects based on its low risk regulatory frameworks. The main growth will occur in France, where EDPR has new projects being developed that will in turn generate new possible additions for 2015-2017; in Poland, where it is developing competitive projects and in Portugal, where the total capacity given to the ENEOP consortium in 2006, will be completed. Nevertheless, comparing with other regions where EDPR operates, the growth registered in Europe, will be consistent, but at a slower pace.

Each EU state developed national action plans, in which they commit themselves to achieve the 2020 targets defined by the Renewable Energy Directive made by the European Commission, and so gradually increase the percentage of the RES (Renewable Energy Source) in the energy sector. Thus, renewable energy will play an important role in the future of the European energy and it is a goal of EDPR to go along with this development. Furthermore, the expected recovery of the economic situation in Europe from 2014 until 2019 is a presumptive factor that will offer EDPR a better operative ground for developing its activities.

Therefore, with the predicted improvement of the European performance and the development of new projects, it was considered that in 2015, EDPR will recover from the 2014 decrease and will experience a growth of 7.5% in the revenues. Then, in 2016 and 2017, the growth will be at a slower pace and will correspond to 3.5% and 3%. Finally, since there are no information for 2018 and 2019, it was considered that the growth of the revenues will be related to the economic growth of the two most important markets, and so it was used the average of the predictions of the nominal GDP of Spain and Portugal in 2018 and 2019, that correspond to 2.8% for both years (Appendix 5).

USA

In 2013 and 2014, there was a revenue increase of respectively 1.3% and 7%, supported by an increase in the average selling price and production. This revenues increase is expected to continue since the 2014-2017 Business Plan of the company defined the American market as the most important one, in which the electricity generation growth will represent 60% until 2017. The main reasons are based on the different EDPR's portfolio of projects in this market, in the maintenance of the PTC tax benefits (production tax credits) and substantial demand for long term PPAs (power purchase agreements) from wind energy projects.

The US Government defined as a goal for 2020 that all US government agencies need to achieve the target of 20% renewable energy generation. Like in the case of Europe this change is planned to be phased gradually. Moreover, the good evolution of the US economy is also a significant factor that will help the development of the renewable sector, and consequently the activity of EDPR.

So, since USA will be a priority market and the one having a substantial investment, it was considered that, EDPR will have a revenue growth of 25% in 2015, 10% in 2016 and 7.5% in 2017. Finally, since there are no information for 2018 and 2019, it was considered that the growth of the revenues would be linked to the nominal GDP growth of the US economy in 2018 and 2019. Therefore, a growth of 4.6% and 4.1% was respectively assumed (Appendix 6).

Brazil

In 2013 and 2014, Brazil achieved a context of revenues increase of 12% for both years, mainly due to the increase of the average selling price. This growing path is expected to continue since the 2014-2017 Business Plan projected a growth of 20% in the emerging markets, in which Brazil will play the main role. Thus, in 2015-2017 EDPR plans to install the projects with PPA awarded in 2011 and 2013 and through this operation it expects to increase 181% the capacity from the current portfolio.

With the purpose of also investing and developing the market of the renewable energy, the Brazilian government predicted a consistent growth of the different

renewable resources, which represents a strong percentage in the Brazilian renewable sector. Although, Brazil is now passing through a slowdown in its economic performance, the predictions made by the IMF expect a good economic recovery in the future that will help the development of the renewable sector.

So, it is expected that, though Brazil is experiencing some economic problems, EDPR will have conditions to develop important projects in this country. Thus, it was assumed a revenue growth of 2.5% in 2015, 5% in 2016 and 7.5% in 2017. Finally, since there are no information for 2018 and 2019, it was considered that the growth of the revenues would be linked to the nominal GDP growth of the Brazilian economy in 2018 and 2019. Therefore, a growth of 5.1% was presumed for both years (Appendix 7).

Table 10 - Revenues Assumptions (€ million)

		2013	2014	2015	2016	2017	2018	2019
Europe	Revenues	820	747	803.0	831.1	856.0	880	904.6
	Growing rate	-	-9%	7.5%	3.5%	3%	2.8%	2.8%
USA	Revenues	472.9	505.8	632.3	695.5	747.7	782.1	814.2
	Growing rate	-	7%	25%	10%	7.5%	4.6%	4.1%
Brazil	Revenues	22.6	25	25.6	26.9	28.9	30.4	32.0
	Growing rate	-	12%	2.5%	5%	7.5%	5.1%	5.1%
Total	Revenues	1316	1277	1460.9	1553.5	1632.6	1692.5	1750.8
	Growing rate	-	-3.0%	14.4%	6.3%	5.1%	3.7%	3.4%

6.2.2. EBITDA Margin

Like the case of the revenues, the EBITDA margin was estimated for each region, taking into account the historical data and the strategic plan of the company.

Europe

In spite of the adversities that EDPR faced in the 2013, with a reduction of 9 pp on the EBITDA margin, in 2014, there was an increase of 1 pp in this item. In 2015, it was presumed that new projects will increase the operating costs, leading to a decrease of the EBITDA margin of 1 pp. In 2016 and 2017, with the improvement of the operating performance there will be an increase of the EBITDA margin of 0.5 pp. For 2018 and 2019, this improvement will be more consolidated and the increase will be of 1 pp in both years (Appendix 8).

USA

In 2013 and 2014, there was an increase of the EBITDA margin of respectively 3 pp and 1 pp. In spite of the good performance, there was a slowdown mainly due to the reduction of other operating income that was offset by the decrease in operating costs. So, taking into account the great investment in new projects that are going to raise the operating costs, it was considered a decrease of the EBITDA margin of 5 pp in 2015, a decrease of 1 pp in 2016 and an increase of 2 pp in 2017. For 2018 and 2019, the improvements of the operational performance will finally lead to an increase of respectively 2 pp and 1 pp (Appendix 9).

Brazil

In 2013, there was a reduction of the EBITDA margin of 8 pp and an increase of 2 pp in 2014 explained not only by the increase of the operating costs but also the good performance of the revenues. Taking into account the investment that is going to be made in this emerging market which in turn will lead to a growth in the operating costs, it was presumed a decrease of the EBITDA margin of 4 pp in 2015 and a decrease of 2 pp in 2016. In 2017, it was also considered that the operating performance will improve and a growth of 1 pp will be registered in this case. Finally, for 2018 and 2019, this path is expected to be maintained and the increase will be 2 pp for both years (Appendix 10).

Table 11 - EBITDA Margin Assumptions (€ million)

		2013	2014	2015	2016	2017	2018	2019
Europe	EBITDA	590	544	578.2	602.5	624.9	651.2	678.5
	EBITDA margin	72%	73%	72%	72.5%	73%	74%	75%
USA	EBITDA	329.8	358.9	417.3	452.1	501	539.6	569.9
	EBITDA margin	70%	71%	66%	65%	67%	69%	70%
Brazil	EBITDA	13.1	15.4	14.6	14.8	16.2	17.6	19.2
	EBITDA margin	59%	61%	57%	55%	56%	58%	60%
Total	EBITDA	932.9	918.3	1010.1	1069.4	1142.1	1208.4	1267.6
	EBITDA margin	70.8%	71.9%	69%	69%	70%	71.4%	72.4%

6.2.3. Investment in Fixed Assets and Depreciations

Since EDPR does not perform predictions regarding the next points, the following items were estimated using historical data.

The Capex was calculated following three steps: first the values of the Net Tangible Assets and the Net Intangible assets (including goodwill) were estimated using the average change percentage of the last four years. It was obtained the ratio of 2.6% for the first and 0.8% for the second. Then, a strategy of progressive growth was adopted using the referred averages growths.

Table 12 - Assets Assumptions (€ million)

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Net Tangible Assets	10.455	10.537	10.095	11.013	11.299,3	11.593.1	11.894,5	12.203,8	12.521.1
% Growth	4.7%	0.8%	-4.2%	9.1%	2.6%	2.6%	2.6%	2.6%	2.6%
Net Intangible Assets	1.334	1.327	1.302	1.405	1416.2	1427.5	1438.9	1450.4	1462.0
% Growth	-2.4%	-0.5%	-1.9%	7.9%	0.8%	0.8%	0.8%	0.8%	0.8%
Total	11.789	11.864	11.397	12.418	12.715,5	13,020.6	13,333.4	13.654,2	13,983.1

Afterwards, the values of the amortizations and depreciations were calculated, using the average percentage of the last three years, in function of the values of the net asset of the last period. It was obtained the ratio of 5% for the depreciations and 1% for the amortizations. Then, it was also chosen a strategy of progressive growth using the referred averages growths.

Table 13 - Amortisations and Depreciations Assumptions (€ million)

	2012	2013	2014	2015	2016	2017	2018	2019
Depreciations	503	465	500	550.7	565.0	579.7	594.7	610.2
% Net Tangible Assets t-1	5%	4%	5%	5%	5%	5%	5%	5%
Amortizations	15.2	18.5	19	14.1	14.2	14.3	14.4	14.5
% Net Intangible Assets t-1	1%	1%	1%	1%	1%	1%	1%	1%
Total	518.2	483.5	519	564.8	579.2	594	609.1	624.7

Finally, to achieve the Capex it was applied the following formula.

$$[12] \quad Capex = (Net\ Fixed\ Assets_t - Net\ Fixed\ Assets_{t-1}) + (Amortisations_t + Depreciations_t)$$

6.2.4. Investment in Working Capital

The following items were estimated using the average percentage of the last four years, in function of the revenues (Appendix 11).

Table 14 - Working Capital Investment Assumptions

Item		Assumption
	Current Assets	
Inventories		1.6%
Trade receivables	% of Revenues	13.5%
Other current assets		36.8%
	Current Liabilities	
Trade payables	% Revenues	72.6%
Other current liabilities		143.6%

6.2.5. Minorities

EDPR has some non-controlling interests that need to be taken into account since a part of its net income and equity belongs to these minorities. So, their value has also to be removed from the company value. The minorities that are part of the non-controlling interests are the EDPR NA group, the EDPR EU Group and the EDP BR Group. The value that is going to be used consists on the value of 2014 – € 549 million (Appendix 12).

6.2.6. Risk-Free Asset

As risk-free asset, it was used the yield of the German bonds, with maturity of 10 years, in the date 31/12/2014, that correspond to 0.5%, according to Bloomberg.

6.2.7. Cost of Debt

The cost of debt was calculated with a method created by Damodaran, which is based on the following formula:

$$[13] \quad K_d = R_f + \text{Company Default Spread} + \text{Country Default Spread}$$

According to Damodaran, when there are no ratings for a company, like the case of EDPR, it is required to estimate a synthetic rating, and consequently a cost of debt based upon it. So, by using the financial characteristics of the company it is first necessary to obtain the interest coverage ratio. In order to achieve it, the average EBIT from 2012 to 2014 and the interest expenses of 2014 were used, reaching a final value of 2.17. Then, by consulting a table provided by Damodaran that establishes the equivalent between the interest coverage ratios and the default spreads, it was attributed a default spread of 3.25% to EDPR. As for the country

default spread of Spain it was also used a table created by Damodaran (Appendix 14), which assigns a value of 1.48%. Finally, by resorting to the formula of the cost of debt, it was obtained a value of 5.23% (Appendix 13).

6.2.8. Beta

According to Reuters, the Beta of EDPR is 0.75.

6.2.9. Market Risk Premium

The market risk premium was calculated by using a weighted average of the weight of the revenues of each region over the respective market risk premium (Appendix 14).

Table 15 - Market Risk Premium Assumptions

	Market Risk premium	Weight of 2014 Revenues
Europe	7.77%	58.5%
USA	5.75%	39.6%
Brazil	8.60%	1.9%
Final	6.99%	100%

Source: Damodaran and EDPR

6.2.10. Tax rate

Relatively, to the tax rate, it was considered the corporate Spanish nominal tax rate applied from 2015 on - 25%, since this is the country in which the company is incorporated and its tax regime is the one applied.

6.2.11. Weight of Equity and Debt

It is part of EDPR strategy to adopt a self-funding model that excludes an increase in corporate debt. Moreover, since the debt has not had a great change in the last four years and it is expected an increase of the market capitalization, henceforth the value of 38% will be adopted regarding the weight of debt in the total funding. Therefore, taking into account the assumptions previously defined, the weight of equity will corresponds to 62% (Appendix 15).

6.2.12. WACC

Table 16 - WACC rate

Rf - Risk Free Asset	0.5%
Risk Pemium	6.99%
Beta	0.75
Ke - Cost of Equity	5.7%
Kd - Cost of Debt	5.23%
T - Tax Rate	25%
D/(E+D)	38%
E/(E+D)	62%
WACC	5.02%

*Applied formulas: CAPM (8) and WACC (7)

6.2.13. Growth Perpetuity Rate – g

The growth perpetuity rate chosen must not be higher than the growth rate of the economy in which the company develops its activities. As EDPR is a multinational that operates in the USA, it will be the American real growth rate that is going to be used as reference. Thus, the growth rate will have to vary between 2% and 3%, and since EDPR has good growing prospects, it will be chosen the value of 2.5% for the growth rate.

6.3. FCFF of the segments

Table 17 - FCFF of the segments (€ million)

	2015	2016	2017	2018	2019
Revenues	1460.9	1553.5	1632.6	1692.5	1750.8
EBITDA	1010.1	1069.4	1142.1	1208.4	1267.6
(-) Depreciations/ Amortisations	564.8	579.2	594	609.1	624.7
EBIT	445.3	490.2	548.1	599.3	642.9
(-) Operational taxes	111.3	122.6	137.0	149.8	160.7
(+) Depreciations/ Amortisations	564.8	579.2	594	609.1	624.7
(-) Capex	862.3	884.3	906.8	929.9	953.6
(-) Δ Working Capital	-184.6	-152.1	-130	-98.4	-95.7
FCFF	221.1	214.6	228.3	227.1	249
PV FCFF	210.5	194.6	197.1	186.7	194.9

Thus, based on these assumptions, the total value of the different geographical sections of EDPR was estimated in 8911.8 million of euros, being 7928 million concerning the terminal value and the 983.8 million regarding the temporal horizon.

7. Results

After having achieved the value of the adjusted geographical segments, the value of the non-operating assets was added, which are related with the cash and with the financial investments (Appendix 16). Finally, after removing the minorities, the value achieved consisted on the Firm Value.

Afterwards, the Equity value was reached by removing the value of the financial obligations of the company, which were the net debt, the provisions the derivatives and the leases.

Table 18 - EDPR Valuation (€ million)

(+)Enterprise Value	8911.8
(+)Non-Operating Assets	914
(-)Minorities	549
Firm Value	9276.8
(-)Net Debt	3283
(-) Provisions	99
(-)Derivatives	192
(-)Leases	40
Equity Value	5662.8
Shares Outstanding (million)	872.3
Price target	6.49
Value 31/12/2014	5.40
% Δ	20.2%

The value achieved for a share of EDPR was € 6.49, which represents an appreciation of 20.2% comparing with its value in 31/12/2014 and a valuation of 9.3% comparing with its recent value (€ 5.94 - 11/09/2015). The value obtained is dependent on a series of economic assumptions, and consequently it includes some level of uncertainty and subjectivity inherent to this analysis. Therefore, a sensitivity analysis will be performed in order to reach with more accuracy the range of values that can be attributed to this price.

8. Sensitivity Analysis

In order to see how the changes in the variables used could affect the value of the target price, a sensitivity analysis was performed. Regarding the main variables in question, this analysis was applied to the EBITDA margin, to the WACC and to the growth perpetuity rate.

Table 19 - Sensitivity Analysis: EBITDA Margin, WACC and g (€)

	-2% change		+2% change	
	Price	Δ% price	Price	Δ% price
EBITDA Margin	5.74	-11.56%	7.25	11.71%
WACC	6.92	6.63%	6.10	-6.01%
g	6.31	-2.77%	6.63	2.16%

By applying a change of 2% in these variables, it was concluded that the ones that have a greater impact in the share price were the EBITDA margin and the WACC. Nevertheless, with a *ceteris paribus* scenario, two analyses were made to study the impact of these variables changing jointly (Appendix 17).

Table 20 - Sensitivity Analysis: EBITDA Margin and WACC (€)

		WACC				
		-2%	-1%	0%	1%	2%
EBITDA Margin	2%	7.70	7.47	7.25	7.03	6.84
	1%	7.31	7.08	6.87	6.66	6.46
	0%	6.92	6.70	6.49	6.29	6.10
	-1%	6.37	6.17	5.97	5.78	5.60
	-2%	6.13	5.93	5.74	5.55	5.37

The analysis shows that a higher WACC and a lower EBITDA margin, lead to a decrease in the share price, and *vice versa*. Moreover, it confirms the idea that the EDPR shares are undervalued, since in the majority of the scenarios, the intrinsic value is higher than the value of 31/12/2014 – € 5.40. Only in the worst scenario, does this situation not happen, but even in this case by a small distance. Therefore, the sensitivity analysis enhances the results obtained in the DCF valuation performed.

9. Relative Valuation

To perform a relative valuation it is necessary to choose a Peer group. As it is a difficult task to define the comparable companies that constitute this group, it was used the data provided by Financial Times, Reuters and Inf Financials. According to these sources companies were organized regarding to the area they operate, its growth rates, its profitability and its value.

Table 21 - Relative Valuation: EV/EBITDA and PER

	EV/EBITDA	PER
EDPR	10.15	47.14
China Datang Corp	9.55	79.74
Enel Green Power	8.43	19.41
Direct Energie	12.02	46.23
Endesa	8.19	50.03
Colbun	10.23	-
Tata Power Co.	7.64	42.68
Mighty River Power	9.62	76.43
Falck Renewables	6.68	95.92
Acciona	7.61	18.03
Ormat Technologies Inc	9.28	35.10
Average (excluding EDPR)	8.75	54.14

EBITDA 2015 (forecast)	1010.1
Peer Group EV/EBITDA	8.75
Multiple based EV	8838.4
Price target	6.61

EPS 2015	0.12
Peer Group PER	54.14
Price target	6.18

Regarding to the EV/EBITDA valuation, first it was achieved the enterprise value based on the multiple, and therein the equity value and price target were obtained using the same methodology as in the previous section. By comparing this value with the one obtained using the DCF valuation, it can be seen its closeness, since they have a difference of only 1.85%. Therefore, this is a result that reinforces the conclusion achieved. Concerning the PER valuation, first the Peer Group PER was reached, and afterwards it was used the Earnings per Share (EPS) supplied by Reuters, to obtain the price target. Thus, it was reached a value of € 6.18 and once again, this result gives consistence to the analysis made, since it has a small difference of 4.78% with the value obtained with the DCF valuation.

10. Conclusions

Since its creation, EDPR has been following a path that is transforming it in one of the global leaders operating in the renewable energy sector. Furthermore, the current trend that will lead to a sustained increase on the use of the renewable resources compared to the non-renewable ones, positions the company in a growing and challenging business.

For the future, the main investment will be concentrated in the USA, since the company defined this market as the one with more possibilities of growth. The emerging countries, in particular Brazil and Mexico, will also have the attention of EDPR, as well as Europe, though at a slower pace.

The decrease of the revenues in 2014 affected the performance of EDPR and was mainly caused by the changes in assets remuneration framework in the Spanish operations, one of the most important markets. Nevertheless, it was defined a hedging strategy with the goal of removing the volatility of future revenues and avoid similar cases. For the years of 2014-17, EDPR developed an ambitious business plan, supported by three pillars- Selective Growth, Increased Profitability and Self-Funding Model. This plan follows a strategy that is flexible enough to face possible changes in the business and economic environments and is expected to improve the company's performance in the short-term.

With the referred assumptions taken into account and after the valuation made, the price of € 6.49 was obtained for the EDPR shares. Thus, through a comparison established with the price of 31/12/2014 - € 5.40 - this research concluded that EDPR shares are undervalued. The results of the sensitivity analysis and the relative valuation enhance this outcome, since in the majority of the scenarios and for both multiples used, the conclusion achieved was the same. Therefore, for that date the investors should be given the recommendation to buy the shares of EDPR, since in the future, the market would acknowledge its value, and thereafter the appreciation of the share price would give the investors a return for their investment.

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Appendix

Appendix 1 – Organization Structure of EDPR

Europe & Brazil	North America
Spain Belgium Italy Portugal Poland UK France Romania Brazil	Canada Mexico USA

Source: EDPR

Appendix 2 – Operational Performance

	2013	2014
Revenues (€ million)	1.316	1.277
Δ	-	3%
Net Profit	135	126
Δ	-	-7%

Source: EDPR

Appendix 3 – EDPR share performance

EDPR in Capital Markets

EDPR in Capital Markets	2014	2013	2012	2011	2010
Opening price (€)	3.86	3.99	4.73	4.34	6.63
Minimum price (€)	3.87	3.58	2.31	5.25	3.72
Maximum price (€)	5.70	4.36	4.86	3.89	7.01
Closing Price (€)	5.40	3.86	3.99	4.73	4.34
Market Capitalization (€ million)	4.714	3.368	3.484	4.124	3.783
Turnover (€ million)	1,976.41	1,759.20	1,525.56	2,098.58	2,695.41
Share price Performance	+40%	-3%	-16%	+9%	-35%
Total shareholder return	+41%	-2%	-16%	+9%	-35%
PSI 20	-27%	+16%	+3%	-28%	-10%
Down Jones Eurostoxx Utilities	+12%	+9%	-9%	-25%	-15%

Source: EDPR

EDPR share performance: 2011 – 2015 (Monthly data)



Source: Reuters

Appendix 4 – Porter Five Forces Analysis

The Porter five forces analysis was created with the goal of analyzing the level of competition in an industry and to help to develop a business strategy for the company. Thus, this analysis was applied to the case of EDPR and directed to the Portuguese market.

Threat of New Entrants

- Industry Growth: the market of renewable energy has been growing in the last years and all predictions point to the maintenance of this growth in the future. Indeed the percentage of renewable sources used over the non-renewable ones has been increasing recently in a very consistent and sustainable way;
- Investment Requirements: the renewable energy sector demands a high level of investment, mainly directed to the acquisition, installation and maintenance of the equipment and technology. Normally, this type of investment is very much dependent on the banking finance, a thing that is hard to obtain nowadays due to the crisis that the financial system is going through;
- Interest rate applied: new possible companies that can appear in the market will have to support much higher interest rates, comparing with the ones demanded to the companies already established;
- Government Policy: the Portuguese Government has defined as a goal for 2020 to keep investing in the renewable energy, enhancing the production and export of solutions with high added value, enabling a reduction in the dependence on foreign energy and decreasing the emissions of greenhouse gas effect;
- Barriers to Entry: this is a market wherein there are obstacles to enter, due to the strict government regulation;
- Number of companies: the number of companies operating in the area of renewable energy in Portugal is not very high. The 2014 market share of EDPR in Portugal was 24%. Therefore, having in consideration the importance of EDPR in the Portuguese market, the entrance of new companies would not constitute a problem;
- Human Resources Needs: In spite of the human resources availability, its majority is lower-skilled;
- Switching Costs: The renewable sector has high costs related with the start of new projects, and the investment in the geographical markets;
- Established and experienced companies: the implementation and experience of a company will play an important role, since it will be able to manage with success the possible problems that can arise and thus reinforce its position and image in the market.

Therefore the entrance of new companies in the market represents a **low level** of threat to EDPR.

Threat of Substitutes

- Substitutes: The main threat to the renewable sector consists on the non-renewable sources that, despite its environmental disadvantages, still maintain high percentage levels in the overall energy consumption;
- Price of the substitutes: The competitive prices of the non-renewable sources may constitute a problem for the development and implementation of the renewable sources.

Thus, the market of the renewable energy has substitutes that can represent a **solid threat** for its success.

Bargaining Power of Suppliers

- Number of Suppliers: there are multiple suppliers of the required resources for building solar cells and wind turbines. So, companies have large choice option, leading them to work with different ones;
- Price: regarding the solar cell production, the main input material is crystalline silicon, which has been in shortage in the recent years. So, taking into account the importance of this material for producers and the absence of substitutes to it, the suppliers gain more power with this situation. Considering the wind turbines, the input materials are the light metals, mainly the aluminum. Its price has been gradually increasing in the recent years;
- Supplier switching costs: the existence of this type of costs can only happen if there are contracts that demand some conditions to switch supplier.

Therefore, the bargaining power of suppliers can be considered **moderate**, since the price of the resources needed increases the power of suppliers, despite its high number.

Bargaining Power of Customers

- Buyer Price Sensitivity: the price of a product or service plays a fundamental role in the customer's choice, since they will always choose the ones with more affordable price;
- Product/Service Quality: normally related with the price, the quality of a product or service is also important for customers, since they will tend to rank the proposals according to its quality;

- Brand Image: in addition to the quality of the product/service, the image and its history weights in the customers decision, since a strong and solid image is associated to a better service/product;
- Availability of information of the customer regarding the product: nowadays, in the majority of the cases, customers have the required information to establish comparisons between the different products/services, and analyze which one satisfies their needs;
- Type of clients: usually, the type of clients are Government agencies that want to invest in the renewable area. So, often they have the necessary capital to take the projects forward.

Therefore, the bargaining power of customers is **strong**, since the number of different companies operating in this area and its distinct proposals give them a wide option choice.

Competitive Rivalry within an Industry

- Number and Dimension of the Companies: This market demands a very high investment. Therefore, the number of companies operating in this area is reduced;
- Different Competitors: the market of the renewable energy has different areas, regarding the types of energy that is used (wind, solar, waves, etc...). The majority of the companies tend to specialize in one or two types of energy;
- Differentiation: companies try to create an element that allow them to be different of the rest, and with that gain a competitive advantage, reflected on the price, innovation and quality;
- Growing Rate: despite its high costs, the renewable market is growing and so it will attract more companies to it, increasing the competition between them.

Therefore, the rivalry in this area is **strong**, because, despite the high costs associated to this type of business/industry, its growing rate is an attractive factor for the companies.

Appendix 5 – Assumptions: Revenues Europe

Goals of the 2014-2017 Business Plan

Production Growth 2014-2017	20%
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Source: EDPR

Historical Data

	2013	2014
Revenues (€ million)	820	747
Δ	-	-9%

Source: EDPR

Energy Sector Europe

RES share (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Portugal	25.2%	26.9%	27.1%	27.4%	28.4%	28.9%	29.7%	30,6%	30,8%	31,0%
Spain	14,2%	14,8%	15,4%	16,5%	17,4%	18,3%	19,4%	20,4%	21,5%	22,7%
France	13.5%	14%	15%	16%	17%	18%	19.5%	20.5%	22%	23%
Belgium	4.4%	5.2%	5.8%	6.8%	7.5%	8.6%	9.5%	10.7%	11.9%	13.0%
Poland	10.2%	10.7%	11.2%	11.6%	12.1%	12.7%	13.4%	14.1%	14.9%	15.9%
Italy	8.7%	9.2%	9.9%	10.5%	11.2%	12.0%	12.9%	13.8%	15.1%	17.0%
UK	4.0%	4.0%	5.0%	6.0%	7.0%	8.0%	9.0%	11.0%	13.0%	15.0%
Romania	18%	19%	19.4%	19.7%	20.1%	20.6%	21.2%	21.8%	22.9%	24%

Source: European Commission

Δ RES share (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Portugal	1.1%	1.7%	0.2%	0.3%	1.0%	0,5%	0.8%	0,9%	0,2%	0,2%
Spain	0,6%	0,6%	0,6%	1,1%	0,9%	0,9%	1,1%	1,0%	1,1%	1,2%
France	1.0%	0.5%	1.0%	1.0%	1.0%	1.0%	1.5%	1.0%	1.5%	1.0%
Belgium	0.6%	0.8%	0.6%	1.0%	0.7%	1.1%	0.9%	1.2%	1.2%	1.1%
Poland	0.6%	0.6%	0.5%	0.4%	0.5%	0.6%	0.7%	0.7%	0.9%	0.9%
Italy	0.6%	0.6%	0.6%	0.7%	0.7%	0.8%	0.9%	1.0%	1.3%	1.9%
UK	1.0%	0.0%	1.0%	1.0%	1.0%	1.0%	1.0%	2.0%	2.0%	2.0%
Romania	0.5%	1%	0.4%	0.3%	0.4%	0.5%	0.6%	0.6%	1.1%	1.1%

Source: European Commission

Economic Growth

Real GDP (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Portugal	-1.827	-4.028	-1.605	0.903	1.604	1.543	1.400	1.250	1.160	1.151
Spain	-0.620	-2.090	-1.228	1.389	2.455	2.047	1.768	1.748	1.743	1.745
France	2.079	0.334	0.285	0.361	1.160	1.486	1.699	1.791	1.859	1.864
Belgium	1.638	0.095	0.275	1.043	1.341	1.504	1.483	1.525	1.534	1.577
Poland	4.762	1.761	1.688	3.302	3.483	3.479	3.551	3.573	3.634	3.582
Italy	0.587	-2.770	-1.698	-0.417	0.487	1.096	1.100	1.100	1.050	1.000
UK	1.645	0.659	1.665	2.553	2.718	2.328	2.196	2.204	2.145	2.096
Romania	1.056	0.641	3.390	2.900	2.700	2.900	3.380	3.500	3.510	3.500

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Nominal GDP (€ Billions)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Portugal	176.20	168.40	169.40	173.10	177.60	182.70	187.60	192.60	197.73	203.00
Spain	1,075.2	1,055.2	1,049.2	1,058.5	1,086.7	1,111.7	1,139.0	1,171.4	1,206.7	1,242.5

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Nominal GDP (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Portugal	-	-4.43%	0.59%	2.18%	2.60%	2.87%	2.68%	2.67%	2.66%	2.67%
Spain	-	-1.86%	-0.57%	0.89%	2.66%	2.30%	2.46%	2.84%	3.01%	2.94%

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Real GDP (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Euro Area	1.616	-0.811	-0.455	0.881	1.453	1.650	1.600	1.557	1.563	1.540

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Predictions

	2015F	2016F	2017F	2018F	2019F
Growing rate - g	7.5%	3.5%	3%	2.8%	2.8%

Appendix 6 – Assumptions: Revenues USA

Goals of the 2014-2017 Business Plan

Production Growth 2014-2017	60%
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Source: EDPR

Historical Data

	2013	2014
Revenues (€ million)	472.9	505.8
Δ	-	7%

EUR/USD2014=1,3285

Source: EDPR

Energy Sector

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
RES share (%)	9.3%	9.3%	9.6%	9.8%	10%	15%	15%	17.5%	17.5%	20%
Δ RES share (%)	-	0%	0.3%	0.2%	0.2%	5%	0%	2.5%	0%	2.5%

U.S. Energy Information Administration

Economic Growth

Real GDP (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
USA	1.602	2.321	2.219	2.389	3.135	3.060	2.662	2.355	2.039	2.024

Source: International Monetary Fund, World Economic Outlook Database, April

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nominal GDP (USD Billions)	15,518	16,163	16,768	17,419	18,125	18,959	19,865	20,769	21,615
Nominal GDP (EUR Billions)	11,681	12,167	12,622	13,112	13,643	14,271	14,953	15,634	16,271
Nominal GDP (%)	-	4.16%	3.74%	3.88%	4.05%	4.60%	4.76%	4.56%	4.07%

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Predictions

	2015F	2016F	2017F	2018F	2019F
Growing rate - g	25%	10%	7.5%	4.6%	4.1%

Appendix 7 – Assumptions: Revenues Brazil

Goals of the 2014-2017 Business Plan

Production Growth 2014-2017	20%
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Source: EDPR

Historical Data

	2013	2014
Revenues (€ million)	22.6	25
Δ	-	12%

EUR/BRL2014=3.1211

Source: EDPR

Energy Sector

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
RES share (%)	16.4%	18.0%	18.5%	20.1%	21.7%	22.7%	23.4%	23.7%	24.0%	24.1%
Δ RES share(%)	2.5%	1.6%	0.5%	1.6%	1.6%	1%	0.7%	0.3%	0.3%	0.1%

Source: Ten-year plan for energy expansion 2023, Ministério de Minas e Energia, Secretaria de Planejamento e Desenvolvimento Energético

Economic Growth

Real GDP (%)	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Brazil	3.916	1.762	2.744	0.145	-1.026	0.984	2.250	2.307	2.431	2.495

Source: International Monetary Fund, World Economic Outlook Database, April 2015

	2011	2012	2013	2014	2015	2016	2017	2018	2019
Nominal GDP (USD Billions)	2,613	2,412	2,391	2,353	1,904	1,928	2,030	2,132	2,241
Nominal GDP (EUR Billions)	1,967	1,816	1,800	1,771	1,433	1,451	1,528	1,605	1,687
Nominal GDP (%)	-	-7.69%	-0.87%	-1.6%	-19.09%	1.25%	5.30%	5.05%	5.07%

Source: International Monetary Fund, World Economic Outlook Database, April 2015

Predictions

	2015F	2016F	2017F	2018F	2019F
Growing rate - g	2.5%	5%	7.5%	5.1%	5.1%

Appendix 8 – Assumptions: EBITDA Margin Europe

	2014	2013	Δ
EBITDA (€ million)	544	590	-8%
EBITDA margin	73%	72%	+1pp

Source: EDPR

Appendix 9 – Assumptions: EBITDA Margin USA

	2014	2013	Δ%
EBITDA (€ million)	358.9	329.8	+9%
EBITDA margin	71%	70%	+1pp

Source: EDPR

Appendix 10 – Assumptions: EBITDA Margin Brazil

	2014	2013	Δ%
EBITDA (€ million)	15.4	13.1	+17%
EBITDA margin	61%	59%	+2pp

Source: EDPR

Appendix 11 – Assumptions: Investment in Working Capital

€ million	2011	2012	2013	2014	2015F	2016F	2017F	2018F	2019F
Inventories	24.0	16.2	15.0	21.3	23	24.5	25.7	26.7	27.6
% of Revenues	2.2%	1.3%	1.1%	1.7%	1.6%	1.6%	1.6%	1.6%	1.6%
Trade receivables	146	180	202	141	197.2	209.7	220.4	228.5	236.4
% of Revenues	13.7%	14%	15.3%	11%	13.5%	13.5%	13.5%	13.5%	13.5%
Other current assets	501	495	359	441	537.6	571.7	600.8	622.8	644.3
% of the Revenues	46.9%	38.5%	27.3%	34.5%	36.8%	36.8%	36.8%	36.8%	36.8%
Total Current Assets	671	691.2	576	603.3	757.8	805.9	846.9	878	908.3

€ million	2011	2012	2013	2014	2015F	2016F	2017F	2018F	2019F
Trade payables	1,086	862	609	960	1,059.9	1,127.1	1,184.5	1,227.9	1,270.2
% of Revenues	101.6%	67.1%	46.3%	75.2%	72.6%	72.6%	72.6%	72.6%	72.6%
Other current liabilities	1,836	1,737	1,605	1,859	2,098.2	2,231.2	2,344.8	2,430.9	2,514.6
% of Revenues	171.7%	135.2%	122%	145.6%	143.6%	143.6%	143.6%	143.6%	143.6%
Total Current Liabilities	2,922	2,599	2,214	2,819	3,158.1	3,358.3	3,529.3	3,658.8	3,784.8

€ million	2015F	2016F	2017F	2018F	2019F
Working Capital	-2400.3	-2552.4	-2682.4	-2780.8	-2876.5
Δ Working Capital	-184.6	-152.1	-130	-98.4	-95.7

Appendix 12 – Assumptions: Minorities

€ million	2014	2013	2012
EDPR NA Group	232,358	198,348	176,825
EDPR EU Group	283,543	192,241	115,389
EDPR BR Group	33,212	27,468	32,954
Total	549,113	418,057	325,168

Source: EDPR

Appendix 13 – Assumptions: Cost of Debt

Table for non-financial service companies with market cap > €3.8 billions

If interest coverage ratio is >	≤ to	Rating is	Spread is
8.50	100000	AAA	0.40%
6.5	8.499999	AA	0.70%
5.5	6.499999	A+	0.90%
4.25	5.499999	A	1.00%
3	4.249999	A-	1.20%
2.5	2.999999	BBB	1.75%
2.25	2.499999	BB+	2.75%
2	2.249999	BB	3.25%
1.75	1.999999	B+	4.00%
1.5	1.749999	B	5.00%
1.25	1.499999	B-	6.00%
0.8	1.249999	CCC	7.00%
0.65	0.799999	CC	8.00%
0.2	0.649999	C	10.00%
-100000	0.199999	D	12.00%

Source: Damodaran

	EBIT (€ million)
2012	450
2013	474
2014	422
Average	448.7

Source: EDPR

2014 Interest Expenses (€ million)	207
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Source: EDPR

Interest Coverage Ratio	2.17
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Appendix 14 – Assumptions: Market Risk Premium

Country	Region	Local Currency Rating	Rating-based Default Spread	Total Equity Risk Premium	Country Risk Premium	CDS Default Spread	Total Equity Risk Premium	Country Risk Premium
Portugal	Western Europe	Ba1	2.50%	9.50%	3.75%	2.78%	9.92%	4.17%
Spain	Western Europe	Baa2	1.90%	8.60%	2.85%	1.48%	7.97%	2.22%
France	Western Europe	Aa1	0.40%	6.35%	0.60%	0.91%	7.12%	1.37%
Belgium	Western Europe	Aa3	0.60%	6.65%	0.90%	0.89%	7.09%	1.34%
Poland	Eastern Europe & Russia	A2	0.85%	7.03%	1.28%	1.15%	7.48%	1.73%
Italy	Western Europe	Baa2	1.90%	8.60%	2.85%	2.03%	8.80%	3.05%
UK	Western Europe	Aa1	0.40%	6.35%	0.60%	0.46%	6.44%	0.69%
Romania	Eastern Europe & Russia	Baa3	2.20%	9.05%	3.30%	1.92%	8.64%	2.89%
Average			1.34%	7.77%	2.02%	1.5%	7.93%	2.18%

Source: Damodaran

Country	Region	Local Currency Rating	Rating-based Default Spread	Total Equity Risk Premium	Country Risk Premium	CDS Default Spread	Total Equity Risk Premium	Country Risk Premium
USA	North America	Aaa	0.00%	5.75%	0.00%	0.00%	5.75%	0.00%

Source: Damodaran

Country	Region	Local Currency Rating	Rating-based Default Spread	Total Equity Risk Premium	Country Risk Premium	CDS Default Spread	Total Equity Risk Premium	Country Risk Premium
Brazil	Central and South America	Baa2	1.90%	8.60%	2.85%	2.86%	10.04%	4.29%

Source: Damodaran

Appendix 15 – Assumptions: Weight of Equity and Financial Debt

€ million	2010	2011	2012	2013	2014
Total Market Capitalization - E	3,783	4,124	3,484	3,368	4,714
Debt - D	2,848	3,387	3,305	3,268	3,283
D/(E+D)	42.9%	45.1%	48.7%	49.2%	41.1%
E/(E+D)	57.1%	54.9%	51.3%	50.8%	58.9%

Source: EDPR

Appendix 16 – Non-operating Assets

Values of 2014 (€ million)

Cash and cash equivalents	538
Financial investments, net	376
Total	914

Source: EDPR

Appendix 17 – Sensitivity Analysis 2

Sensitivity Analysis: WACC and g (€)

		WACC				
		-2%	-1%	0%	1%	2%
Growth in Perpetuity	2%	7.12	6.90	6.68	6.47	6.27
	1%	7.02	6.80	6.59	6.38	6.19
	0%	6.92	6.70	6.49	6.29	6.10
	-1%	6.82	6.60	6.40	6.20	6.02
	-2%	6.72	6.51	6.31	6.12	5.93

On the other hand, this second analysis demonstrates that a higher WACC and a lower growth perpetuity rate lead to a decrease in the share price, and *vice versa*.

So, once again, this analysis emphasizes the conclusion that the EDPR shares are undervalued, since in all the scenarios the intrinsic value is higher than the value of 31/12/2014 - €5.40.