# EDP RENOVÁVEIS

# COMPANY REPORT

*UTILITIES*

7 JANUARY 2013

STUDENT: CLÁUDIA ANDRADE

## There is still room for growth

*But regulatory environment remains crucial*

- During this year of 2012, EDP Renováveis has been able to show it is in the right path to achieve the **strategic goals** expressed in the Business Plan 2012-2015, having installed 457MW (at 3Q12) of the 500MW projected for the year.

- The company also announced its first **Asset Rotation** transaction, which consisted in the sale of a minority stake in a portfolio of wind farms in the US to Borealis Infrastructure for an implicit EV/MW multiple of $1,91m, representing a premium of $0,77m/MW, according to our analysis.

- Investments in **new technologies** are in EDPR's future plans. The company announced the start of construction of its first Solar PV project of 39MW in Romania, which had a positive impact of €0,02/share in our valuation.

- However, a relevant threat for the company is **regulatory risk,** which has increased, mainly in Spain, where a tax of 6% on revenues generated from electricity might entry into force, applying also to clean energy resources. This tax affects both new and old wind farms – resulting in a negative impact of 0,16€/share. The introduction of retroactive feed-in-tariffs cuts, which would be the worst scenario for Spanish assets, would have a negative impact of €1,25/share.

- To reach our target price of €5,04/share, we analyzed the current environment in the sector, attributing 70% to our Base-case scenario and 30% to a Stressing Scenario.

**EDP Renováveis**

**Headquartered in Madrid, EDP Renováveis is a worldwide player in the renewable energy sector, which has around 7GW of wind installed capacity spread between Europe, North America and Brazil.**

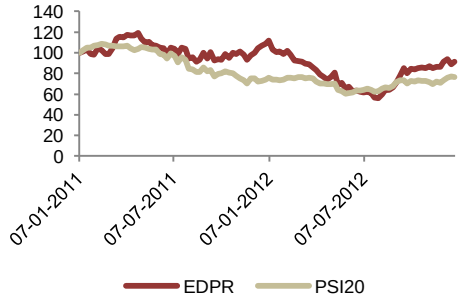
| | |
|---|---|
| **Recommendation:** | **BUY** |
| *Vs Previous Recommendation* | *BUY* |
| **Price Target FY13:** | **€ 5,04** |
| *Vs Previous Price Target* | *€ 4,56* |
| **Price (as of 4-Jan-13)** | **€ 4,07** |

Reuters: EDPR.LS, Bloomberg: EDPR.PL

| | |
|---|---|
| 52-week range (€) | 2,25-4,93 |
| Market Cap (€m) | 3.554,66 |
| Outstanding Shares (m) | 872 |

Source: Reuters

**Share Price Performance**




Source: Bloomberg

| (Values in € millions) | 2011 | 2012E | 2013F |
|---|---|---|---|
| Revenues | 1.069 | 1.180 | 1.229 |
| EBITDA | 801 | 847 | 889 |
| Net Profit | 91 | 105 | 85 |
| EPS | 0,10 | 0,11 | 0,06 |
| EBITDA margin | 75% | 72% | 72% |
| Total Assets | 13.045 | 13.217 | 13.572 |
| Net Debt (including TEI) | 4.617 | 4.480 | 4.608 |
| Interest Coverage Ratio | 1,6 | 1,7 | 1,56 |
| EV/EBITDA | 11,01 | 10,41 | 9,92 |
| EV/EBIT | 25,4 | 25,6 | 27,2 |

Source: Company Data, NOVA Equity Research

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# Executive summary

***We performed 8 DCF's and an EV/MW multiple valuation for Italy's business. We built two scenarios: a base-case - based on the assumption that no retroactive changes to regulations will take place and following EDPR Business Plan – and a Stressing-Scenario – feed-in-tariffs are retroactively cut and no more additions are made in the next years.***

The present reports aims at providing a valuation of EDP Renováveis' shares. In order to find our target price, we performed a Sum-of-the-Parts approach, valuing each country separately.

The company installed 806MW of new capacity in 2011. Installed capacity grew by 63% from 2008 until the end of 2011. It has achieved load factors within the average of the peer companies analyzed (25% in 2011) and has been able to keep competitive Operating and Maintenance Costs, which allowed EDPR to present an EBITDA margin of 75% in the last two years. It has also been able to keep a strong balance sheet (Debt-to-equity ratio of 73%, lower than the average of the industry) but this financial position might be changing as measures such as interest coverage ratio (went from 3 in 2008 to 1,6 in 2011) and Altman's Z-score (from 4,54 in 2008 to 4,01 in 2011) indicate. To keep the solid position as well as the ability to invest in future growth, EDPR is starting to sell assets. Until now, the strategy has been profitable – we estimate a premium of $0,77m/MW in the transaction with Borealis Infrastructures and a premium of €0,41m/MW in the announced sale of Portuguese Assets to China Three Gorges[1].

***"The most important ingredient for the long-term success of wind industry is stable, long-term policy."***
**Sven Teske, Greenpeace**

The main business risk that EDPR faces is the high exposure to mature markets as US, Spain and Portugal, which together represented 86% of EDPR's EBITDA in 2011. Although concerns regarding renewables incentives were, for now, dissipated in the US and Portugal[2], there is still low visibility in Spain, due to the high tariff deficit, which amounted to €24.582m in 2010 and the increasing debt. In an attempt to rebalance the electrical system and national accounts, an extra tax of 6% on revenues from energy generation will be applied, which as an effect of - € 0,16/share.

***EDPR is trying to reduce its exposure to core markets risks: approximately 72% of planned installed capacity for the period 2013-2015 is located in new growth platforms, as Romania, Poland and Brazil.***

Through an analysis of the current situation of the sector, we considered that there is still room for new opportunities: equipments costs continue declining[3] and recent BNEF studies indicate that onshore wind might reach parity with coal, natural gas and nuclear power by 2016. At the same time Solar PV competitiveness increases[4]. EDPR already started its first Solar PV project in Romania of 39MW, which added € 0,02/share to our valuation. Overall, we attributed a 70% probability for our base-case scenario and 30% probability for our Stressing Scenario[5], achieving a target price of € 5,04/share.

[1] The transaction is subject to regulatory approvals.
[2] In the US, the extension of the Production Tax Credits, a main incentive to the sector, was announced on the 1st January 2013, while in Portugal the Government reached an agreement with the wind industry that allowed feed-in-tariffs to be extended.
[3] Wind turbine prices are around 25% cheaper compared with 2009.
[4] LCOE declined around 20% from 2011 to the 3Q2012.
[5] The description of each scenario is made further on the Valuation section.

# Company Overview

EDP Renováveis is a leading company in the clean energy sector, being especially focused on wind power generation. It is a subsidiary of Energias de Portugal (EDP), the Portuguese largest utilities' company. EDPR is majority owned by its parent company (77,5% stake) and it went public in 2008, when it became a member of PSI-20. This process followed the example of Iberdrola Renovables and EDF Energies Nouvelles, that went public in an attempt to achieve higher visibility in the markets. Nevertheless, both IBR and EDR Energies Nouvelles were remerged with the respective parent companies in 2011[6].

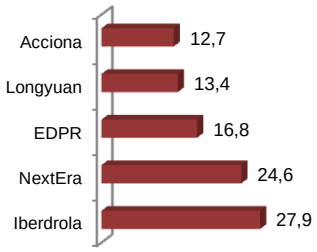



**Chart 1: Top Wind Players 2011 (GWh)**
*Source: NOVA Equity Research*

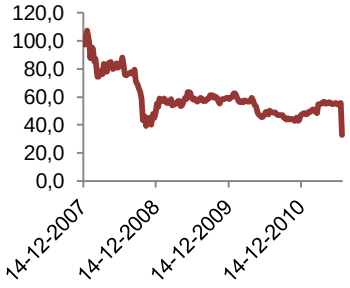
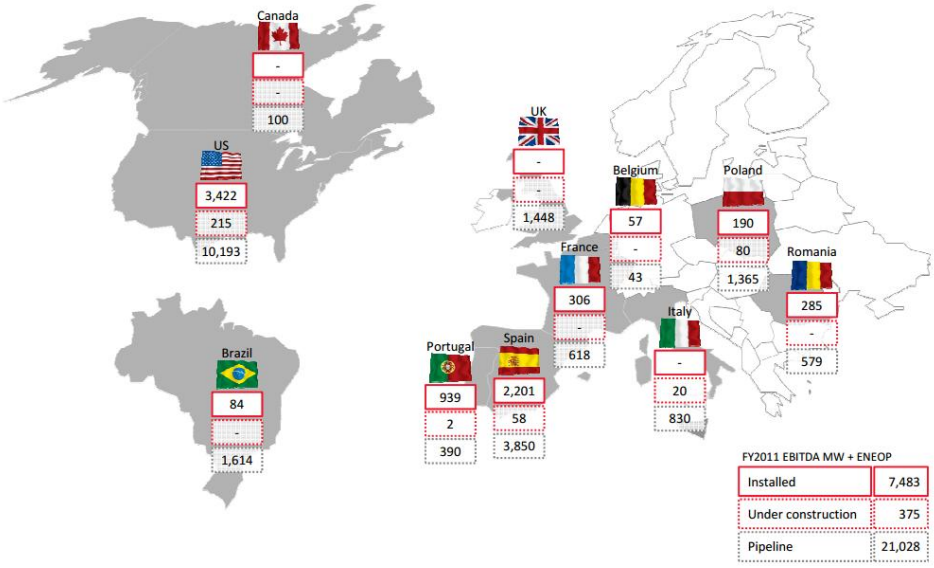



**Chart 2: Iberdrola Renovables share prices evolution**
*Source: Bloomberg*

The business of EDPR is mainly focused on onshore wind energy, presenting a portfolio of wind farm operations spread globally, being possible to highlight three main divisions: North America, Europe and Brazil. In the near future, the management has already revealed that the company will probably dive in new green technologies, such as offshore wind and solar PV – in fact, the first project in this technology is already being constructed in Romania and should be operational in 1H13.

**Chart 3: EDPR's Worldwide Installed Capacity and Pipeline**




*Source: EDPR Investor Presentation, March 2012*

[6] In fact, the slowdown in regulatory frameworks of renewable energy in Europe and the financial crisis led to significant changes in the sector, what potentiated the remerger of these companies with their parents. Iberdrola considered that the needed visibility was achieved (5GW of capacity were installed by IBR since IPO), but share prices were considered below the potential for the business (in fact, IBR share prices decreased around 66% since the IPO), making it a tempting target. Moreover, synergies in this operation are estimated to be around €20 million per year, coming especially from greater operational and financial resources for future growth.

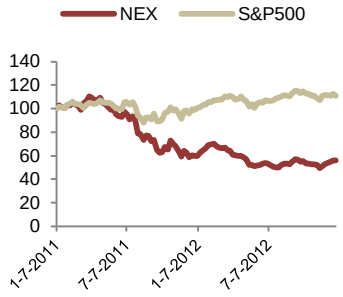



**Chart 4 - Comparison between NEX and S&P500 performance**
*Source: Bloomberg*

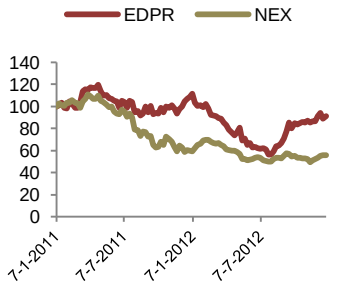



**Chart 5 - Comparison between NEX and EDPR performance**
*Source: Bloomberg*

Along with its peers, the company has been able to take advantage of the markets where incentives to clean energy were more developed, in order to subsidize the high costs of generation – such as Spain, Portugal and US.

However, the confidence in the clean energy business and in the sustainability of current incentives has decreased especially due to the impact of world financial crisis. **Chart 4** suggests the lack of confidence in the sector during 2011/2012, evidenced by the underperformance of NEX Index[7] in comparison to S&P500.

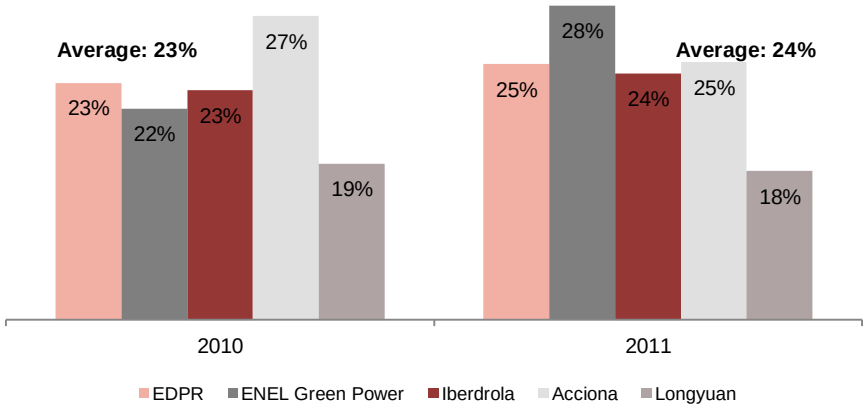
It takes time for clean energy to achieve competitiveness relative to other sources of power and cuts in incentives are one of the main challenges deeply analyzed in **Section IV.**

### Operating Performance

It is relevant to analyse the position of EDPR in the sector and how it compares with the main players in different perspectives. **Annex A** provides a brief description of the companies used in this analysis.

In what operational performance is concerned, a main value driver in this business is the load factor achieved. In our analysis, we considered the annual average load factor as the percentage of time that wind turbines are effectively generating energy. As such, the load factors computed already include technical availability rates and are the implicit values for the installed capacity and energy generation reported in each year. **Chart 6** provides a comparison between EDPR performance and some of its peers.

**Chart 6: Average Annual Implicit Load Factors (%)**




*Source: NOVA Equity Research*

[7] Wilderhill New Energy Global Innovation Index – composed by companies focused on generation and use of clean energy worldwide.

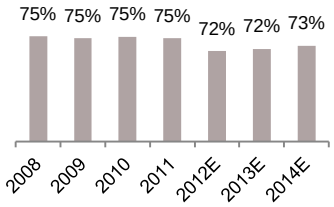



**Chart 7: EDPR's EBITDA margins evolution**
*Source: NOVA Equity Research*

EDPR presented implicit load factors of 23% and 25% in 2010 and 2011 respectively, which were not the highest values in our benchmark comparison. In 2010, Acciona was able to achieve a load factor of 27% and, in 2011, ENEL Green Power was able to achieve a load factor of 28%. This performance indicator is mainly dependent on natural factors – wind availability – but also on site selection criteria and technical expertise, which can explain the small differences between companies.

In what concerns the profitability of EDPR's business, the company has been able to achieve high EBITDA margins (75% in 2011), which are expected to remain relatively stable in the next years, as suggested by **Chart 7**. Since many of the current players in the renewable energy market do not produce only wind power, the profitability of their businesses is not directly comparable to EDPR. As such, only for the companies which we were able to find segmented values for the wind power generation activity, a comparison between EBITDA margin was also performed – **Chart 8**. EDPR presents the highest EBITDA margin, which was of 75% both in 2010 and 2011.

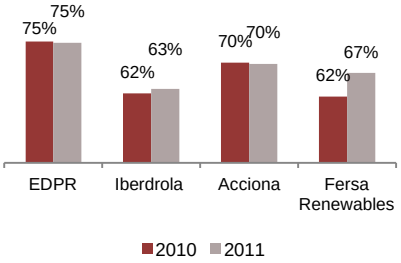



**Chart 8: EBITDA Margin comparison (%)**
*Source: NOVA Equity Research, Companies Reports*

This competitive advantage might be related with Operating Expenditures, which are mainly constituted by Operations and Maintenance activities (representing around 75% of total operating costs) and Personnel Costs. EDPR's priority has been to manage as close as possible warranty contracts with wind turbine suppliers, which should result in a full-scope agreement or in a Modular Maintenance Model – in-house activities -, dependently on what seems to be more profitable. Currently, EDPR has a Master Supply Agreement with Vestas, a global wind turbine manufacturer – 8% global market share in 2011-, with flexibility to choose different wind turbine models and to extend the 2 years of Operating and Maintenance Agreement – to 5 or 10 years – depending on the project. Through these cost management actions, EDPR has been able to keep competitive Operating Expenditures, reflected in high margins.

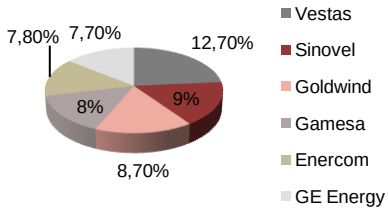



**Chart 9: Main players in the wind turbine manufacturing 2011 (% market share)**
*Source: IHS*

In what concerns Capital Expenditures per MW installed, according to our analysis, EDPR is being able to keep competitive values of investment (€1,17m /MW in 2011), although, in our comparison group, Iberdrola was able to achieve an even more competitive value of € 1,07m/MW.

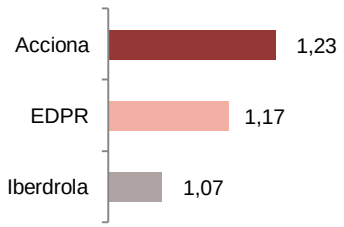



**Chart 10: Average Cost per MW installed (MW) - €m**
*Source: NOVA Equity Research*

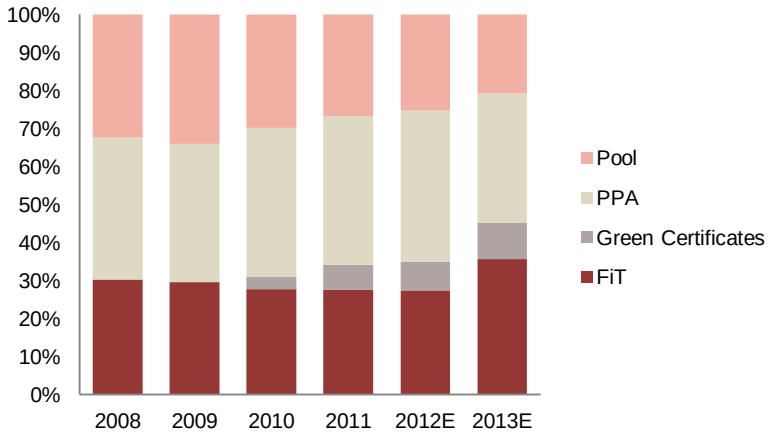
Given this analysis, one might conclude that EDPR is performing on the average of the sector in what concerns technical performance and investment costs. The capacity for managing operating and maintenance costs seems to represent a competitive advantage for the company, allowing it to achieve higher EBITDA margins than the players considered.

***Remuneration Schemes:***
***Feed-in-tariffs:*** *Long-term contracts (typically 15-25 years) that provide energy producers with a cost-based tariff for the energy produced from renewable sources.*
***Power Purchase Agreements:*** *defines all the commercial terms for the sale of electricity between two parties during a long-term period, typically lasting around 20 years.*
***Green Certificate:*** *it is a commodity that can be traded and a guarantee of origin of the electricity provided. Typically one Certificate represents one MW of clean energy produced, but it can depend on the technology. National governments establish quotas that distributors must fulfill of green certificates, in order to promote investments.*

Analyzing now the breakdown of EDPR's installed capacity according to the remuneration scheme, the proportion of installed capacity under no legal protection or remuneration scheme was around 27% in 2011 and, according to our estimates and to the information made available by the company, it has tendency to decrease in the following years. Most common protections are PPA's, Feed-in-tariffs and Green Certificates.

This structure gives EDPR long-term visibility, by reducing its exposure to volatility in energy pool prices.

**Chart 11: Breakdown of Installed Capacity By Remuneration Scheme**




*Source: Company data, NOVA Equity Research*

In addition, due to some uncertainty regarding the remuneration schemes of new projects in the more mature markets - the US, Spain and Portugal -, a relevant business risk, further analyzed, EDPR has already adjusted its business plan for 2013-2015, in order to concentrate its future growth in emerging markets. New growth platforms will be focused on Eastern Europe and Latin America. In fact, around 72% of the projected growth for the next three years is located in Poland, Romania or Brazil. **Chart 12** shows the expected evolution of the breakdown of installed capacity by market. EDPR is also studying the possibility of entering in new markets, for example, Morocco or Mexico.

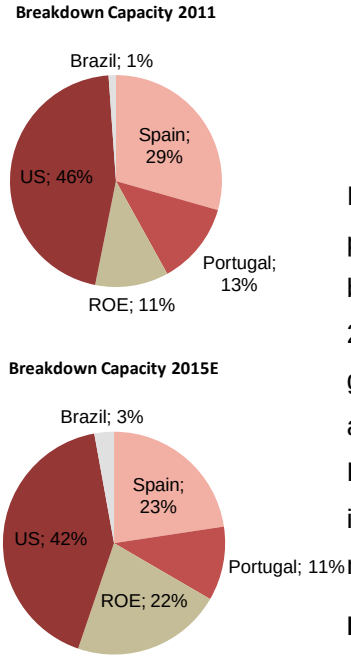



**Chart 12: Breakdown of installed capacity by market (%)**
*Source: EDPR, NOVA Equity Research*

## Financial Performance

In 2011, around 92% of EDPR's financial debt (not including Tax Partnerships) was contracted at a fixed interest rate and around 80% of it only matures after 2018[8]. Overall, and including Tax Equity Investors, which should be considered remunerated debt, EDPR achieved, in 2011, a Net Debt/EBITDA ratio of 5,8x, which has been constant since 2009 – see **Table 1**.

[8] Source: EDPR

| | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|
| Net Debt/EBITDA | 4,9 | 5,8 | 5,8 | 5,8 |
| Debt/Total Assets | 25% | 32% | 35% | 37% |
| Interest Coverage Ratio | 3,0 | 3,2 | 1,6 | 1,6 |

**Table 1: EDPR Financial Indicators**
*Source: NOVA Equity Research*

The Debt/Equity Ratio is lower than the average of the sector of utilities, considering Spanish, Western Europe and World companies – see **Chart 13**. However, the interest coverage ratio has decreased from 2008 to 2011, from 3 to 1,6, which reveals some loose of capability of the company to pay interest expenses on its debt and the changes in capital structure towards more debt – as suggested by **Chart 14**. It is worthwhile noticing that the average interest coverage ratio of the industry is 2,51 using Spanish Utilities as benchmark and 2,87 worldwide[9].

We also computed Altman's Z''-score for EDPR[10]:

| Boundary Values Z''-score | |
|---|---|
| Z<5,85 | Safe Zone |
| 4,35<Z<5,85 | Grey Zone |
| Z<4,35 | Distress Zone |

**Table 2: Altman's Modified Z''-score Boundary Values**
*Source: Altman (2000)*

**Table 3: Altman's Modified Z''-score for EDPR**

| Altman's Z-score | 2008 | 2009 | 2010 | 2011 |
|---|---|---|---|---|
| Total Assets | 9.397 | 11.294 | 12.835 | 13.045 |
| Working Capital | -48 | -140 | -32 | -193 |
| **X1** | **-0,005** | **-0,012** | **-0,002** | **-0,015** |
| Retained Earnings | 194 | 306 | 354 | 414 |
| **X2** | **0,02** | **0,03** | **0,03** | **0,03** |
| EBIT | 232 | 231 | 290 | 347 |
| **X3** | **0,02** | **0,02** | **0,02** | **0,03** |
| Market Cap | 4.364 | 5.783 | 3.783 | 4.124 |
| BV Total Liabilities | 4.206 | 5.966 | 7.442 | 7.591 |
| **X4** | **1,04** | **0,97** | **0,51** | **0,54** |
| **Z-Score** | **4,54** | **4,41** | **4,01** | **4,01** |

*Source: NOVA Equity Research*

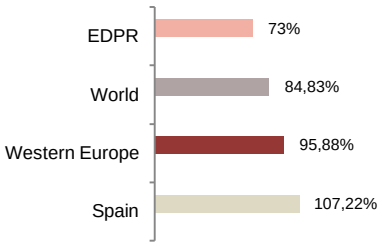



**Chart 13: Debt to Equity Ratio EDPR vs. Utilities**
*Source: Bloomberg*

Although there are varied limitations of this measure, it allows us to verify that EDPR's score has decreased in the last years, which should reflect an increase in the probability of financial distress.

Another relevant aspect of EDPR's financing sources is the aforementioned Tax Equity Investors, which represented 13% of total liabilities in 2011. Tax benefits are one of the main instruments used by U.S. federal governments in order to promote the adoption of clean energy technologies – mainly Production Tax Credits or Investments Tax Credits. However, these incentives have a higher impact the higher the profitability of the clean energy producer. As such, many players choose to find investment partners that generate enough income to benefit from these credits. Tax equity investors, which are generally financial institutions, allow for companies with low tax exposure to benefit from government incentives to renewable energy.

[9] Source: Bloomberg
[10] Altman's Z-score is a credit-strength test based on business ratios computed from financial statements. X1 corresponds to Working Capital/Assets, X2 is Retained Earnings/Assets, X3 is EBIT/Assets, X4 is Market Value of Equity/Book Value of Debt. Here we used a modified version of the original model (Altman 2000).

Nevertheless, the financial crisis in 2008 had an impact in the most common tax equity investors. As these partners became scarce, the asked yields jumped from around 6% to values around 9%[11].

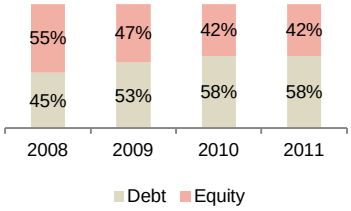



**Chart 14: EDPR Capital Structure**
*Source: EDPR*

In this context, and facing increasing values of debt, EDPR is now pursuing an Asset Rotation strategy in order to finance future projects and keep a strong balance sheet relative to the sector. The main idea of this strategy is to sell assets, although keeping operating control of them, using those funds to reinvest in new projects.

The company already executed its first transaction of this type through an agreement with Borealis Infrastructures, which manages investments on behalf of one of Canada's largest pension funds[12]. A 49% equity shareholding in a portfolio of wind farms in the US with 599MW of installed capacity was sold for $230m. According to EDPR, the implied total value of the portfolio is $1.446m. Through our analysis, this transaction represents an implied EV/MW multiple of $1,91m – a premium of $0,77m per MW over the EV/MW 2011 we estimated through our valuation of US assets.

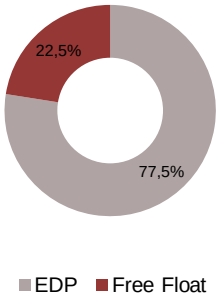



**Chart 15: EDPR's Shareholder Base**
*Source: EDPR*

More developments are expected regarding Asset Rotation, especially concerning the agreement with China Three Gorges, which is expected to occur in 2013, and to involve Portuguese assets (615MW of installed capacity, which represented 9% of total EDPR's portfolio in 2011). The conditions of the transaction were already announced[13] - although they are still under approval -, and the deal should comprise the sale of 49% of equity shareholding, as well as 25% of outstanding shareholders loans of EDPR PT. The value announced for the total consideration was €359 million. The implied EV/MW multiple of the transaction is €1,57m, which represents a €0,41m premium per MW.

**Shareholder Structure and Dividend Policy**

EDPR is a subsidiary of the Portuguese Group EDP, which represents 77,5% of the shareholder base – **Chart 15**. In what concerns the remaining 22,5%, they are Free Float and are mainly constituted by Institutional Investors, rather than Private Investors (these last ones represent only 20% of the Free Float). A list of the more relevant Institutional shareholders is provided in **Table 5**.

| Holder | % |
|---|---|
| MFS Investment Management | 2,85% |
| BlackRock Investment Management | 1,32% |
| Norges Bank Investment Management | 1,32% |
| Impax Asset Management | 0,58% |
| BES VIDA Companhia de Seguros S.A. | 0,27% |
| Allianz Global Investors (Taiwan) Ltd | 0,24% |

**Table 5: Institutional Investors**
*Source: FactSet Research Systems*

In what dividend policy is concerned, the company intends to start paying dividends from 2013 onwards[14]. However, it should be noticed that EDPR previous intentions to distribute dividends did not happen.

[11] Source: Bloomberg New Energy Finance
[12] Ontario Municipal Employees Retirement System ("OMERS")
[13] According to 20-12-2012 EDPR's press release.
[14] 25% to 35% payout

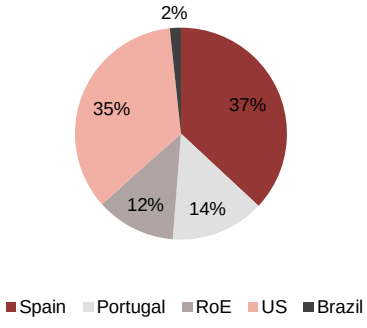



**Chart 16: EBITDA Breakdown (2011)**
*Source: EDPR*

One might argue that EDPR strategy in this matter has been to retain gains in order to reinvest in growth and lead to capital gains for shareholders. Indeed, EDPR has pursued the development of new projects in emerging economies and technologies, making sense not to distribute dividends during that expansion period. However, since the management has been delaying this first distribution for some time, we expect it to really happen in 2013, since it would also be an important indicator to investors of management confidence in future growth and in the profitability of new projects, at the same time balancing all the stakeholders' interests.

# Valuation

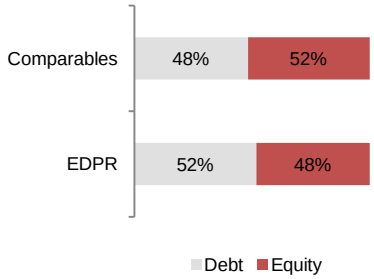



**Chart 17: Capital Structure at market values**
*Source: Bloomberg*

EDP Renováveis operates in a market that, until now, has been very regulated and protected. This means that, for forecasting and valuation purposes, it makes sense to value the company separately by each business unit, in order to take into account the different remuneration schemes, legal frameworks and prices in each geographic unit. As such, we assumed that the most appropriate methodology to be used was a Discounted Cash-Flow model for each country business, performing a Sum-of-the-Parts Valuation, in order to find the total Enterprise Value of EDPR. We considered the Discounted Cash-Flow model to be appropriated, although the main assumption of this method is that the capital structure remains stable over time. In the case of EDPR, this might not decrease the feasibility of the model, since the current capital structure is already in line with the main comparables capital structure[15], and major changes in the future are not expected (see **Chart 17**).

| | Method | Currency |
|---|---|---|
| Spain | DCF | Euro |
| Portugal | DCF | Euro |
| France | DCF | Euro |
| Belgium | DCF | Euro |
| Poland | DCF | Zloty |
| Romania | DCF | Euro |
| Italy | EV/MW Multiple | Euro |
| US | DCF | Dollar |
| Brazil | DCF | Real |

**Table 6: Valuation Methodologies**
*Source: NOVA Equity Research*

Therefore, we performed 8 different DCFs, each one estimated and discounted in the adequate currency, and following assumptions in the main operational indicators. The final values of each business unit were, at the end, converted to Euros using the Spot-rate method[16]. The business in Italy, due to the fact that it is a starting project and no operational data is available so far[17], was valued using the EV/MW multiple computed for France, since we verified that the market risk is comparable and the remuneration scheme is similar.

In the next Sections we briefly describe the general assumptions for the main variables considered in the valuation model.

[15] The comparables used for this purpose are the same used for beta estimation – Table 11.
[16] The projected foreign cash flows are discounted at the foreign cost of capital. The present value of the cash flows is converted to domestic currency using the spot exchange rate.
[17] There are 40MW under construction, which were assumed to be operating in 2013.

## Forecasting Operating Activities

Installed capacity was estimated based on present capacity and future additions projections announced in the Business Plan 2012-2015[18].

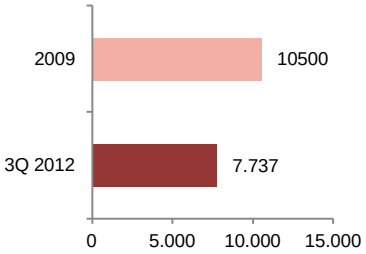



**Chart 18: Target for 2012 EDPR's installed capacity (as announced in 2009) vs. current installed capacity**
*Source: EDPR*

The forecasted installed capacity is used to estimate energy produced, taking into account load factors (which we assumed to incorporate technical availability too). Load factors measure the fraction of time that turbines are, effectively, producing energy. For valuation purposes, we used the implicit load factor we computed for the previous years and we assumed load factors to remain stable over the upcoming years, in each country, since most of it is explained by natural factors and technical expertise[19].

From 2013 onwards, we also took into account the current different incentive schemes and regulatory frameworks. In our base-case scenario, we used the current legislation to explicit forecasted years. For the Continuing Value, we assumed that incentives to clean energy will come to an end and market prices were used in each market, according to different adequate proxys – **Table 8**.

| Business Plan 2010-2012 | | |
|---|---|---|
| (MW) | Target | Verified |
| 2011 Additions | 800-900 | 806 |
| 2012 Additions | 500 | 457 |

**Table 7: Comparison between Business Plan 2010-2012 goals and verified additions (values for 2012 refer to 3Q)**
*Source: EDPR*

**Table 8: Main Assumptions for Market Prices**

| | Current Remuneration | Market Prices |
|---|---|---|
| **Portugal and Spain** | Feed-in-tariff | OMIP – Iberian Energy Derivatives Exchange |
| **France** | Feed-in-tariff | EEX French Futures |
| **Belgium** | PPA | Belpex |
| **Poland** | Green Certificates | Polish Power Exchange |
| **Romania** | Green Certificates | OPCOM – Romanian Power Exchange |

*Source: NOVA Equity Research*

| Forecasted EBITDA margin (%) | | | |
|---|---|---|---|
| | 2011 | 2012E | 2013E |
| Spain | 77% | 77% | 76% |
| Portugal | 80% | 83% | 82% |
| France | 72% | 75% | 70% |
| Belgium | 78% | 81% | 67% |
| Poland | 78% | 78% | 73% |
| Romania | 73% | 84% | 80% |
| US | 65% | 68% | 73% |
| Brazil | 67% | 69% | 63% |

**Table 9: Breakdown of Forecasted EBITDA margin**
*Source: NOVA Equity Research*

Installed capacity and prices are the key inputs to estimate revenues for the future. In what concerns Operating Expenses, these are mainly constituted by Operations & Maintenance related to wind turbines (historically, these costs have represented around 75% of total Operating Expenditures) and Personnel Costs. The service of O&M is generally provided by wind turbines manufacturers and these companies have been competing toughly in what concerns these services

[18] Chart 18 shows us that 2009 EDPR projections for installed capacity in 2012 were quite optimistic and this target was not met. However, in 2010 EDPR revised these estimates and Table 8 shows us that the company followed in 2011 and 2012 the guidelines of the Business Plan announced in 2010. As such, we considered the estimated installed capacity in the new Business Plan as a good proxy for future projects.
[19] And here we assume EDPR will be able to keep its know-how in the business.

contracts, as they become more important in their revenue mix. The increasing competition has pushed prices down and, according to a recently published report, O&M costs fell 38%, comparing data from 2008 to 2012[20]. The values estimated were linked to installed capacity, since O&M costs are mainly dependent on the number of wind turbines installed. By doing so, we ended up achieving values quite in line with the reference ones presented by EDPR's management in the Business Plan 2012-2015, achieving the target for operating expenses of 0,02€m per GWh generated. Personnel Costs are linked to the number of employees and to the average cost per employee, which grows according to inflation.

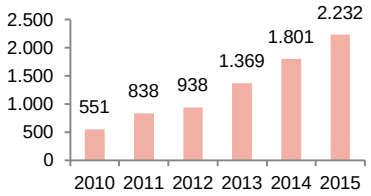



**Chart 19: Total Installed Capacity Forecasted for Rest of Europe (France, Belgium, Poland and Romania)**
*Source: NOVA Equity Research*

## Forecasting Investing Activities

Another relevant step in the valuation process is to estimate investing activities, which, in EDPR's case, are mainly related to Capital Expenditures.

CapEx is mainly constituted of wind turbines and related electrical equipment, hence, we did not consider any relevant differences in CapEx/MW from country to country, since manufacturers are global and do not vary significantly in each market. The value per MW follows the indications in the Business Plan, and is considered to rise with inflation throughout the years.

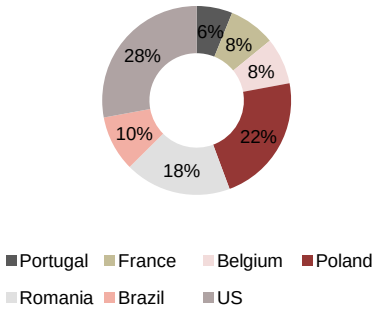



**Chart 20: Breakdown of Total CapEx for the period 2013-2015**
*Source: NOVA Equity Research*

Another relevant investing activity that should be estimated is related to Repowering[21]. There are two main options at the end of the useful life of a wind farm: either the company liquidate the remaining assets, for example, land property, or it invests in the repowering of the wind farms, in order to continue operating.

In the case of EDPR, we considered that wind farms will continue operating in our base-case scenario, which, according to the Annual Report 2011 of the company, seems to be its main goal[22]. This involves an investment in Repowering at the end of the useful life of the asset[23], which we assumed to be 75% of initial investment in those assets[24]. This investment is explicitly estimated until 2022. From that year on, we estimated Continuing Value using an average CapEx per year related to Repowering, according to the installed capacity in each country.

| Forecasted Installed Capacity | | | |
|---|---|---|---|
| | 2011 | 2012E | 2013E |
| Spain | 2.201 | 2.311 | 2.311 |
| Portugal | 939 | 971 | 1.014 |
| RoE | 838 | 938 | 1.369 |
| US | 3.422 | 3.637 | 3.853 |
| Brazil | 84 | 84 | 153 |

**Table 10: Breakdown of Forecasted Installed Capacity**
*Source: NOVA Equity Research*

Other investing activities were Net Working Capital, which we estimate through Days/Sales or Days/Opex ratios, and assumed to be stable in the future.

[20] "Wind farm Operations and Maintenance Costs Plummet" – Bloomberg New Energy Finance, 1 November 2012
[21] This Repowering process is translated in the replacement of aging wind turbines by latest turbine technology, so that the company is able to continue using the available wind resource at the most.
[22] "Our portfolio of wind farms is planned to be in operation for many years. Even at the end of the wind farms useful life, they may be repowered and their useful life extended". EDPR's Annual Report 2011.
[23] Wind farms have a useful life of 25 years.
[24] Typically, wind turbine costs represent around 75% of CapEx per MW installed.

## Weighted Average Cost of Capital

The appropriate discount rate that allows us to discount the free cash flows in our model is the Weighted Average Cost of Capital. This rate must be seen as a weighted average return expected by each investor of the company, which, in this case, corresponds to equityholders, debtholders and, also, Institutional Partners (which are investment partners that many players in the sector find in order to take benefit from the tax credits incentives in the US, as pointed out in the previous sections). So, in order to find the WACC for each EDPR business unit, we need to find an appropriate cost of equity, cost of debt and cost of Tax Equity Partner.

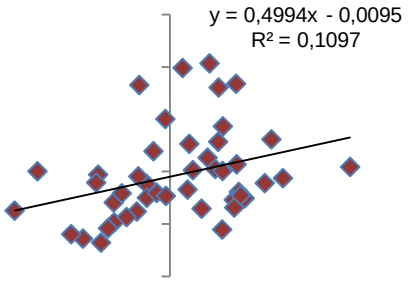



**Chart 21: EDPR's Beta Regression vs Eurostoxx**
*Source: NOVA Equity Research*

In order to find the appropriate cost of equity, we used the Capital Asset Pricing Model, as it has already proof to work quite well in valuation models. In an attempt to find the adequate beta for EDP Renováveis, we run the regression of EDPR's stock returns on different global indexes, such as S&P500 or Eurostoxx, and then adjusted this raw beta, according to Bloomberg's beta smoothing technique[25], since it provides a long-term approach for this parameter, assuming that it should converge to the return of the market. However, since we obtained standard errors of 8% in these regressions and low $R^2$, we considered that it should be more relevant and reliable to perform an analysis of the industry beta, since we might be underestimating EDPR's one. In order to do that, we took comparables' betas, which we unlevered and levered again at the comparable's average capital structure[26].

**Table 11: Estimating EDPR Beta using Comparables**

| Company | Country | Raw Beta | Tax Rate | Market Cap | EV | E/(D+E) | D/D(+E) | D/E | Unlevered |
|---|---|---|---|---|---|---|---|---|---|
| Fortum Oyj | Finland | 0,74 | 16% | 12.748 | 21.076 | 60% | 40% | 65% | 0,54 |
| ENEL Green Pow er | Italy | 0,84 | 35% | 7.000 | 12.915 | 54% | 46% | 84% | 0,70 |
| Acciona | Spain | 1,00 | 24% | 3.333 | 11.319 | 29% | 71% | 240% | 0,39 |
| Iberdrola | Spain | 1,18 | 16% | 24.298 | 51.905 | 47% | 53% | 114% | 0,66 |
| | | | | | | | | **Average** | 0,57 |
| | | | | | | | | **Median** | 0,57 |
| EDPR | Spain | 1,23 | 24% | 3576 | 7449 | 48% | 52% | 108% | 0,77 |
| | | | | | | | | Levered Beta EDPR | 0,91 |

*Source: NOVA Equity Research, Bloomberg*

[25] Adjusted beta= 0,33x1 + 0,66xRaw Beta
[26] Since EDPR does not have corporate bonds, we estimated the market value of debt through the price of a bond with maturity of 6,6 years – which is the average maturity of EDPR's debt – and coupons equal to the value of interest expenses for 2011, discounted at the cost of debt.

The market premium was considered at 6%, which goes fairly in line with most common finance literature in this issue and we assume the same market risk premium for every country. The rationale behind this assumption is that capital markets are global and market premium is not expected to differ significantly from one country to another – otherwise, there would be capital flows to adjust for that arbitrage opportunity.

In what concerns the risk-free rate, we find it useful to take into consideration the different locations of the business, taking different rates as reference. We used US 10-year Government Bond as a risk-free rate for Brazil and 10-year German Bund for European countries. Since we are valuing businesses in different currencies, we should adjust these risk-free rates to each foreign currency – in accordance with the currency in which Free Cash Flows are denominated. The mechanism used was based on the Covered Interest Parity[27] theory that relates spot and forward exchange rates with interest rates, thus accounting for inflation adjustments.

The Country risk-premium, which is commonly added to the CAPM equation, is mainly related to the specific sovereign risk of a country. However, one should not disregard the fact that one of CAPM main assumptions is that only risks that cannot be diversified away by investors should be considered in the discount rate – what we usually call systematic risk. As a result, adding a markup relative to country risk in the CAPM equation using proxys such as credit default spreads is equivalent to assume that all that risk inherent to a country is non-diversifiable, which can be a too strong assumption. Given that, we based our Country Risk Premium estimates on a methodology developed in a way that it intends to modulate the total risk by its systematic component – Systematic Country Risk Modulator[28]. Differently from what is generally used, we added the markup to the CAPM equation but modulated by a factor, $\lambda$[29], which tries to capture the systemic component of country risk. The new CAPM equation that allow us to estimate the cost of equity will then be:

$$E(R) = rf + \beta \times (\mathrm{E(Rm)\text{-}Rf}) + \lambda \mathrm{CRP} \quad (1)$$

The proxy for total CRP was estimated through default spreads for each country[30], based on Moody's sovereign ratings.

[27] Interest Rate Parity is a no-arbitrage condition, which gives an equilibrium point where investors should be indifferent between interest rates in two different countries.
[28] We based our estimation for CRP on the research "A Practical Approach for Quantifying Country Risk", Jaime Sabal, Professor of Finance at ESADE.
[29] $\lambda$ will be equal to the square of the beta computed for the local stock index versus a global index, multiplied by the square of the division of standard deviation of the global market returns by the standard deviation of the local index returns.
[30] Based on Damodaran's estimates for default spreads.

**Table 12: Estimating λ for each country**

| Local Index | Country | Beta vs S&P500 | σ Local | σ S&P | λ |
|---|---|---|---|---|---|
| PSI20 | Portugal | 0,80 | 0,03 | 0,02 | 0,43 |
| IBEX35 | Spain | 1,21 | 0,04 | 0,02 | 0,54 |
| CAC40 | France | 1,17 | 0,03 | 0,02 | 0,76 |
| BEL20 | Belgium | 0,94 | 0,03 | 0,02 | 0,66 |
| WIG20 | Poland | 0,71 | 0,03 | 0,02 | 0,44 |
| BET | Romania | 0,68 | 0,03 | 0,02 | 0,28 |
| IBOV | Brazil | 0,88 | 0,03 | 0,02 | 0,54 |

*Source: NOVA Equity Research*

In what concerns the cost of debt, EDPR does not issue corporate bonds, which means that we do not have an observable cost of debt to be considered. As such, we based our estimate in a synthetic rating approach, as suggested by Professor Damodaran. We considered that the cost of debt could be estimated by summing to the risk-free rate an appropriate credit risk spread. We estimated a proxy for that spread by creating a synthetic rating – which, in this case, is based on the interest coverage ratio.

We also took into consideration that EDPR is not default-risk free, so, in order to achieve a final expected cost of debt, we also considered a probability of default, as well as a recovery rate. For the first input, we looked at 10-year probabilities of default for non-financial entities which, according to Standard&Poor's, averaged 11,21% in the period 1981-2011[31].

Lastly, we adjusted cost of debt to appropriate tax rates in each country. In the US, WACC was also adjusted for the Tax Equity Investors. The required return for Tax Equity Investors was considered at 8,5%[32], in line with recent research on that issue.

**Table 13** summarizes the main assumptions regarding WACC:

**Table 13: Weighted Average Cost of Capital**

| | Spain | Portugal | France | Belgium | Poland | Romania | US | Brazil |
|---|---|---|---|---|---|---|---|---|
| Risk-free | 1,36% | 1,36% | 1,36% | 1,36% | 2,70% | 1,36% | 1,61% | 3,7% |
| Beta | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 | 0,91 |
| Market Premium | 6,0% | 6,0% | 6,0% | 6,0% | 6,0% | 6,0% | 6,0% | 6,0% |
| CRP | 1,1% | 1,4% | 0,2% | 0,5% | 0,4% | 0,6% | n.a. | 0,9% |
| Cost of Equity | 7,9% | 8,2% | 7,0% | 7,3% | 8,6% | 7,4% | 7,1% | 10,2% |
| Cost of debt | 5,8% | 5,8% | 5,8% | 5,8% | 7,0% | 5,8% | 6,0% | 8,0% |
| After-tax Cost of debt | 4,0% | 3,9% | 3,84% | 3,8% | 5,7% | 4,8% | 4,1% | 5,3% |
| Cost of Tax Equity | n.a. | n.a. | n.a. | n.a. | n.a. | n.a. | 8,5% | n.a. |
| **WACC** | **6%** | **6%** | **6%** | **6%** | **7%** | **6%** | **7%** | **8%** |

*Source: NOVA Equity Research*

[31] Source: "2011 Annual Global Corporate Default Study and Rating Transitions", March 2012, Standard & Poor's
[32] Source: "Renewable Energy Project Finance in the US.: An Overview and Midterm Outlook" Mintz Levin Green paper

**Base-Case Scenario:**
In our base-case scenario, we assumed the current remuneration (feed-in-tariffs or PPA's) for wind parks already registered/contracted. At the end of the period under regulation or PPA, we assumed market prices.
We already took into consideration the additional tax of 6% on energy revenues in Spain. New installed capacity follows the Business Plan 2012-2015.
We assumed the Repowering of wind farms at the end of their useful life.

**Stressing Scenario:**
In this scenario, we are assuming that financial crisis deepens in the more mature markets, which will lead to retroactive cuts in incentives in Spain and Portugal, so wind parks currently under feed-in-tariffs would be the most affected and would start being remunerated at market prices from 2014 onwards. We also assumed the end of Green Certificates in Poland and Romania at the same year. We kept the already contracted PPA's in Brazil, US and Belgium and market prices after they expire. Due to the unfavorable evolution in the market we did not include any capacity additions and we assumed that wind parks will not be repowered at the end of their useful life.

## Scenario Analysis

By using a Discounted Cash Flow model to find a proper value for EDPR, several assumptions are being made – which can often diverge from reality. As such, changes in critical inputs such as energy prices or new installed capacity, for example, might change our conclusions and reveal the sensitivity of the model. Relying on this, a scenario analysis and a weighted valuation of the company through the probability of each scenario can be a more correct way to get a sense of the effect of most of the risky factors in the valuation[33]. We built our Base-Case Scenario using assumptions that we considered as being in line with the current business of the company and the current macroeconomic environment. On the other hand, we built an alternative scenario, where we assumed that wind parks will not be repowered and that cuts on incentives to clean energy will come sooner and with retroactive effects in countries as Portugal and Spain, to which we called Stressing Scenario.

## Multiples Valuation

Another useful tool that can be used to value a company is based on Multiples, which are publicly observable. As such, and in an attempt to have a broader perspective of the possible value of the company, we performed two different valuations based on Market Multiples and Transaction Multiples, respectively.

## Market Multiples

In order to value EDPR using market multiples, we analyzed a set of possible comparables, and used Enterprise Value to EBITDA multiples[34] as it is described in the following table[35]:

**Table 14: Valuation using Market Multiples**

| Company | Market Cap | EV/EBITDA | |
|---|---|---|---|
| | (€m) | 2011 | 2012 |
| NextEra Energy | 22.365 | 9,8 | 10,7 |
| ENEL Green Power | 6.560 | 8,6 | 7,7 |
| Acciona | 2.854 | 8,5 | 7,8 |
| China Longyuan | 3.793 | 12,2 | 8,9 |
| Iberdrola | 23.451 | 7,9 | 6,5 |
| **Average** | | **9,4** | **8,3** |

| Valuation | 2011 | 2012E |
|---|---|---|
| EDPR EBITDA | 801 | 847 |
| EV | 7.512 | 7.051 |
| (-) | | |
| Net Debt | 4.294 | 4.294 |
| Minorities | 131 | 131 |
| Equity Value | 3.087 | 2.626 |
| **Price** | **3,54 €** | **3,01 €** |

*Source: NOVA Equity Research, Bloomberg*

[33] Probabilities are attributed to each Scenario according to the analysis of the current environment in the industry performed in Section IV.
[34] EV/EBITDA for 2012 was taken from Bloomberg using Best EBITDA forecasts.
[35] Net Debt includes also Institutional Partnerships Liabilities.

## Transaction Multiples

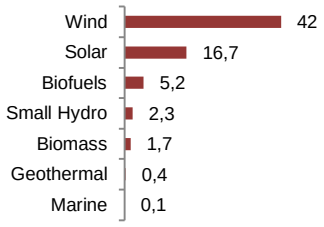



**Chart 22: M&A activity in renewable energy sector ($bn)**
*Source: BNEF/UNEP*

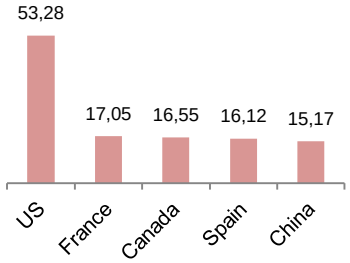



**Chart 23: Total Deal Values by Country of Target Company ($bn)**
*Source: Bloomberg*

The activity of Mergers and Acquisitions has been growing in the renewable energy sector, achieving a total spending of $68 billion in 2011[36]. This behaviour was potentiated, in great part, by wind industry, which M&A activity totalized $42 billion. One of the main corporate acquisition occurred during the last year was conducted by the French utility EDF, which bought the 50% of EDF Energies Nouvelles that were free float. Allied to the sharp fall in share prices of the French renewable energy company, the Fukushima event might have also influenced the decision of EDF, which business comes at a great part from nuclear power. This move was followed by Iberdrola that also acquired 20% of its clean energy subsidiary.

For valuation purposes, we selected a group of comparable M&A transactions, and used an average of the multiples applied in each of them, to find a proxy for the Enterprise Value of EDPR. **Table 15** summarizes the valuation of EDPR using this methodology.

**Table 15: Valuation using Transaction Multiples (€m)**

| Date | Target | Acquirer | Deal Value (€m) | % Acquired | Payment Type | EV/EBITDA | EV/EBIT |
|---|---|---|---|---|---|---|---|
| August-2012 | Shear Wind Inc. | Sprott Power Corp | 113,4 | 100% | Cash | 12,1 | 23,9 |
| April-2012 | Fersa Energias Renovables SA | Greentech Energy System | 291,4 | 100% | Cash | 9,5 | 27,9 |
| December-2011 | China Power New Energy | China Three Gorges | 204,4 | 29% | Cash | 6,3 | 12,9 |
| April-2011 | EDF Energies Nouvelle | EDF | 5.491,2 | 50% | Stock | 5,1 | 21,5 |
| March-2011 | Iberdrola Renovables | Iberdrola | 1.602,3 | 20% | Stock | 8,0 | 21,0 |
| Average | | | | | | 8,9 | 18,9 |

| Valuation | | |
|---|---|---|
| | 2011 | 2012E |
| EBITDA | 801 | 847 |
| EV | 7.151 | 7.564 |
| (-) | | |
| Net Debt | 4.294 | 4.294 |
| Minorities | 131 | 131 |
| Equity Value | 2.726 | 3.139 |
| **Price** | **3,12 €** | **3,60 €** |

*Source: NOVA Equity Research, Bloomberg*

[36] Source: BNEF

# Challenges, Risks and Opportunities

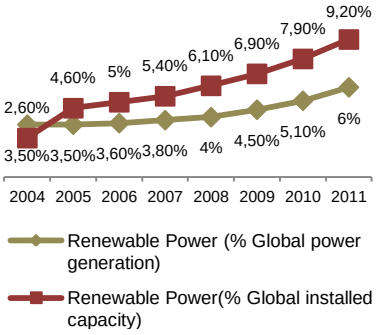



**Chart 24: Renewable power (% in global generation and capacity)**
*Source: UNEP*

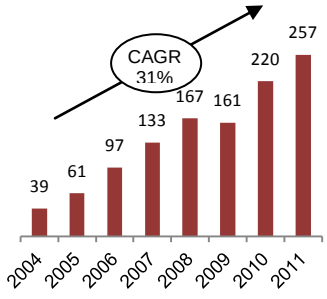



**Chart 25: Global New Investment in Renewable Energy ($bn)**
*Source: Bloomberg New Energy Finance*

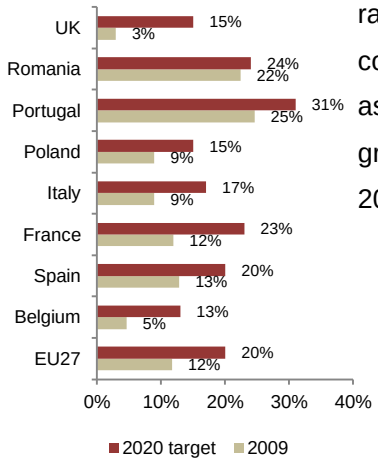


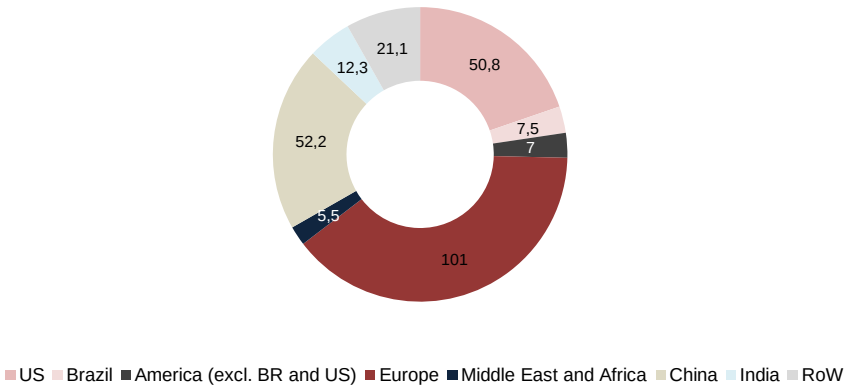

**Chart 26: Share of renewable energy (% gross final energy consumption)**
*Source:Eurostat*

This section aims at providing an outlook of the current environment in the renewable energy sector at a global level and in the countries where EDPR is currently operating, in order to attribute probabilities for each Scenario built in **Section III**.

First, looking at global values, the weight of clean sources of energy on global power generation has increased at an average annual rate of 8% since 2004.In 2011, electricity generated from renewable sources accounted for 6% of total energy globally produced – as suggested in **Chart 24**. The weight of clean energy in global power capacity has grown more rapidly, presenting a CAGR of 20%. The differences in these two relevant weights are associated with a parallel increase in fossil-fuel capacity – in terms of investments, in 2011 $302 billion were invested in fossil-fuels versus $237 billion in clean energy[37] - and to the fact that, in general, load factors of clean energies do not surpass 30%, explaining the slower growth in terms of power generation.

However, in what concerns new installed capacity, renewable power – excluding large hydro – already represented around 45% of total new generation capacity in 2011, which reflects an increase of 93% relative to 2007[38]. Since 2004, the investments in clean energy have increased at a Compounded Annual Growth rate of 31% - **Chart 25**. In the last year, Europe kept its leadership position considering the amount of investments in the sector, which totalled $101 billion, as suggested by **Chart 27**. China and Brazil leader the ranking in terms of growth, presenting a CAGR of investments of 57% and 51% respectively since 2004.

**Chart 27: New Investments in Renewable Energy 2011 ($bn)**




*Source: Bloomberg New Energy Finance*

[37] Source: UNEP
[38] Source: UNEP

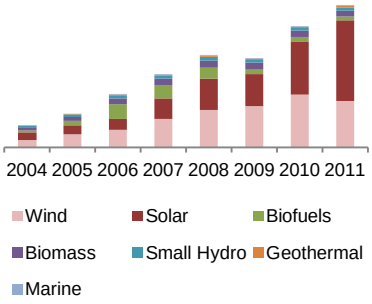



**Chart 28: Breakdown of New Investments by Technology**
*Source: Bloomberg New Energy Finance*

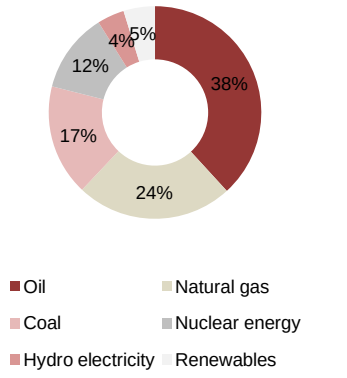



**Chart 29: Consumption by fuel in the European Union (2011)**
*Source: BP*

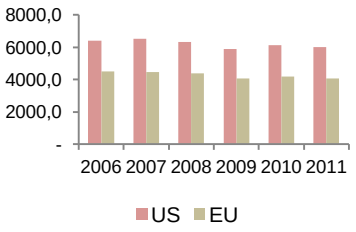



**Chart 30: Carbon Dioxide Emissions (million tonnes)**
*Source: BP*

Much of this growth is related with national targets for clean energy. In the European Union, the RES Directive continues playing an important role by setting that, by 2020, 20% of energy consumption should come from renewable sources and each member state has its own target and national roadmap in other to achieve its goals. **Chart 26** shows that most of the countries are still behind the 2020 targets. Overall, the share of renewable energy has increased in the EU27 at an annual growth rate of 7% since 2006, achieving a value of 12% in 2010. If the pace of growth remains the same in the following years, which depends a lot on the sustainability of current incentives, we estimate that EU27 will reach its target in 2018.

In the United States, according to the recent EIA report, by 2035, energy from renewable sources should represent around 19 to 20% of total energy generated – assuming the extension on tax credits in the upcoming years. In the scenario where no extension is considered, the share of renewables should decrease to around 15%.

Considering now the breakdown of the recent investments in the sector by technology, it should be highlighted the growing importance of Solar PV and the fact that Wind and Solar continue representing the great part of new investments in clean power – see **Chart 28**.

The relevance of these two technologies is mainly explained by their growing competitiveness relative to other non-renewable sources, which brings hope for the sustainable development of clean power. According to Bloomberg New Energy Finance, the Levelized Cost of Energy[39] of onshore wind, in the 4Q 2012, was less than Natural Gas in the base-case estimates ($86,66/MWh versus $90,42/MWh) – **Chart 60** in Appendix. From 2009 up to now the decrease in wind turbine prices is around 25% (**Chart 62** in Appendix), which is mostly explained by improving technology and excess capacity in the manufacturing industry[40]. The prices of Solar PV equipments have presented an even more substantial decrease. In fact, at the beginning of the current year, prices were 50% lower than a year ago and around 76% below 2008 levels[41].

Even so, there are also some threats to the sustainability of the sector, which might jeopardize future investments plans and the achievement of established targets. One of the main problems is that there has been a worldwide focus on developing these cleaner and low-carbon sources of energy mostly through

[39] BNEF model for the computation of LCOE includes as main inputs capital costs per MW, OPEX, cost of debt, depreciations, among others.
[40] According to a study from Bloomberg New Energy Finance, onshore wind might reach parity with coal, gas and nuclear generators by 2016.
[41] Source: Bloomberg New Energy Finance

government incentives and regulated tariffs, in order to subsidize the high costs of generation, allowing and prioritizing this clean energy to access the grid.

In Germany, the total costs of subsidies provided to clean energy producers under the EEG Renewable Energy Act achieved a share of 14% of household electricity bills in this last year. The US spent, also in the last year, around $42 billion in incentives programs to renewable sector and China $44 billion[42].

Now, the world economic crisis, Sovereign debt crisis and the lack of sustainability of most of the incentives currently in place can put a barrier to future growth, as it becomes a political issue in many of the indebted developed countries. In the next sections a brief analysis of the sustainability of the sector and current incentives in the countries that matter the most for EDPR is performed.

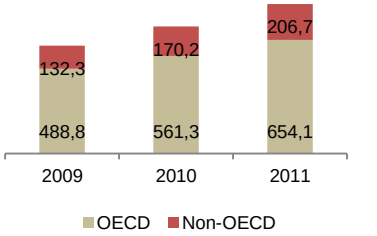



**Chart 31: Renewables Consumption - excluding Hydro (TWh)**
*Source: BP*

## Spain

***EDPR has a total of 2GW of installed capacity in Spain, 9% market share, being the third largest player, behind Iberdrola (25%) and Acciona (19%).***

The Spanish market is one of EDPR's core markets. When it comes to wind power generation, Spain has 21GW[43] of installed capacity, ranking 4th worldwide, being one of the most important markets.

In what concerns regulatory framework, EDPR has currently installed capacity under two different regimes: the Transitory Regime and RD 661/2007. However, the first one is only applicable until the end of 2012, so the 1.153MW of installed capacity under this regime will be transferred to RD 661/2007 from 2013 onwards. This last regime provides two different options: fixed tariff updated annually according to CPI-x[44] or variable tariff (indexed to pool prices plus a premium with cap and floor). EDPR's new installed capacity for 2012 was already registered under RD 661/2007, as such, only additions from 2013 onwards will be affected by changes in the current regulatory framework[45].

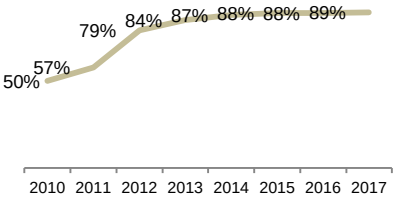



**Chart 32: Spain's General Government Net Debt (% GDP)**
*Source: IMF*

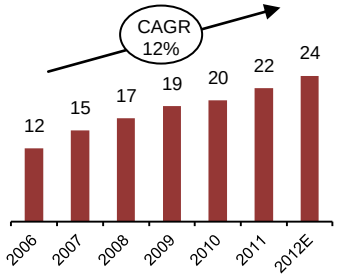



**Chart 33: Spain's Wind Installed Capacity (GW)**
*Source: Observatorio Eolico AEE*

The macroeconomic environment in Europe, especially in the most leveraged countries, is forcing deep austerity measures and governments are cutting costs and trying to increase public revenues, mainly through taxation. Spain is not an exception, and the increasing public debt led to the creation of a new 6% tax on electricity income, including renewable sources. Given so, even if the already EDPR installed capacity is not affected by changes in incentives, it is affected by this new tax that should entry into force soon. Obviously, this will have a negative impact in the profitability of the wind business in Spain, but the management

[42] Source: UNEP
[43] Source: International Energy Agency Annual Report 2011
[44] This means that there is an indexation to Consumer Price Index but adjusted for an X-factor, which, in this case, was 0,25% until 2012 and 0,5% from 2013 onwards.
[45] However, policies with retroactive effects can affect current installed capacity in Spain. We estimate a decrease of €1,25/share in our base-case scenario, consequent of such retroactive policies.

affirmed that they "can live with it". Through our model, we estimate that the introduction of this new tax has an impact of -0,16€ per share.

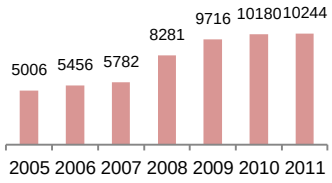



**Chart 34: GDP Contribution of Renewable Energy (€m)**
*Source: APPA*

Other relevant problem in Spain is related to the tariff deficit – which is the difference between what consumers pay for the electricity and what it does, in fact, costs to generate. By applying artificially low regulated tariffs that do not cover the costs borne by producers, a deficit is generated that sooner or later will have to be paid. Indeed, revenues from electricity tariffs are not covering costs since 2000 and the accumulated deficit amounted to €24.582m in 2010.

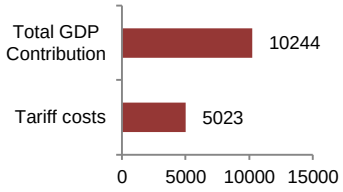



**Chart 35: Comparison between Renewable's GDP contribution and tariff costs (€m)**
*Source: APPA*

An important instrument created in 2011 to finance this deficit was FADE[46]. This fund securitizes tariff deficit receivables of the regulated settlements of the Spanish electricity sector, by issuing bonds in the capital markets with maturities up to 15 years. The current maximum outstanding bond balance is €22.000 million but may be extended to €25.000 million. Currently, the receivables balance of the fund is €12.457 million[47]. The interest rate on the last issuance was 5,741%.

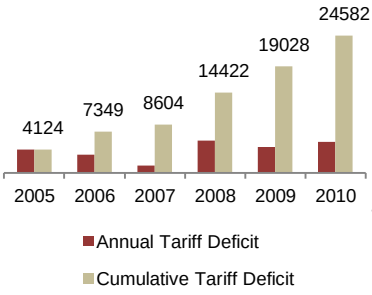



**Chart 36: Spanish Tariff deficit (€m)**
*Source: APPA*

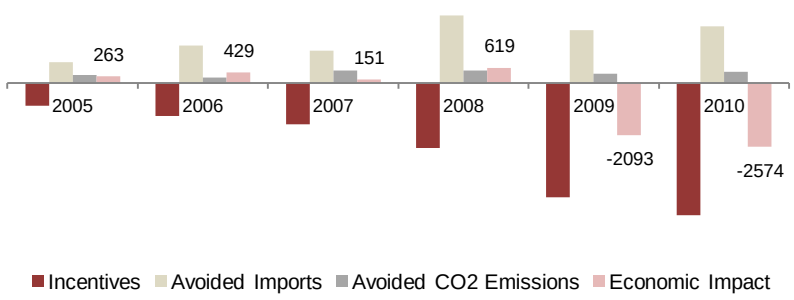
However, the success of this fund is very dependent on market conditions and heavily affected by the conditions of funding of Spain. As such, the sustainability of this financing source is also not guaranteed. Thus, the options remain the same: increase in electricity tariffs, increase in costs for utilities sector and increase in tariff deficits. Aware of these problems that might deepen in the future, EDPR does not plan to add any new capacity in the following years.

It is important to bear in mind that electricity is of utmost importance for the competitiveness of an economy. That explains the motivation for not increasing tariffs to a point in which costs are fully covered – breaking even the tariff deficit.

| Export Partners 2011 | |
|---|---|
| France | 17,80% |
| Germany | 10,60% |
| Portugal | 8,30% |
| Italy | 8,30% |
| UK | 6,70% |

**Table 16: Spain Export Partners (% of total Exports)**
*Source: CIA The World Fact Book*

**Chart 37: Economic Impact of Renewable Energy in Spain (€m)**




*Source: APPA*

Analyzing the main Spanish export partners and the average prices of electricity for each of them, we can see that the competitiveness of Spanish products might

[46] Fondo de Amortización del deficit Eléctrico
[47] Source: FADE (30-11-2012)

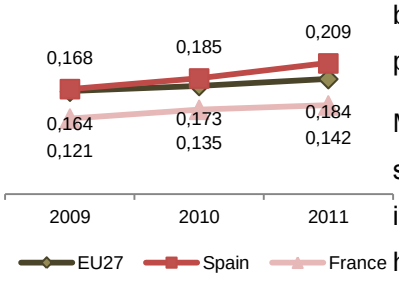



**Chart 38: Comparison between Electricity Prices**
*Source: Eurostat*

be threatened if tariffs increase considerably, since the country has already prices higher than the average of the EU27 – **Chart 38**.

Moreover, although all the costs with renewable energies, the truth is that the sector contributed with €10.244m to Spain's GDP last year[48], surpassing incentives costs, which amounted to €5.023m. The Net Exports of the sector have also been positive, which contributes to the sustainability of the Spanish economy (see **Chart 61** in Appendix).

## Portugal

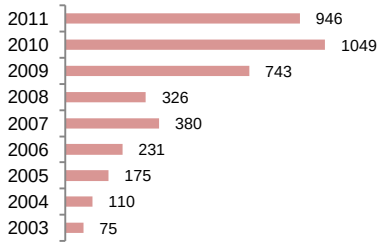



**Chart 39: Portuguese Annual Tariff Deficit**
*Source: ERSE, NOVA Equity Research*

The Portuguese market represented, in 2011, around 13% of EDPR's total installed capacity. It is another core market for the company, where incentives were historically high, fuelling the development of different renewable energies[49].

However, also Portugal followed the scheme of regulated tariffs that was implemented in Spain. The Government informed that the tariff deficit should surpass the €8.000 million in 2020 if no actions were taken, and sooner or later it has to be repaid by consumers. The gap between the market prices and the effective costs is increasing, and so it is the tariff deficit (in 2011, the average annual cost of each MW under the Special Regime was 103,4€ and 93,5€ for wind specifically but the regulated price was only 50,82€/MW). Taking into account that around 18 TWh were produced under the Special Regime, we found a total tariff deficit of €957 million generated in 2011.

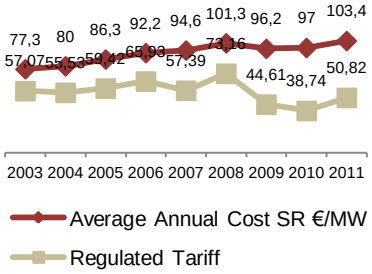



**Chart 40: Average Annual Cost of Technologies under Special Regime in Portugal**
*Source: ERSE*

In order to reduce overall costs of the Portuguese electric system, the Government and the wind sector reached an agreement which maintains the current tariff scheme, through the extension of the initial 15 years established by DL 33A/2005 to a duration of 20-22 years, in exchange of an annual payment from 2013 to 2020.

Between the 16th and 22nd year, wind energy should be remunerated through a floor price (whenever market price is below the floor, which is €74/MWh), through a cap price (whenever the market price is above the cap - €98/MWh) or through market prices in the remaining situations. The annual payments should lie between €5,8/MW and €6,5/MW.

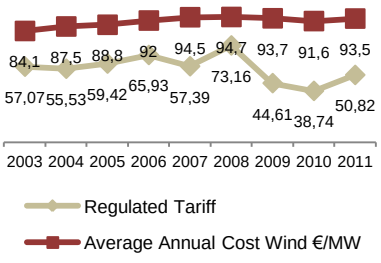



**Chart 41: Average Annual Cost Wind Energy vs Regulated Tariff in Portugal**
*Source: ERSE*

This agreement showed the awareness of the government about the importance of the development of clean energies, so we do not anticipate retroactive changes to the current legislation that jeopardize the profitability of current installed capacity.

[48] Source: APPA
[49] The remuneration scheme in Portugal is a feed-in-tariff, which is designed taking into account factors such as avoided investments in alternative production systems, O&M costs of alternative production methods, valuation of avoided CO2 emissions and CPI indexation.

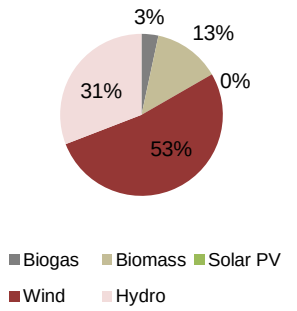



**Chart 42: Breakdown of Renewable Energy Installed Capacity (%) 2011**
*Source: Polish Energy Regulatory Office*

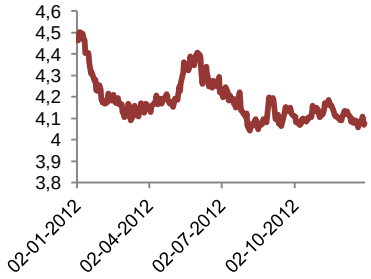



**Chart 43: EUR/PLN Exchange Rate**
*Source: Bloomberg*

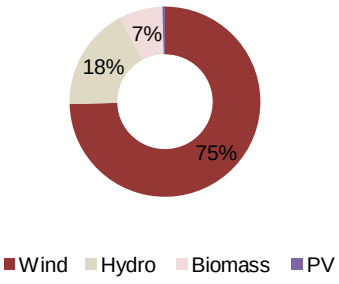



**Chart 44: Romanian Green Certificates Market**
*Source: OPCOM*

## Poland

In what concerns the European target of 20% of the EU energy coming from renewable energy, Poland faces a challenging task – with its target set on 15%.

The Energy Law Act introduced many rules that were aimed at strengthening and promoting renewable energy in Poland. The main important aspects of the law, and the ones that influence EDPR business the most, are the purchase obligation – enterprises that sell electricity to final users should purchase it from renewable sources – and Green Certificates. The GC is how Energy Regulators can verify if electricity distributors are, in fact, purchasing green energy, since they need to present a specified number of GC, or to pay a substitution charge of PLN 248,46/MWh. The quotas for mandatory green certificates have increased since the publication of the Energy Law, being at 10,4% in 2011-2012. It should increase to 12,9% in 2017. Renewable energy has priority access to the grid.

Poland ranks 10th in the Ernst and Young Wind Attractiveness Index[50] -published in August 2012- followed by Romania and Brazil. The main threat to the future growth of clean energy is the continuing investment in nuclear energy through the National Atomic Energy Agency, which amounted to PLN 160 million[51] in 2011. Still, this investment in nuclear power contradicts EU main goals on energy policy matters. Most of developed countries such as Germany, Belgium and UK, for example, are developing programs for the decommissioning of nuclear plants due to the high safety risks and costs[52].

## Romania

Romania has natural conditions that potentiate wind energy development, such as the existence of large areas for onshore wind, located in low populated zones – which are classified as Excellent according to the AWEA scale. According to the National Institute for Energy, wind potential in Romania should be around 14.000MW of installed capacity but installed capacity in April 2012 was around 1.140MW.

Considering the legal framework, and similar to what happens in other countries such as Poland, a Green Certificates' system is in place, which is allied to a purchase obligation for energy distributors. These certificates are traded at the local electricity market distributor, OPCOM. The GC price range[53] is indexed annually by ANRE, considering last year inflation index for Eurozone. During the testing period of the legislation – 16 months - all projects receive 1GC. After the

[50] This Index measures the attractiveness of a country by taking into account different factors such as infrastructures, technology and regulatory policies.
[51] Source: PWEA
[52] According to Savacool (2008) the reactor lifetime is around 30-40 years and the nuclear plant demolition might last at least 60 years.
[53] Currently, GC price ranges from 27 to 55€.

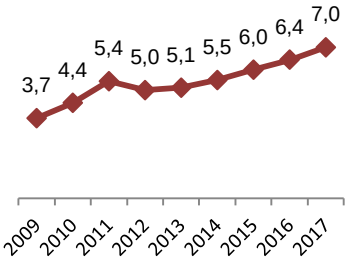



**Chart 45: Romanian Oil Imports (US dollars)**
*Source: IMF*

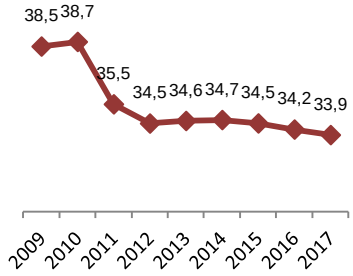



**Chart 47: Romanian Government Expenditure (% of GDP)**
*Source: IMF*

***This year, during the Rio+20 Summit, the sustainability Institute Ethos revealed it would be possible for Brazil to achieve a 100% carbon-free power grid by 2050.***

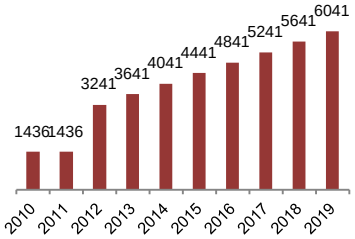
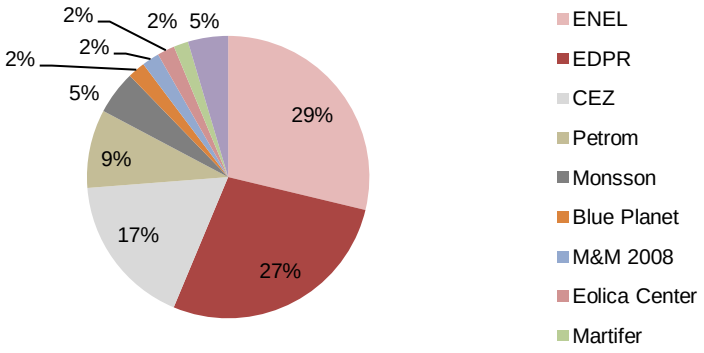



**Chart 48: Forecasted Wind Installed Capacity in Brazil**
*Source: EPE*

testing period, wind is expected to receive 2GC per MWh, which means an incentive range of 54€ to 110€, until 2017, and only 1GC after that.

**Chart 46: New Wind Installed Capacity in Romania by Company (%) - 2011**




*Source: RWEA*

It what concerns Solar PV technology, which seems to be the new strategic step of EDPR investments in Romania, the current incentives are of 6GC per MW produced.

## Brazil

In what concerns renewable energy, Brazil is a promising market. According to the International Energy Agency, this country is expected to add to its power grid 32GW of clean energy within the next five years.

Considering its large unpopulated land areas, good wind resources, a coastline of 9.600km and an increasing energy demand, Brazil is in its way to become one of largest players in wind power worldwide. It is already the leader in Latin America's wind investments and its energy policies are shifting considerably from hydropower to wind power.

The National Energy Plan 2030 is an important document in what concerns estimations on the supply and demand of energy, providing strategies and policies that might assure the equilibrium in the market. According to EPE (Empresa de Pesquisa Energética), renewable energy should increase at an average annual rate of 5,1% until 2021, representing 45% in Brazil's energy mix.

In what concerns the remuneration of wind farms, the main program developed in the country is PROINFA (Program for Incentive of Alternative Electric Energy Sources), which had special impact in wind energy, due to the creation of PPA's with 20 years of maturity.

One of the main mechanisms that is now being used, after the applicability of PROINFA – that is, for wind farms licensed after 2011 - is auction procedures,

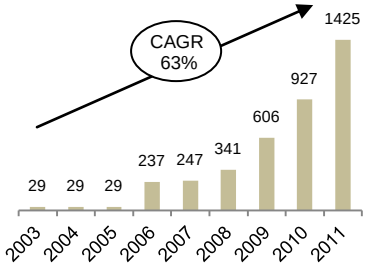
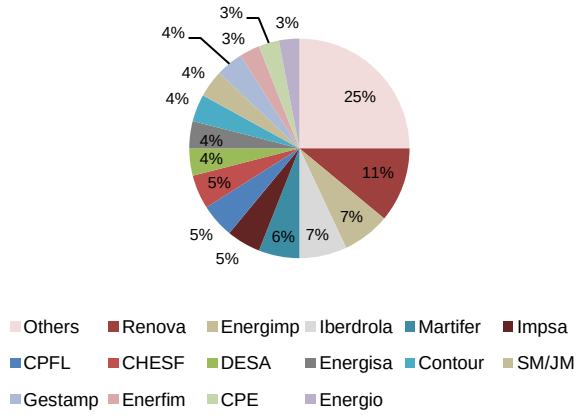



**Chart 49: Evolution of Wind Installed Capacity in Brazil**
*Source: BP Statistical World Energy Outlook*

which are held by ANEEL. In the recent auctions, wind have surprisingly provided lower prices than the average for natural gas and hydroelectric bids for power generation, which might be an indicator of the competitiveness of this technology in this country.

**Chart 50** provides a breakdown of current players in the wind power sector in Brazil. Renova, a Brazilian energy company, has the highest market share – around 11%, followed by Energimp, also a Brazilian company, and the giant Iberdrola, both with 7% of market share.

**Chart 50: Market share (%) wind power developers in Brazil: 2009 and 2010 auctions**




*Source: ABEEólica*

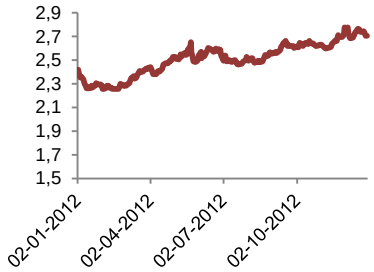



**Chart 51: EUR/BRL Exchange Rate**
*Source: Bloomberg*

EDPR was able to secure in the last year a 10-year PPA at the Brazilian Energy A-5 Auction, to sell electricity in the regulated market from 2016 onwards. The price established was BRL 97 per MWh, indexed to inflation.

Nevertheless, there is lack of clarity regarding incentives or regulation affecting projects after 2013.

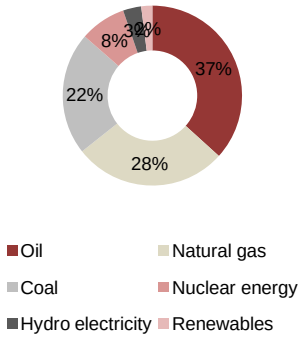



**Chart 52: Consumption by fuel in the US 2011 (%)**
*Source: BP*

## United States

The United States are one of the leading countries worldwide in what renewable energy is concerned. According to President Barack Obama, the development of renewable energy and energy efficiency must be seen as a "new era of energy exploration". Wind energy plays an important role in the American clean energy program. In fact, wind industry has added around 35% of new generating capacity in the last five years, ranking secondly, immediately after natural gas.

As of the third quarter of 2012, the U.S. wind industry totalled 51.630MW of installed capacity[54], which represented 20% of the world's wind capacity, and

[54] Source: AWEA Third Quarter 2012 Market Report

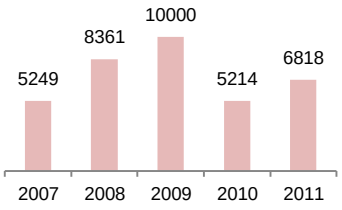



**Chart 53: Wind New Installed Capacity (MW)**
*Source: AWEA*

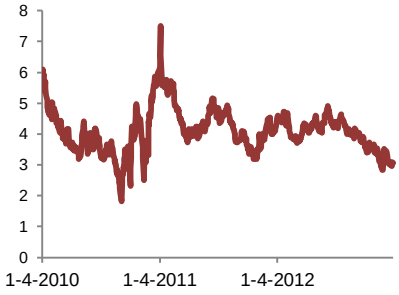



**Chart 54: Natural Gas Spot Prices ($/MMBTU)**
*Source: EIA*

over 8.400MW under construction. The U.S. Department of Energy has already highlighted the benefits of trying to achieve the target of 20% of wind energy by 2030, mainly through the strengthening of national energy security.

According to EIA, the United States have around 2.214 trillion cubic feet of recoverable natural gas, which is identified as one of the threats to the future development of renewable sources. It is cheap and it emits around 50% less greenhouse gas emissions than coal. Nevertheless, it is worthwhile noticing that there is the risk of volatility in natural gas prices in the future and there is uncertainty on the amount of resources that are ultimately recoverable. Renewable energy might play an important role as an hedging strategy to the risks associated with the dependence of the economy on natural gas[55].

Identifying the potential benefits of wind energy, the country has developed different incentives schemes. The Federal Production Tax Credit (PTC) has been one of the most effective tools in encouraging renewable energy projects[56], and it consists in income tax credits attributed to clean energy operators, on a per MWh basis.

Evidently, the uncertainty regarding the expiration of PTC during this year made it difficult to start new projects and around 37.000[57] jobs in the industry were threatened. The program, which started in 1992, was allowed to expire in 1999, 2002 and 2003, when it resulted in drops in new installed capacity of 73 to 93%, according to AWEA information.

***According to AWEA, PTC has been able to low the cost of wind power by more than 90% and responsible for the nearly 500 facilities across 44 states manufacturing for the wind energy industry.***

The re-election of Obama, in November 2012, brought hope for future extensions of the PTC, and the fact that Sandy storm brought environmental issues to the press again might benefit the industry. Under the so-called “fiscal cliffs” negotiations that took place in the end of 2012, the Production Tax Credit was finally extended until 1st January 2014.

Besides these incentives, companies are able to remunerate their wind farms mainly through Power Purchase Agreements, which maturity tends to be around 20 years. Many have pointed out the lack of good purchase agreements in the future as a main risk in this market but EDPR, during the 3Q of 2012 was, in fact, able to increase the percentage of installed capacity under PPA’s, which seems to demonstrate the capacity of the company to maintain competitive deals.

[55] Natural gas low prices and flexibility are very important characteristics to complement power from renewable sources, keeping the grid balanced.
[56] Moreover, wind energy producers are also entitled to enjoy some fiscal benefits, such as MACRS (Modified Accelerated Cost Recovery System), which allows for a quicker recovery of the investment, due to depreciations deductions.
[57] Source: EWEA

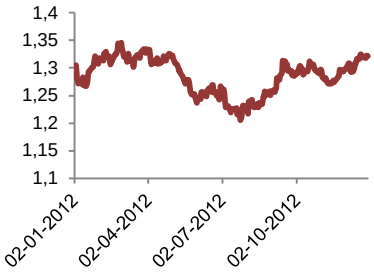



**Chart 55: EUR/USD Exchange Rate**
*Source: Bloomberg*

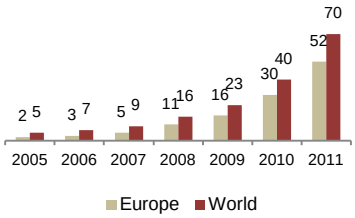



**Chart 56: Solar PV Global Installed Capacity (GW)**
*Source: EPIA*

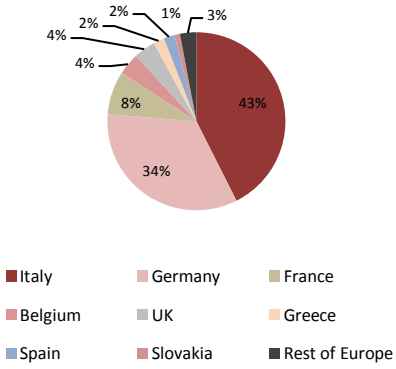



**Chart 57: Breakdown of European Solar PV installations**
*Source: EPIA*

| | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|
| LCOE ($/MWh) | 268 | 233 | 195 | 158 |

**Table 17: Levelized Cost of Energy Solar PV**
*Source: BNEF*

On the other hand, if PPA's reduce exposure to market prices, they also increase the exposure to counterparty risk. However, EDPR has mainly public companies as counterparty, which provides stability and reduces this risk.

For EDPR, its exposure to US market also implies the additional exchange rate risk, which might also affect the valuation. An increase of 5% in the EUR/USD exchange rate assumed has an impact of -0,14€ per share.

# Opportunities

# Solar PV

Another important for the growth of EDP Renováveis is the possibility of investing in new technologies. One of the new trends has been the investment in Solar PV, which consists in the generation of electrical power through semiconductors that exhibit the photovoltaic effect.

Solar PV installations are becoming relevant in the renewable sector and are on the road to large scale grid integration. In 2011, Solar PV leaded the ranking of power generation capacities added in the EU27 with 21.642MW, followed by Wind (9.400MW) and gas (8.784 MW)[58].

Globally, at the end of 2011, there was around 69GW of installed capacity of Solar PV[59]. Researchers believe that photovoltaics could meet around 15% of the EU electricity demand by 2030.

Advances in technology and achievement of economies of scale have resulted in the steadily decrease of the costs of photovoltaics. Indeed, the learning rate for this technology is estimated to be around 20% to 22%[60] - which means that, each time Solar PV installed capacity doubles, costs decline by 20 to 22%. Moreover, there is a potential for further costs decline of around 50% until 2020.

In what regards the Levelized Cost of Energy[61], it has declined around 20% from 2011 to 2012 – **Table 17**.

The integration of Solar PV and wind power generation is also a new trend in the industry. Indeed, on a seasonal basis, one might say that the output of Solar PV can complement wind power, which reduces significantly the need for back-up generation, one of the arguments against the development and potential of clean energy. In fact, according to EPIA data for 2011, in the periods of the year when wind generation is typically higher, solar PV provides less power generation. On

[58] Source: EPIA
[59] Source: EPIA
[60] Source: IRENA
[61] Estimated through BNEF model.

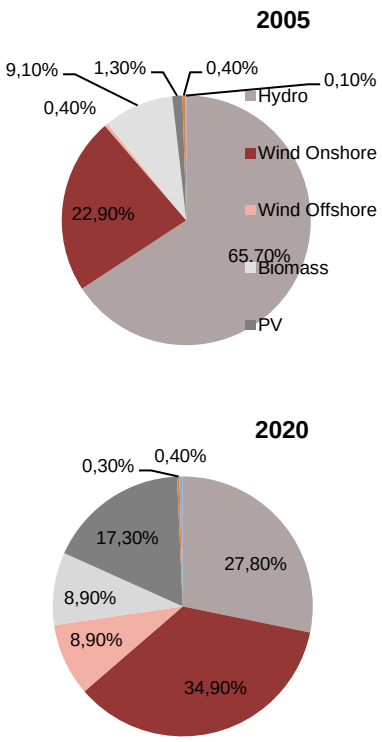



**Chart 58: EU's Renewable Capacity Mix 2005-2020**
*Source: European Commission*

the other hand, in periods of the year such as Spring/Summer, Solar PV provides higher energy output versus a decrease in wind power generation.

The combination of these energies could provide up to 45% of Europe's electricity needs in 2030.

EDPR, aware of the growing importance of this business segment, is already starting investments of Solar PV in Romania. Actually, this country presents a favourable remuneration scheme – currently, market prices plus 6 Green Certificates per MWh – which turns Romania in a potential market for the development of this technology.

Nevertheless, there is lack of long-term visibility in this market since a potential reduction in the number of GC provided is being studied, what can lead to a bubble effect similarly to what happened in Czech Republic and jeopardize future projects. Indeed, in 2011 only 6MW of Solar PV capacity were installed in Czech Republic, which dramatically compares with around 1.500 MW installed in the previous year. This change is explained by a huge reduction in the support system, of around 40%.

EDPR started its first project of 39MW, which have an impact of € 0,02/share. Currently, Romania has only 2MW of Solar installed capacity but, as stated in NREAP, it should increase to 260MW in 2020. Being a first mover in this country, EDPR expects to achieve a load factor of 15%, resulting from the prime location of the investments.

# Final Recommendation

Through the analysis previously performed, we considered that regulatory risk is a critical issue for EDPR, especially in the more mature markets (US, Spain and Portugal) which are, also, the markets to which EDPR has higher exposure. Although we are not considering further capacity additions in the Iberian market[62], by analyzing the current situation of both electrical systems we found real the possibility of implementation of retroactive policies which might affect EDPR's portfolio – and which we took into consideration in our Stressing Scenario.

| Sum-of-the-parts | | €/per share |
|---|---|---|
| Spain | 3.422 € | 3,92 € |
| Portugal | 718 € | 0,82 € |
| RoE | 2.513 € | 2,88 € |
| NA | 3.069 € | 3,52 € |
| Brazil | 303 € | 0,35 € |
| EV | 10.025 € | 11,49 € |

**Table 18: Enterprise Value in the Base-case scenario**
*Source: NOVA Equity Research*

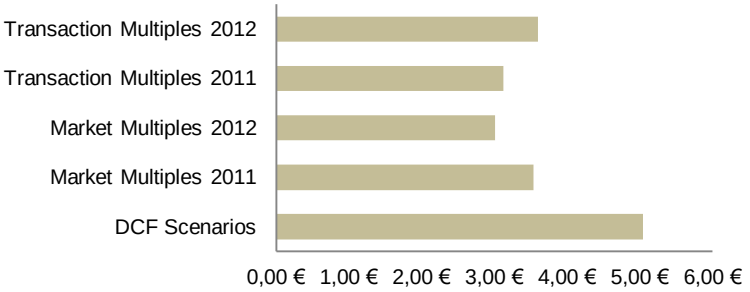
| Sum-of-the-parts | | €/per share |
|---|---|---|
| Spain | 2.335 € | 2,68 € |
| Portugal | 443 € | 0,51 € |
| RoE | 1.024 € | 1,17 € |
| NA | 1.877 € | 2,15 € |
| Brazil | 336 € | 0,38 € |
| EV | 6.014 € | 6,89 € |

**Table 19: Enterprise Value in the Stressing Scenario**
*Source: NOVA Equity Research*

Still, we do not consider that these types of policies have a very high probability of occurring since that would deeply harm the credibility of these countries' regulations and, after all, there are considerable gains by developing renewable energy for the future. Indeed, we do consider that there is a future for renewable energy in the world. Being a clean source is the most powerful strength that will continue potentiating the development of the sector. Yet dependent on subsidies and regulated tariffs, technologies such as onshore wind (which is EDPR core business) and Solar PV (in which the company already started investing in) are becoming cost competitive, what should increase their capability of being sustainable in the future without governments supports, by reaching parity grid – which, according to BNEF, could happen in 2016 for onshore wind.

Relying on this, we attributed a higher probability for our base-case scenario than for our stressing scenario (70% vs. 30%), recommending to buy EDPR – target price of 5,04€ per share. **Table 20**, in Appendix, provides an analysis of the target price, depending on the probability attributed to each scenario, so that one can easily adapt this price according to its own assessment on the clean energy future.

**Chart 59: Summary of EDPR's Valuation**




| | DCF Scenarios | Market Multiples 2011 | Market Multiples 2012 | Transaction Multiples 2011 | Transaction Multiples 2012 |
|---|---|---|---|---|---|
| Target Price | 5,04 € | 3,54 € | 3,01 € | 3,12 € | 3,60 € |

*Source: NOVA Equity Research*

[62] In Portugal, we are only considering investments under ENEOP Consortium.

# Appendix

## Financial Statements

| Income Statement | | | | | | | |
|---|---|---|---|---|---|---|---|
| (€ millions) | 2009 | 2010 | 2011 | 2012E | 2013F | 2014F | 2015F |
| Electricity Sales and Other | 648 | 845 | 992 | 1.063 | 1.112 | 1.255 | 1.398 |
| Income from Institutional Partnerships | 83 | 107 | 112 | 117 | 116 | 115 | 115 |
| **Revenues** | **725** | **948** | **1.069** | **1.180** | **1.229** | **1.370** | **1.513** |
| Other Operating Income | 43 | 73 | 85 | 18 | 18 | 17 | 17 |
| Supplies and Services | -148 | -196 | -225 | -237 | -260 | -287 | -316 |
| Personnel Costs | -43 | -55 | -61 | -63 | -64 | -65 | -66 |
| Other Operating Costs | -34 | -57 | -67 | -50 | -33 | -34 | -34 |
| **Operating Costs** | **-182** | **-235** | **-268** | **-333** | **-340** | **-368** | **-399** |
| **EBITDA** | **543** | **713** | **801** | **847** | **889** | **1.002** | **1.114** |
| Provisions | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Depreciation and Amortization | -314 | -434 | -468 | -524 | -585 | -645 | -708 |
| Amortization of deferred income | 2 | 11 | 15 | 20 | 20 | 19 | 18 |
| **EBIT** | **231** | **290** | **347** | **344** | **324** | **375** | **424** |
| Capital gains/losses | 0 | 0 | 10 | 3 | 0 | 0 | 0 |
| Financial income/expenses | -72 | -174 | -244 | -202 | -208 | -218 | -229 |
| Income/losses from group and associated companies | 4 | 5 | 5 | 5 | 5 | 5 | 5 |
| Pre-tax Profit | 163 | 121 | 119 | 149 | 122 | 162 | 200 |
| Income Taxes | -45 | -38 | -28 | -45 | -36 | -49 | -60 |
| **Profit for the period** | **118** | **83** | **91** | **105** | **85** | **113** | **140** |

| Balance Sheet | | | | | | | |
|---|---|---|---|---|---|---|---|
| (€ millions) | 2009 | 2010 | 2011 | 2012E | 2013F | 2014F | 2015F |
| Property, Plant and Equipment | 8.635 | 9.982 | 10.455 | 10.119 | 10.473 | 10.723 | 10.940 |
| Intangible Assets and Goodwill | 1.336 | 1.367 | 1.334 | 1.346 | 1.350 | 1.354 | 1.357 |
| Financial Investments | 60 | 64 | 61 | 60 | 60 | 60 | 60 |
| Financial Assets at fair value through P&L | 37 | 36 | 0 | 0 | 0 | 0 | 0 |
| Deferred Tax Asset | 28 | 39 | 56 | 68 | 68 | 68 | 68 |
| New Investments | 0 | 0 | 0 | 180 | 180 | 180 | 180 |
| Inventories | 11 | 24 | 24 | 25 | 28 | 31 | 33 |
| Accounts Receivables - trade | 106 | 144 | 146 | 153 | 161 | 185 | 209 |
| Accounts Receivables - other | 637 | 757 | 750 | 948 | 963 | 1.018 | 1.070 |
| Cash and Cash Equivalents | 444 | 424 | 220 | 317 | 289 | 223 | 239 |
| **Total Assets** | **11.294** | **12.835** | **13.045** | **13.217** | **13.571** | **13.841** | **14.157** |
| | | | | | | | |
| Share Capital and Share Premium | 4.914 | 4.914 | 4.914 | 4.914 | 4.914 | 4.914 | 4.914 |
| Reserves and Retained Earnings | 192 | 274 | 325 | 483 | 556 | 611 | 714 |
| Consolidadated profit attributible to equityholders | 114 | 80 | 89 | 99 | 54 | 103 | 128 |
| Non-controlling interests | 107 | 126 | 127 | 136 | 141 | 147 | 154 |
| **Total Equity** | **5.328** | **5.394** | **5.454** | **5.632** | **5.666** | **5.775** | **5.910** |
| | | | | | | | |
| Financial Debt | 2.673 | 3.534 | 3.826 | 3.818 | 3.918 | 4.118 | 4.318 |
| Institutional Partnership | 920 | 1.009 | 1.011 | 979 | 979 | 979 | 979 |
| Deferred Tax Liability | 343 | 372 | 381 | 387 | 387 | 387 | 387 |
| Deferred revenues from IP | 434 | 635 | 773 | 643 | 525 | 407 | 288 |
| Asset Rotation | 0 | 0 | 0 | 180 | 180 | 180 | 180 |
| Provisions | 67 | 54 | 58 | 94 | 132 | 160 | 187 |
| Accounts Payable | 1.529 | 1.839 | 1.542 | 1.485 | 1.786 | 1.835 | 1.908 |
| **Total Liabilities** | **5.966** | **7.442** | **7.591** | **7.586** | **7.906** | **8.066** | **8.248** |
| | | | | | | | |
| **Total Equity and Liabilities** | **11.294** | **12.835** | **13.045** | **13.217** | **13.572** | **13.841** | **14.157** |

# Valuation

| Valuation | | | | |
|---|---|---|---|---|
| Base-Case Scenario (€m) | | EV/MW 2012E | Stressing Scenario (€m) | EV/MW 2012E |
| Spain | 3.422 € | 1,5 | 2.335 € | 1,0 |
| Portugal | 718 € | 1,2 | 443 € | 0,7 |
| RoE | 2.513 € | 2,7 | 1.024 € | 1,1 |
| NA | 3.069 € | 0,8 | 1.877 € | 0,5 |
| Brazil | 303 € | 3,6 | 336 € | 4,0 |
| **EV** | **10.025 €** | **1,6** | **6.014 €** | **0,9** |
| | | | | |
| (-) Net Debt | | | | 4.294 € |
| (-) Minority Interests | | | | 131 € |
| | | | | |
| **Equity Value** | | **5.600 €** | **1.590 €** | |
| €/share | | 6,42 € | 1,82 € | |
| Probabilities | 70% | | 30% | |
| **Target Price** | | | **5,04 €** | |

# Other Indicators

| Other Indicators (€m) | 2009 | 2010 | 2011 | 2012E | 2013F | 2014F |
|---|---|---|---|---|---|---|
| **Revenue** | 725 | 948 | 1.069 | 1.180 | 1.229 | 1.370 |
| **EBITDA** | 543 | 713 | 801 | 847 | 889 | 1.002 |
| **EBIT** | 231 | 290 | 347 | 344 | 324 | 375 |
| | | | | | | |
| **EBITDA/Revenue** | | | | | | |
| EDPR | 75% | 75% | 75% | 72% | 72% | 73% |
| Spain | 82% | 80% | 77% | 77% | 76% | 76% |
| Portugal | 83% | 82% | 80% | 83% | 82% | 82% |
| RoE | 69% | 91% | 75% | 80% | 75% | 77% |
| US | 75% | 75% | 65% | 68% | 73% | 72% |
| Brazil | 56% | -14% | 67% | 69% | 63% | 71% |
| | | | | | | |
| **EBITDA/MW** | | | | | | |
| Spain | 0,12 | 0,13 | 0,13 | 0,13 | 0,13 | 0,13 |
| Portugal | 0,15 | 0,14 | 0,12 | 0,13 | 0,11 | 0,11 |
| RoE | 0,10 | 0,13 | 0,11 | 0,15 | 0,11 | 0,12 |
| US | 0,11 | 0,12 | 0,11 | 0,10 | 0,12 | 0,12 |
| Brazil (R$) | 0,25 | -0,07 | 0,36 | 0,54 | 0,21 | 0,31 |
| | | | | | | |
| **EBIT/Revenue** | 32% | 31% | 33% | 29% | 26% | 27% |
| | | | | | | |
| **Net Profit/Revenue** | 16% | 9% | 8% | 9% | 7% | 8% |
| | | | | | | |
| **ROE** | 2,2% | 1,5% | 1,7% | 1,9% | 1,5% | 2,0% |
| **ROA** | 1,0% | 0,6% | 0,7% | 0,8% | 0,6% | 0,8% |

# Annex A

## Wind Energy Companies' Description

| | |
|---|---|
| Iberdrola | Iberdrola is a Spanish company, major player worldwide in the utilities sector. The company has different lines of business such as Wholesale and Retail Bus, Network Business and Renewable Energy Business. This last one represents around 20.5% of the EBITDA of 2011 of the company, corresponding to the prior Iberdrola Renewables' business, which was a subsidiary of Iberdrola. In fact, the company and its parent merged in 2011, but Iberdrola continues being the most important player in the wind sector. The business structure of Renewable Energy business of Iberdrola is quite similar to EDPR, since wind represents around 97% of its business. Such as EDPR, Iberdrola operates globally, but its core markets are Spain, United Kingdom and the United States. |
| NextEra Energy Resources | NextEra Energy Resources is a subsidiary of the American utilities company NextEra, being the largest owner and operator of wind turbines and solar power in North America. It has a more diversified portfolio of clean energy technologies than EDPR or Iberdrola, but wind represents around 52% of it. Natural gas (24%) and Nuclear Power (16%) also play an important role in the company's portfolio. |
| Longyuan | The China Longyuan Power Group is a leading enterprise in China's clean energy industry. The group is mainly focused on the development, construction and operation of wind farms, but it also has some other services and activities such as thermal power, solar power, biomass, among others. |
| Acciona | Acciona is a Spanish company operating worldwide and in different business segments, such as infrastructures, water services and energy. However, energy represents around 74% of its EBITDA and, in that business, wind is the most developed technology. Acciona has around 6.027MW of wind installed capacity, a much smaller amount but still significant in Hydro – 912MW – and other smaller technologies. Such as EDPR, the company is present at a global level, and we can highlight the fact that it shares some wind markets with EDPR, such as the US, Spain, Poland and Italy. |
| ENEL Green Power | ENEL Green Power is an Italian multinational company operating in the renewable energy industry. It is a subsidiary of the Italian utilitie's company Enel. It is present in 16 different countries and also in different technologies, such as Wind, Hydro, Geo and Solar. It has a more diversified portfolio than EDPR, totaling 7.6GW of installed capacity. Some of the most relevant markets are North America, Italy, Iberia, Brazil and Chile. It can also be highlighted that the company is shifting progressively new investments in renewable energies towards emerging markets, rather than core markets, which seems to be a common trend in the industry. |
| Fersa | Fersa Renewables is a Spanish company engaged in the generation of electricity from renewable sources. Wind projects account for around 98% of total installed capacity. |

# Annex B

## Regulatory Environment RoE

### France

Installed capacity has grown steadily, especially in the last decade, presenting annual growth rates of installed capacity of around 100% in 2005 and 2006. In the recent years, growth has slowed down, but installed capacity continues increasing. In 2011, there were around 6.800MW[63] of wind installed capacity in this country, which makes the target for 2020 quite ambitious – 19.000MW, only considering onshore wind.

The current remuneration scheme is also a feed-in-tariff, with a duration of 15 years.

### Belgium

In the Belgian market, incentives to renewable energies are mainly constituted by tradable green certificates and PPA's, but the legal framework, although based on a national plan, is specifically developed at a regional level.

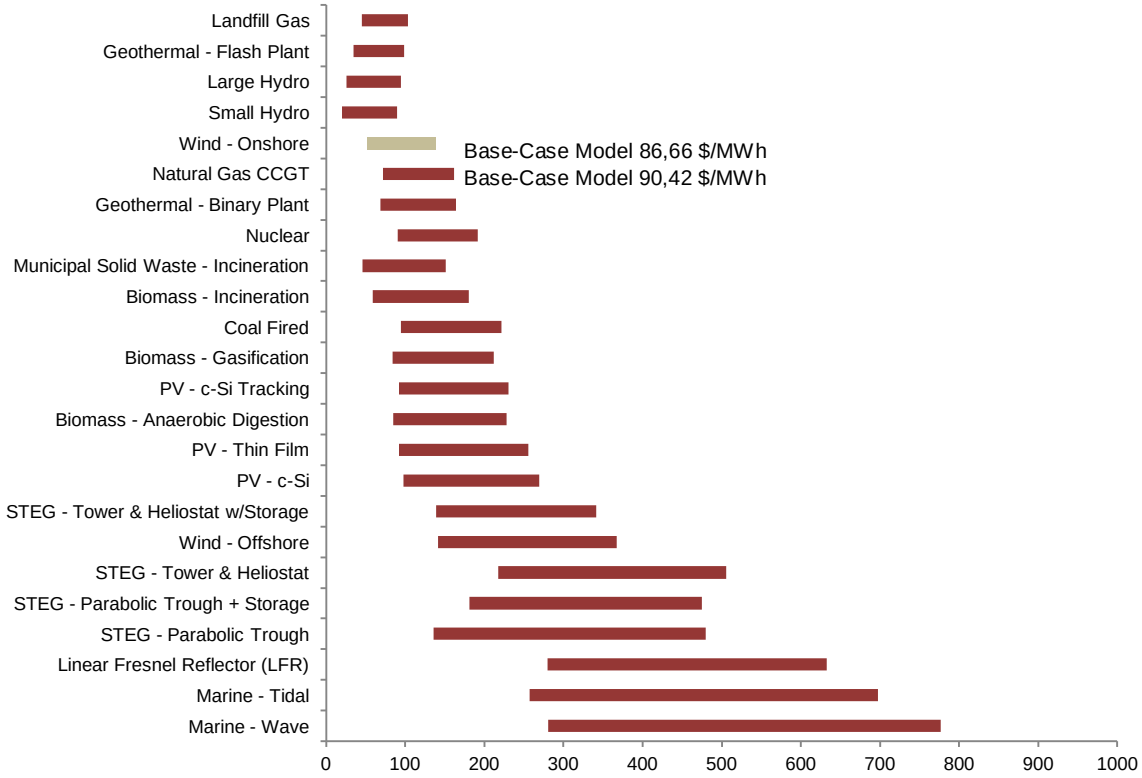
All EDPR's assets in Belgium are located in Wallonia region. In January 2011, the total installed capacity in this region was 541MW, meaning that EDPR had a market share of 11%.

The country has an overall RES target of 13% for 2020 and wind installations are expected to grow steadily to 4.320MW of accumulated installed capacity in that year[64].

[63] Source: EWEA.
[64] Source: EWEA.

# Charts

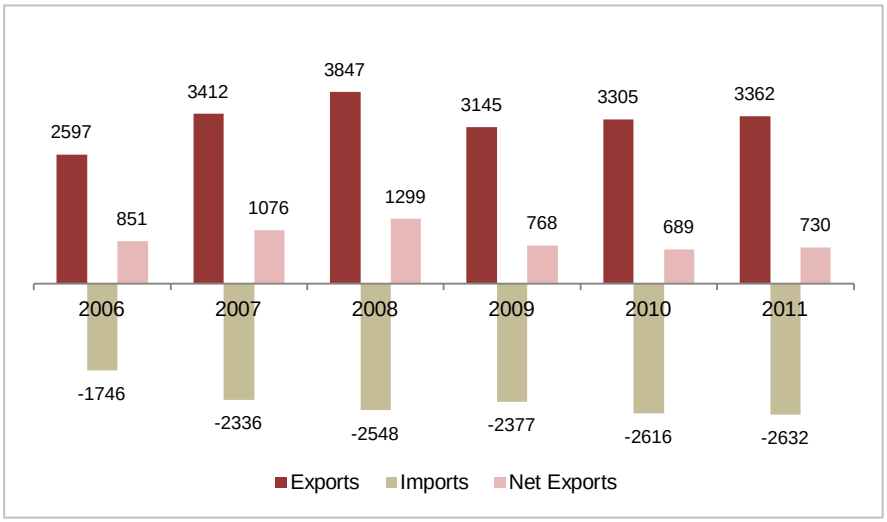
### Chart 60: Levelized Cost of Energy $/MWh[65]




*Source: Bloomberg New Energy Finance*

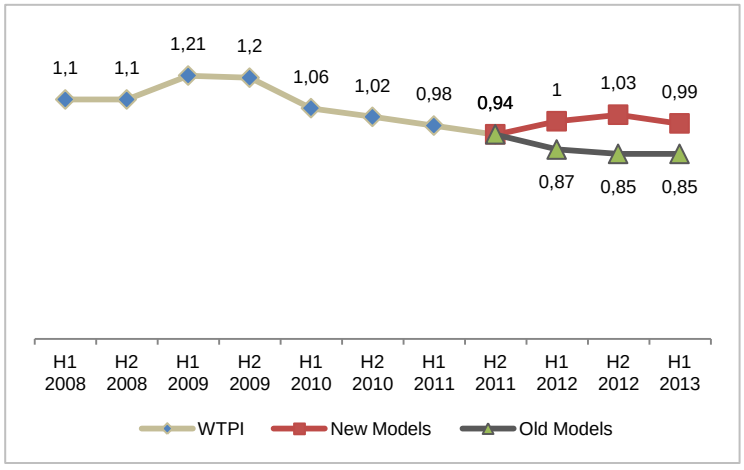
[65] The intervals for the LCOE of each technology are based on results from three scenarios: low case, base case and high case.

**Chart 61: Exports and Imports in the Renewable Sector in Spain**




*Source: APPA*

**Chart 62: Wind Turbine Price Index Evolution[66](by delivery date)**




*Source: Bloomberg New Energy Finance*

[66] From H2 2011 onwards, a distinction is made between the old and the new models of wind turbines. New equipment showed higher prices but both models are converging.

# Sensitivity Analysis

| Prob(B)/(S) | 0% | 10% | 20% | 30% | 40% | 50% | 60% | 70% | 80% | 90% | 100% |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 100% | € 6,42 | | | | | | | | | | |
| 90% | | € 5,96 | | | | | | | | | |
| 80% | | | € 5,50 | | | | | | | | |
| 70% | | | | € 5,04 | | | | | | | |
| 60% | | | | | € 4,58 | | | | | | |
| 50% | | | | | | € 4,12 | | | | | |
| 40% | | | | | | | € 3,66 | | | | |
| 30% | | | | | | | | € 3,20 | | | |
| 20% | | | | | | | | | € 2,74 | | |
| 10% | | | | | | | | | | € 2,28 | |
| 0% | | | | | | | | | | | € 1,82 |

**Table 20: Different Target prices depending on the probability attributed to Base-case (B) and Stressing Case (S)**

| | 5% | 2% | WACC | 2% | 5% | 10% |
|---|---|---|---|---|---|---|
| (+) 1% | 9,00 € | 7,21 € | 6,63 € | 6,19 € | 5,67 € | 4,97 € |
| growth rate | 5,67 € | 5,28 € | **5,04 €** | 4,82 € | 4,52 € | 4,07 € |
| (-) 1% | 4,66 € | 4,39 € | 4,22 € | 4,07 € | 3,83 € | 3,55 € |

**Table 21: Sensitivity analysis to growth rate assumed[67] and Weighted Average Cost of Capital. In the first variable we added and subtracted 1% to the growth assumed in the base case scenario. In the case of WACC, we attributed the same percent change to each country discount rate.**

[67] For each country, we assumed a growth rate in the continuing value in line with inflation.

# Disclosures and Disclaimer

## Research Recommendations

| | |
|---|---|
| **Buy** | Expected total return (including dividends) of more than 15% over a 12-month period. |
| **Hold** | Expected total return (including dividends) between 0% and 15% over a 12-month period. |
| **Sell** | Expected negative total return (including dividends) over a 12-month period. |

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