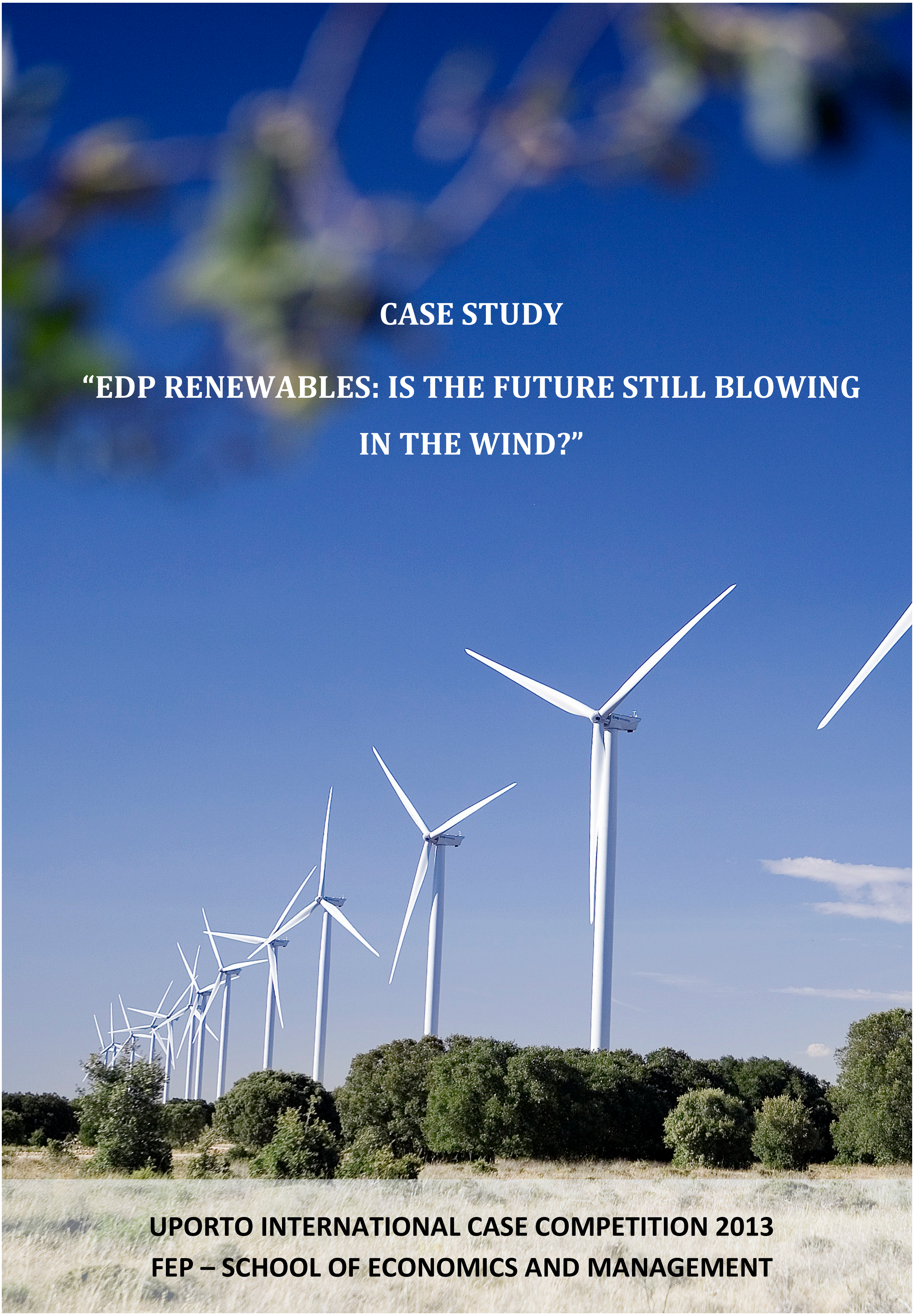
CASE STUDY

"EDP RENEWABLES: IS THE FUTURE STILL BLOWING IN THE WIND?"



UPORTO INTERNATIONAL CASE COMPETITION 2013
FEP – SCHOOL OF ECONOMICS AND MANAGEMENT

EDP RENEWABLES: IS THE FUTURE STILL BLOWING IN THE WIND?

Manso Neto, the CEO of EDP Renewables, was on an evening flight - a nearly daily commute for him - from Madrid to Lisbon, in July 2013. As he gazed into the beautiful sunset clouds he pondered about the company's past and future. Rui Teixeira, the company's CFO, had called him just before his flight to mention a compelling group of new investors. Rui had scheduled a meeting with them a month later. Manso Neto recalled the certainty with which he had presented the company's three-year business plan to the market in 2012 and couldn't help but smile. So much had changed in less than two years: demand for renewable energy sources continued to grow despite heightened competition, an adverse financial environment, instability surrounding regulatory support and ever-shifting climate policies - in short, the future seemed thrilling yet uncertain.

Case study prepared by Isabel Sá, Renata Blanc and Tiago Devesa from FEP - School of Economics and Management, University of Porto (FEP) to be used in the FEP University of Porto International Case Competition 2013. The case has been written using company information and public sources. Special thanks to EDP Renewables for their support in the writing of this case.

EDPR: A BRIEF HISTORY

EDPR STRUCTURE & OWNERSHIP

EDP Renewables (EDPR) is a subsidiary of one of the biggest players in the European energy sector –the EDP Group (Energias De Portugal). The Group emerged from the nationalization and merger of thirteen independent electricity companies in 1976, a result of the backlash from the Carnation Revolution, a 1974 military coup that restored democracy in Portugal. Since its inception in the 1970s the EDP Group has undergone a profound structural transformation, including M&As, restructuring and diversification. EDP is now Portugal's largest generator, distributor and supplier, the third largest electricity generator in the Iberian Peninsula (Portugal and Spain), as well as a global player with more than 9.8 million consumers in 13 countries.

The Group's shares were first publicly listed in 1997 but the privatization process was only recently concluded when "China Three Gorges Corporation" (CTG), a major Chinese player, acquired a majority of remaining government-held shares.

EDP is divided into three business areas (see Appendix A for additional detail):

a. Energy generation: the Group operates thermal, biomass and hydropower generation facilities and owns (through EDPR) wind and solar energy generating assets
b. Electricity and natural gas distribution: the EDP Group owns a portion of the physical distribution grid in the Iberian Peninsula and Brazil
c. Electricity and natural gas supply and trading: EDP sells electricity and natural gas to end consumers.

The EDP Group is the only energy company on the Iberian Peninsula with generation, distribution and supply activities in both Portugal and Spain. Its financial position is decidedly robust. Reporting over €16 billion of revenue and €42 billion in assets, the Group grew as a whole in 2012. However, net profit fell 10% to €1,012,000, the lowest figure since 2009. Improvement in capital market performance requires a more stable dividend stream, while strategically prioritizing the de-leveraging of the Group.

Manso Neto joined the EDP Group in 2003 after a solid career in the banking sector. He was particularly enthusiastic about the Group's vision of becoming "a global energy company, a leader in value creation, innovation and sustainability". The sustainable energy segment of the business particularly interested him. After all, the EDP Group was recognized worldwide for its sustainability. In 2013 it was elected one of the world´s most ethical companies according to the Ethisphere Institute and in 2012, for the fifth year running, the Group was one of the top-performing electrical power companies on the Dow Jones Sustainability Index.

The first EDP wind farms were built in 1996, though the EDP Group did not form a holding company – EDPR -- for EDP's renewable assets (with the exception of hydro energy) until 2007. Headquartered in Madrid, EDPR was listed on the Euronext Lisbon Stock Exchange in 2008. As of 2013, the EDP Group still holds 77.5% of EDPR shares. Internationally, the Group is now the world's third largest wind operator through EDPR.

CREATION OF EDPR

The renewables energy sector has always been a lightning rod for controversy. Passionate supporters claim that renewables can save the world from environmental threats as a cleaner, never-ending energy source, yet opponents say this is wishful thinking and point to the negative effects of such operations on soils and animals, and, perhaps even more damningly, claim it to be an inefficient allocation of public funds. Despite the arguments posed on sides of the debate, the EDP Group makes a strong case in favour of renewables:[1]

- By investing in renewable energy, countries reduce their energy dependency by enhancing the security of their energy supply while minimizing their exposure to potentially volatile fuel prices;
- Promoting a shift from conventional fossil fuels to renewable energy is one of the most effective and feasible near-term solutions for mitigating climate change (even if renewables alone might not be able to fix this complex problem);

[1] http://www.edpr.com/our-business/our-industry/renewable-energy-myths-and-truths/

- Renewable energy is an environmentally friendly and competitive option for new capacity investments. Renewable energy can be built out in a much shorter period of time, enabling a fast and flexible response to growing demand.

EDPR was built on the foundation of these beliefs. The company was conceived as a high-growth platform for its parent group's pursuit of an aggressive strategy in the renewable energies sector. The main aim was to be among the world's top five renewable companies. The company was created also in response to increasing market demand for "high-growth" and "clean" assets, which would allow the EDP Group access (through an initial public offering) to the capital needed to fund the Group's ambitious growth plans.

EDPR initially focused exclusively on so-called renewable energies (mainly wind and, to a lesser extent, solar), while the EDP Group concentrated on other energy sources. The EDP Group retained hydro, the main exception to this "renewables split criteria" for three key reasons: more stable growth; much more complex stakeholder management relative to wind energy given the increased impact of operations on third parties; and, finally, significant maintenance and operational management needs (decisions about whether or not to produce) more closely aligned with EDP's stations than EDPR's wind plants.[2]

The high-growth platform goal was ultimately achieved. Between 2008 and 2012, EDPR witnessed average annual revenue growth of 24.6% (peaking at 46% in 2010), while the EDP Group posted an average of 4.6% in the same category (reaching as high as 16% in 2010). The share of EDPR revenue relative to overall Group income doubled from 4% to 8% during this period. Clearly, this remarkable level of development required a clear objective, succinctly expressed in EDPR's vision ("A global renewable company, leader in value creation, innovation and sustainability"), supported by three strategic pillars (identical to those of its parent group): focused growth, controlled risk and superior efficiency.

[2] Wind plants require less maintenance and normally yield production whenever wind is present – this issue is not managed, unlike the case of hydro (executives select the best time to produce energy).

Until 2012 EDPR had Ana Maria Fernandes, trained as an economist at the University of Porto School of Economics and Management (FEP), served as the company's CEO. When Manso Neto was asked to replace Ana Maria Fernandes as EDPR's CEO in 2012, he was more than ready for the challenge. Playing an active role in developing a sustainable business greatly appealed to him.

Rui Teixeira, former McKinsey consultant and EDPR's current CFO, joined the company in 2007 to spearhead the company's IPO. He explains his passion for EDPR without hesitation:

> *"The company provides us with an incredible learning opportunity. EDPR has a very aggressive growth profile that demands dynamic and flexible management. We have to implement intensive growth strategies and define the best funding sources while at the same time minding the EDP Group's conservative risk profile. EDPR operates in 11 countries and has 861 employees in Europe, North America and Brazil. This worldwide presence also presents a range of complexities, and managing such cultural diversity makes our jobs much more challenging. We have a young and motivated team: we work hard and learn a lot from both our errors and our achievements."*

RENEWABLES: FUTURE CHALLENGES

The WWF estimates[3] that 327.6 Ej[4] of energy was consumed in 2010, 18.3% of which was comprised of electricity. The remaining energy was consumed in the form of fuel or heat, either for industry (24.1%), buildings (26.3%) or transportation (31.3%).

The process by which electricity moves from the point of production to the final consumer can be divided in three phases. As a rule, the production facility (dam, wind farm, thermal plant, etc.) produces electricity, which is then delivered to a high-voltage grid: the transmission system. The respective transmission systems and distribution systems are operated by separate companies in various countries (the EDP Group is active in the latter).

[3] The Energy Report – 100% Renewable Energy by 2050.
[4] Exajoules. 1 Ej = 10^{18} Joules = 277,777.8 GWh

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Energy can be produced in many ways but the most common one is the use of fossil fuels (oil, coal and natural gas), which represented 79.6% of overall energy production in 2010. Because they are non-renewable resources that negatively affect the environment, its extraction and use are expected to fall in coming years. Still, the shift to renewables opens up a lot of questions, and the debate surrounding the ideal energy mix for the future continues to evolve.

Demand for alternative energy sources increased significantly in recent years, triggered by the rising cost of fossil fuels due to swelling demand in emerging countries, the growing governmental and societal pressure towards the reduction of carbon emissions, with the aim of reducing energy dependence another countries and increasing government incentives to renewable energies (either fiscal or direct subsidies). The renewable energies market is evolving considerably fast. As such, companies need to be on the lookout for the "next big thing".

On the one hand, technology is developing at a dizzying speed, while costs continue to fall and entirely new solutions are being introduced. However, industry players must keep in mind that jumping on the bandwagon too soon can be harmful at times: all technologies have their respective flaws, such as reliability, safety (it is nearly impossible to forget certain events related to nuclear power) and efficiency, so early adopters are likely to be more exposed to certain unanticipated risks. Additionally, installation costs are expected to decrease in the near future, so early movers are at a comparative disadvantage to their higher investment cost. On the other hand, investments in renewable technologies are shifting, with some developed economies experiencing economic crisis, emerging markets are expected to pick up the slack.

The future of renewable energies is uncertain and game-changing manoeuvres may unexpectedly occur. Anticipating the future is the key to ensuring success.

A number of factors have to be considered when investing in renewable energy sources: What is their cost per MW[5]? How much up-front investment is required? How will these numbers change in the next years? Are they adjusted for the geographical area[6] in

[5] See Technical Notes

[6] With optimal wind and solar conditions, as well as numerous hydro resources, EDPR's territory, the Iberian Peninsula, is naturally well blessed.

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question? Are there negative environmental externalities that might undermine the "green" image of these sources? Companies are well aware that they must also consider what the technologies of the future will be when planning for the future. As such, the portfolio of technologies and geographies in which EDPR decides to invest are likely to be pivotal to such portfolio's future potential and success.

REGULATORY HURDLES

Though highly attractive, the sector also faces considerable regulatory and tax burdens as well as instability vis-à-vis governmental policy. The renewable energies market has a long tradition of heavy government intervention, whereby environmental quality is deemed "public good" and, as such, many nations have incentivized the development of green alternatives to fossil fuels. Public support, though key to the development of the sector given the considerable level of investment required, is variable and uncertain. Furthermore, global climate policies still lack a consistent worldwide commitment towards green energies. In Europe, the recent sovereign debt crisis has prompted many countries to cut spending drastically. This clearly has an effect on subsidies, tax incentives and other fiscal policies previously undertaken, posing a significant challenge to both EDPR and its peers.[7]In turn, public opinion normally regards renewable energies as commercially immature, including the perception that they entail an additional cost, which naturally shapes the manner in which policymakers address renewable energies.

> "In such a turbulent environment with volatile markets and regulatory instability, having a sense of urgency in making strategic decisions while pushing for mental flexibility to drive change is key to gaining competitive advantages." says Manso Neto.

[7] Deloitte identified "navigating uncertainty" (related to fiscal policies) as the first of its 10 issues for renewable energies in 2011): Deloitte – Alternative Thinking 2011.

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EDPR COMPETITORS AND MARKET POSITION

Though still a new, fast-growing market, the renewable energies sector is primarily dominated by a relatively small number of large companies. EDPR is the second largest in Europe (behind Iberdrola Renovables) and fourth largest worldwide (behind Next Era Renewables). Other relevant European players include ENEL Greenpower, EDF Energies Nouvelles and RWE Innogy. There are other relevant players outside the EU market, such as Acciona, E-on Climate & Change, in addition to several Chinese companies with assets outside China.

Some key differences need to be outlined to fully understand the inherent market dynamics:

1) Geographical strategy: Iberdrola focuses on countries with stable regulations, EDF concentrates solely on Europe and US and companies like ENEL have a footprint not only in the Latin American market but also in the “traditional markets” of Europe and North America.

2) Segment focus: Though EDPR’s current focus is confined almost exclusively to onshore wind, other companies are more diversified: 36% of ENEL’s installed capacity (IC) corresponds to its hydro segment, while 12% is in geothermal energy. EDF has 12% of its IC in solar photovoltaic (PV), whereas 6% of RWE’s IC pertains to offshore wind, with only 5% in biomass and biogas.

3) Value chain focus: In terms of wind power, EDPR focuses on the midstream to downstream market, from developing the project to handling its operations and maintenance. This sort of positioning is shared by most companies (EDF, EDL for example), but some competitors are vertically integrated one step further and produce their own equipment or have equity interests in producers – rather than purchasing equipment from external manufacturers as EDPR does. EDPR’s activities are less limited with regard to other energies: In solar it only handles project development and M&A (and no presence in biomass), while ENEL and RWE manage, respectively, the whole solar and biomass value chains (see Appendix B for a summary of different competitors’ strategies).

EDPR BUSINESS MODEL

ACTIVITIES & CORE COMPETENCES

In 2012, wind farms accounted for 100% of EDPR's revenues. By the end of 2013, the solar segment had emerged, though it represented only 1% of revenue. The core of EDPR's business model consists of wind farm operations and, in turn, sale of the corresponding energy to local utilities, or, in some cases, directly to companies. Geographically, the company operates in three different markets, and therefore is divided into three separate holding companies.

a) EDPR North America: Operates in the USA (through Horizon Wind Energy) and Canada.
b) EDPR Europe: Operates in eight different countries, notably Portugal and Spain.
c) EDPR Brazil: EDPR owns 55% of its shares.

EDP Renewables activities in the area of wind farms mainly consist of three phases:

a) In the <u>development</u> phase the company evaluates potential sites by collecting data and reaching agreements with landowners (approximate duration is 2-5 years for wind,[8] shorter timeframe for solar plants). Additionally, the company handles procurement and finance duties to ensure that the construction phase can begin smoothly;

b) <u>Construction</u> is then initiated by EDPR's engineers, who select the most appropriate wind/solar devices and build the necessary infrastructure (6-12 months for a wind farm, less for a solar plant);

c) Finally, the <u>operations phase</u> entails ensuring that the site maintains the highest level of performance while reducing its costs through regular maintenance and performance improvement initiatives (both wind farms and solar plants have a very long projected lifespan; 25 years for wind farms).

[8] Certain exogenous factors are the main drivers behind this duration: licensing of the wind farms, electric connections with the power grid, etc.

When the sale of energy is not contractually defined[9] in advance, an additional energy management activity must be considered, namely selling energy and green certificates in the most profitable manner possible.

It is important to note that these phases are quite different in terms of cash flow impact on the company. The development phase constitutes an investment of approximately €50,000 to €100,000 per installed MW; the construction phase involves the company's greatest cash flow deployment, as €1.4 million / MW are invested in wind farms and €2 million/MW in solar plants; the operations phase generates cash flows from the difference between, on one hand, energy sold and green attributes (e.g., green certificates, Renewable Energy Certificates [RECs], etc.), and, on the other hand, operations, maintenance, taxes and financial costs.

Margins also differ from technology to technology. For example, wind farms have practically zero variable costs and an EBITDA margin of 80%. This figure rises to 90% for SPV.[10] Across the company as a whole, existing support activities and central project management lower the EBITDA margin to between 70% and 75%.

Boasting an incredible track record of both growth and profitability, EDPR mentions five core capabilities as the secret to ensure its superior performance:

a) Project management and turbine sourcing expertise - Two generic types of strategies may be adopted when purchasing turbines: relying mainly on a single manufacturer, as with companies like Iberdrola (via equity interest in Gamesa) and Next Era (via agreements with Siemens and GE), or, like EDPR and the majority of small players, through a diversified portfolio of suppliers. The increased flexibility, site optimisation and diversification afforded by the latter strategy come at the price of not being able to leverage higher bargaining power towards selected manufacturers. An additional aspect to consider is that in order to obtain licensing for some projects, companies need to specify in advance which wind turbine model they will deploy.[11] In this case, the renewables company must make a choice between locking in an

[9] Such as the case of PPA's and FIT's, as explained in greater detail in the "Revenue Sources" section.
[10] Solar Photovoltaic Energy.
[11] The time lag between specifications and deployment can be as long as two years.

agreement with the manufacturer (and risking receiving the turbines before the project is effectively ready to execute) or adopting an open position (and being forced to pay the going market price of the specified model once the wind turbine is needed).

EDPR primarily relies on six suppliers (Figure 1). When selecting them, EDPR follows two core criteria: expected profitability (cost/MW) and supplier stability. If this last factor is not superior, bank borrowing becomes trickier as risk for the bank increases since there are fewer guarantees that the project will be fully executed.

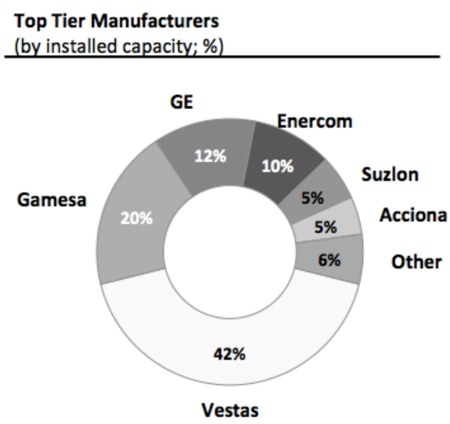


Figure 1 - Top Tier Manufacturers of EDPR

A final factor in EDPR's investment decisions is the timing of turbine purchases. If the turbines are purchased on very short notice, the supplier has the power to "squeeze" a higher profit out of EDPR. On the other hand, if turbines are purchased well in advance, there is an increased risk that they will become obsolete by the time of implementation, rendering EDPR's project inefficient. Turbine sourcing expertise in terms of selection of suppliers and moment of purchase is crucial. EDPR's strength in this aspect is derived from its holistic approach. Procurement decisions are not stand-alone but instead integrated within the company's "big-picture", or rather, related to project development, finance, M&A, wind assessment and risk management and legal decisions. This sort of approach is very hard to replicate, thus constituting a true competitive advantage for EDPR.

b) In-house wind assessment knowledge: EDPR's most recent Net Capacity Factor (NCF)[12] is 29%. This indicates solid performance relative to similar players regarding the choice of which locations in which to develop a new wind farm, increasing EDPR's efficiency and profit margins. It should be noted that this number is not homogeneous: EDPR's wind farms in the US may achieve over 40% NCF, while wind farms in Europe exhibit a much lower NCF (around 20%). EDPR's strong performance is, according to the company, justified by its robust, heavily tested, prediction models, which can only be developed by a company with years of experience in data analysis.

c) Operations & Maintenance (O&M) Best-in-Class Model: Ensuring that each wind farm is always available for production is detrimental to success. Internal analysis revealed that waiting for maintenance from suppliers was the key driver of farm downtime. With this in mind, EDPR implemented its M3 model to ensure maximum performance at lower costs. It outsources low-added-value maintenance services to the manufacturers and retains high-value-added services in house. Besides controlling costs, this model allows EDPR maintenance teams to identify key improvement opportunities in its equipment and thus increase their performance even further. Implementing lean processes and scheduling periodic meetings with manufacturers are some future areas of priority for EDPR.

d) World class online dispatching systems: The company has three dispatch centres that monitor performance: one in Porto (Portugal), which works in parallel with the facility in Oviedo (Spain), and a third in Houston (USA). The first two centres overlap, such that failure of one will not compromise information as the wind farms continue to be monitored. There is a facility in Houston because US regulation requires the monitoring of farms from within the US. A challenge (opportunity?) still arises despite this system's stability: EDPR is being flooded with huge amount of real-time data so it needs to find the best way to leverage such data to its fullest potential.

e) Construction and development experience: The fact that EDPR is the number three player in the wind industry, with 7.5 installed GW of capacity and production of 16.8 GW of energy (2011 data), certainly plays at its favour.

[12] NCF corresponds to ratio between effectively produced energy and the maximum amount the wind farm would be able to produce (often referred as Load Factor).

A final key aspect of EDPR's performance is its risk management: in terms of the choice for specific revenue (see Revenue Sources section below) and in terms of the decision concerning where to allocate its resources corresponding to technologies and markets, thus constituting strong investment risk.

Despite EDPR's experience in operational and risk management, the company cannot, of course, prevent unexpected events from occurring. Rui Teixeira recalls some unforgettable situations that no risk management strategy could have mitigated:

- Being requested to build "frogducts", a sort of tunnels underneath wind farm roads for frogs to walk freely and prevent them from being undue stress due to operations traffic;
- EDPR people took refuge on wind towers because cattle ranchers allowed their livestock to roam freely onto the wind farms;
- In an extreme situation involving restricted site access, blades were transported by helicopter to a wind farm.

These stories show that flexibility is crucial, no matter how robust core competences and risk management happen to be.

GEOGRAPHIC FOOTPRINT & REVENUE SOURCES[13]

EDP Renewables margins vary considerably by region given the different revenue source models adopted in different countries:

a) Feed-In Tariff (FIT) model – in FIT model, market prices for renewable energies are unilaterally determined by government and regulatory agencies, which means that energy producers are price takers. Under this scenario, EDPR's strategy is to try to obtain government licences for energy production. If this occurs, higher returns can be achieved when EDPR has more efficient and productive wind farms than its competitors. This is the case in Portugal and Spain, where a contractual relationship is in place for the next 15 (Portugal) to 20 (Spain) years.

[13] Detailed information on the revenue sources per country is presented in Appendix C

b) Competitive processes (Power Purchase Agreement [PPA] and auctions) - in this situation, which occurs mainly in the US, EDPR is a price maker because the proposal presented is such that the price defined allows the company to achieve the defined minimum return. EDPR's strategy is based on full optimisation of wind farms in order to win auctions or obtain more favourable terms in negotiating PPAs. In this competitive scenario, companies sign PPAs, which helps to mitigate price risk. However, achieving higher returns than the cost of capital is structurally difficult to achieve in these competitive markets.

c) Green Certificates[14] exist in countries like Belgium, Poland or Romania. Green Certificates are tradable commodities that guarantee that certain energy is generated using renewable energy sources. The Green Certificate is an approach to the environmental value of renewable energy generated.

d) Spot market – prices fluctuate on spot markets throughout the day and can be sold in 5, 15 and 60-minute increments. EDPR can take full advantage of the spot market by bidding when prices are highest, though, of course, at the expense of increased risk. However, this risk exposure is mitigated by selling mostly in marginal markets where prices are defined by the interaction between demand and the marginal cost of supply.

Revenue source model is one of the important criteria used by EDPR in evaluating geographical expansion. The company tries to avoid markets with more unstable and thus riskier revenue sources such as spot markets.

Risk measurement regarding expansion also involves analysing the country in terms of respect for established regulation. Anglo-Saxon countries, for instance, are considered low-risk markets as they nearly always respect defined regulations. In such countries, cash flows are easier to predict, thereby improving the liquidity of assets from these markets, and, in turn, making them more attractive to potential investors. On the other hand, Spain, despite its FIT model, is considered a risky market due to continuous regulatory changes and a lack of respect for established regulations.

[14] Typically one certificate represents generation of one megawatt hour of electricity.

EDPR'S FINANCIALS:[15] FINANCIAL CONSOLIDATION AND GROWTH AS DISTINCT PATHS FOR THE COMPANY?

As a fast-growing company and the parent group's main growth engine, financial aspects play a particularly important role in defining the company's future. Though oriented toward growth, balance sheet stability is a factor influencing the company's strategy. An analysis of the company's 2012 balance sheet reveals that the great majority of EDPR's assets were fixed assets, plants and equipment, a reflection of the company's significant investment profile. As of 2012, EDPR's liabilities mainly consisted of debt corresponding to the parent group, TEI and Project Finance.

Being within the EDP Group's consolidation perimeter creates "tensions" given the different optimal gearing levels for EDPR and its parent company, so the management team does not wish to increase existing debt levels with the parent group

One way to achieve fast growth without substantially increasing the level of debt was to seek out minority investors for development of new projects. In the recent past, the company had followed this strategy as CTG's purchased several minority stakes (in accordance with a strategic agreement between CTG and the EDP Group), and Borealis Infrastructure (a Canadian pension fund) purchased minority stakes in four of EDPR's US wind farms. Within this strategy the liquidity of the company's assets had become a concern as higher liquidity renders the assets more attractive to potential investors.

EDPR 2012 BUSINESS PLAN: TOO CONSERVATIVE?

In 2012, the company unveiled its new three-year business plan, which portrayed a moderately aggressive growth strategy. EDP Renewables was expected to install 2.3 GW of new wind capacity, including 0.5 GW in 2012.

New investments in growth markets were defined geographically such that Western Europe (excluding Iberia), Brazil, Canada and Eastern Europe (this last market is particularly

[15] See Appendixes D and E.

important) would account for 60% of the new expected installed capacity. Core markets (Portugal, Spain and the United States, which would account for 28% of this increase[16]) were expected to slow vis-à-vis the previous years.

Another determining factor of the three-year business plan was the significant change in the company's funding profile. By then, the company wanted to pay back debt to its parent company (with inherent impact on cash flow available for investment) and to increase its operating cash flow – difficult objectives to balance. Also, EDPR's growth is very much investment-dependent, and recent international financial conditions (see EDPR Macro Environment) greatly hinder the company's access to funding.

By mid-2013, a quick comparison between planned events and actual outcomes yielded interesting results. The short-term growth strategy defined for Central and Eastern Europe was being executed as planned, and EDPR had achieved sizeable victories in auctions for PPAs in Italy. However, events unfolded unexpectedly in the United States. Successes in negotiating new PPAs, combined with more favourable regulatory prospects compared to those of the EU, prompted the company to review growth prospects for the American market and start re-allocating capital that was initially planned to be invested in Europe. The rapid evolution of the US market during the second half of 2012 demonstrated how important flexibility and the establishment of new targets are to achieving value creation.

Manso Neto and Rui Teixeira were well aware that the 2012 Business Plan was based on the specific financial assumption of financial consolidation. Repaying a portion of the debt to the parent company might have restricted the company's ambitions. With that in mind, they set out to rethink the strategy in light of a more aggressive but feasible growth prospects.

[16] The remaining 12% corresponded to new markets and technologies, respectively.

CHINA THREE GORGES[17,18,19], THE NEW EDP SHAREHOLDER

Another relevant factor when developing the 2012 Business Plan was the strategic partnership agreement entered into in 2011 between the EDP Group and China Three Gorges (CTG), China's biggest clean energy company. CTG became a new EDP Group shareholder by acquiring a 21.35% equity stake in EDP and a strategic partnership in renewable energies via EDPR (Figure 2) CTG is 100% owned and fully supported by the Chinese government. Its clean energy development strategy and international aspirations are developed through two main strands: hydropower projects – in which the company is already experienced – and clean energy projects, a new area of operations that promised to be reinforced through EDPR.

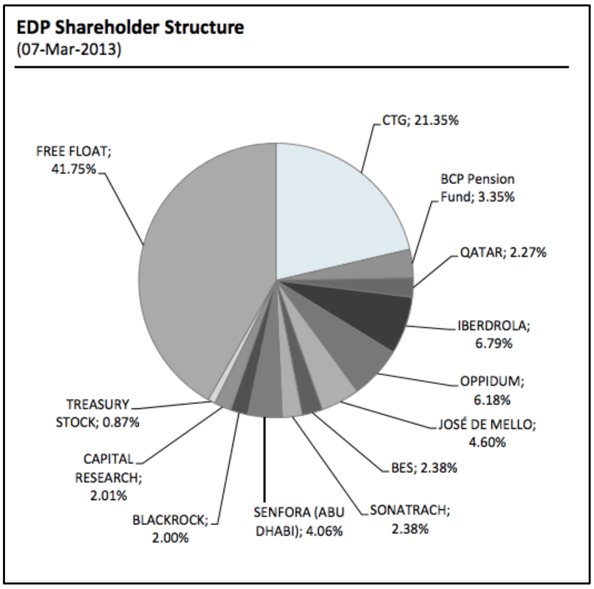


Figure 2 - EDP Shareholder Structure

Currently, CTG has 50.8 GW capacity under construction, of which 48.9 GW are hydro. The 2020 target is to achieve 90 GW (70GW of hydro and 20 GW of wind).

CTG was approved as the buyer of the Portuguese government's equity stake because they fulfilled corporate governance and financial objectives. There was a need to maintain EDP's identity, to minimize conflicts of interest and, additionally, to reinforce shareholder structure, which the partnership with CTG achieved. Another significant advantage for the EDP Group was the improvement of its financial and liquidity situation. Through the partnership with CTG, the adjusted liquidity position is expected to double by 2015 when compared to 2011. Additionally, this will ensure a strong improvement of EDP's credit profile by meeting financial needs from mid-2013 to mid-2015.[20] Furthermore, in the long-term, the access to

[17] EDPR Annual Report, 2011
[18] EDPR investor Relations Presentation, 23rd December 2011
[19] Presentation, 4th May 2012
[20] Debt-to-equity ratio (net debt) expected to be less than 3 in 2015.

Asian markets (in partnership with CTG) could offer EDP Renewables interesting solar energy opportunities.

Under this strategic partnership, both groups aim to become worldwide leaders through diversification of growth opportunities and shared access to new markets.[21] The agreement includes the definition of "Leadership Markets" whereby the EDP Group operates in the European, US and Latin American markets, and CTG focuses on Asia. Access to a leadership market should occur under a partnership structure and never in the context of direct competition between partner companies.

CTG has allowed EDPR to start implementing an asset rotation strategy[22], but the company now aims to engage new investors in order to reduce dependency on CTG. Increased liquidity would be possible through selling the new partner minority stakes in specific wind farms.

MACRO ENVIRONMENT: FUNDING ISSUES IN THE IBERIAN PENINSULA

Social, financial and political instability in EDPR's regional territories increased the overall risk faced by the company in recent years. This was also a relevant assumption in the 2012 BP. The international crisis that affected the entire globe in 2008 also hampered EDP and EDPR's performance, as well as their activities and financial prospect, while also adding to risk mitigation concerns, particularly in southern European countries such as Portugal and Spain.

Though EDPR's headquarters are located in Spain, the EDP Group's headquarters are in Lisbon, which heavily influences EDPR's activity due to the close relationship between the two (namely through debt issuance). If the conditions are unfavourable in Portugal, the debt ratings of both EDP and EDPR are adversely affected. Therefore, besides the importance of the both countries' macro environment to EDPR, Spain and Portugal represent major overall concerns.

[21] See Appendix F.

[22] EDPR is good in the late stage development, construction and operation of wind farms, but there are other entities with a lower cost of capital willing to have exposure to the de-risked long-term cash flow profile, thus EDPR is not the only natural owner of the assets. By selling up to 49% (minority stakes) of the future cash flows, EDPR crystalizes the future expected value and can recycle that capital to additional growth.

Since the turn of the century, just after Portugal joined the European Economic Area, economic problems have plagued the country's performance. In 2003, Portugal hit recession with a negative annual GDP growth rate of 0.8%. Between 2004 and 2007 the country achieved positive growth rates but dipped back into recession in 2009, 2011 and 2012. The international crisis that affected the world in 2008 is not the only culprit for Portugal’s current woes. Specialists indicate that the inability to adjust policy making to a new environment, where exchange and monetary policies are no longer autonomous, adversely affected Portugal's performance. Furthermore, Portugal was severely affected by increased competition from the new EU member states in the former East Bloc, as well as from Asian countries (mainly China). Portugal faces a tremendous challenge: a pressing need to grow in parallel with public deficits and excessive levels of debt affecting the economy. For this reason, the Portuguese government was forced to ask the International Monetary Fund (IMF) for financial assistance in 2011. The economic adjustment program is slated to end in 2014.

Spain’s macro and microeconomic circumstances are quite similar to those of its Iberian neighbour. The Spanish crisis was generated by long-term loans (commonly issued for 40 years), the real-estate market crash, which included the bankruptcy of major companies, and a particularly severe increase in unemployment, which rose to 29.16% by April 2013 The economy contracted 3.7% in 2009 and again in 2010 by 0.1%. It then grew by 0.7% in 2011. However recession hit Spain again in 2012. That same year, Eurozone finance ministers arranged a provision of up to €100 billion of rescue loans comprised of Eurozone funds to help the banking recapitalization process.

Extreme austerity measures in Portugal and Spain are taking a toll on both economies: consumption and investment continue to decrease every year, unemployment rates are among the highest in Europe, and strikes and demonstrations regularly occur. As instability grows, treasury bonds rate rise and stock prices fall. Additionally, the company’s upper bound for credit-worthiness is limited by the credit ratings, as downgrades of Portugal are directly reflected by downgrades of EDP’s rating.[23,24]

[23] Please see Appendix G for information on EDP Rating and information on Portuguese sovereign debt ratings.

CHALLENGES AHEAD

Manso Neto had finally landed in Lisbon. The flight home had given him time to reflect upon his company's future. He got into a cab and asked the driver to take him to EDPR. In a quintessentially Portuguese way, the cab driver asked his new customer: "Oh, you work in the renewables area? That must be quite an interesting business to be in. So, what are the plans for the future?" Manso Neto simply smiled in his own enigmatic way.

A few hours later, in a meeting, he and Rui Teixeira discussed the changes that had occurred since 2012. As they flipped through the latest financials, they wondered how different plans for the near future would be if they had been developed today and without the financial consolidation restraint of repaying debt to the parent Company. Nearly a year and a half after its release, the 2012 Business Plan seemed to be outdated. Recent industry reports had forecasted significant growth in the future. Should EDPR target that growth? In which markets? With which technologies? Alone or with partners? How should EDPR ensure success in those markets? How could the company combine its asset rotation strategy with growth opportunities? How should the company fund this growth?

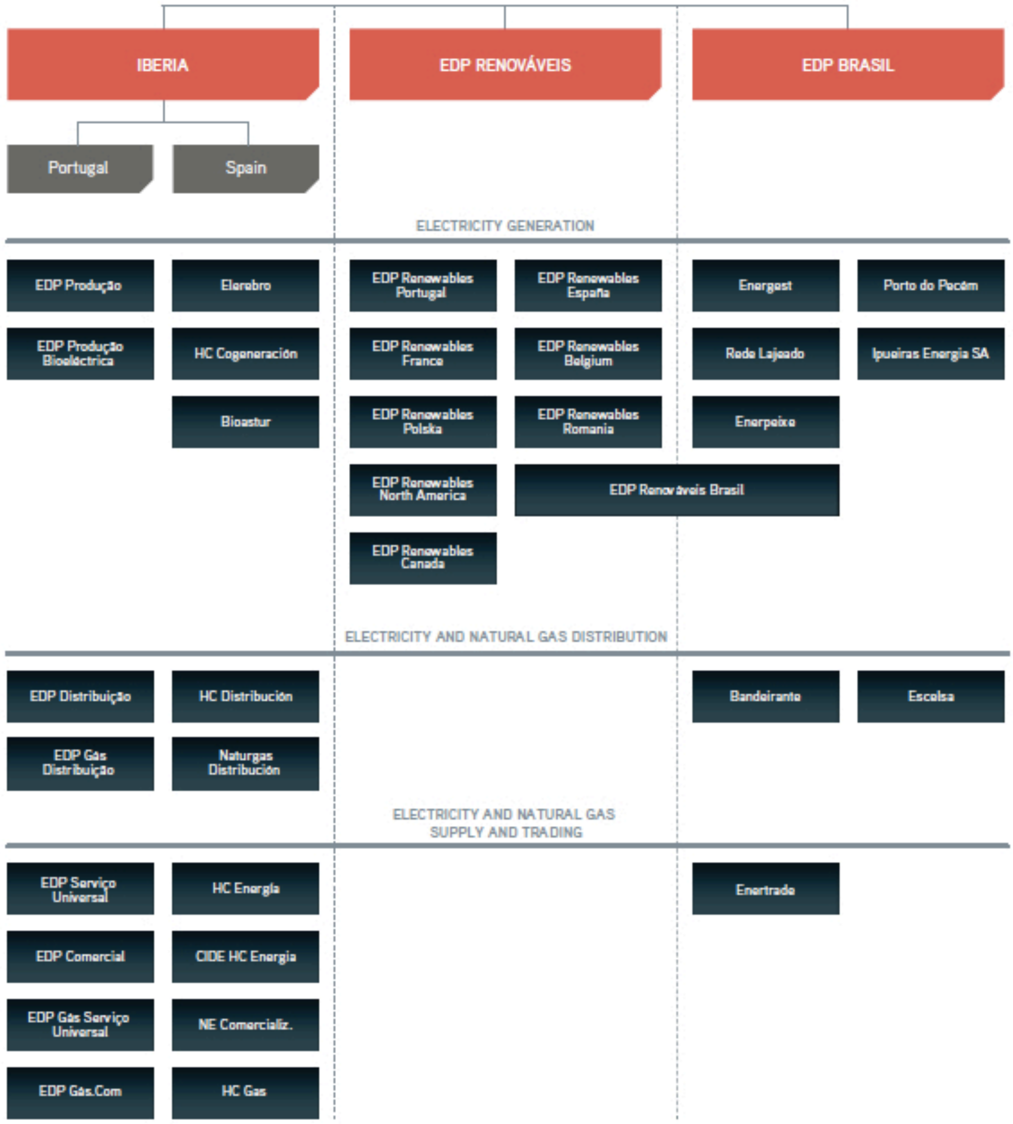
They were aware that answers to these questions would significantly impact the company. By the end of the meeting, they both agreed on the need to set up an internal team to design a new 2014-2017 Business Plan. If approved by the board, this business plan would be presented to the new potential investors a month later.

Manso Neto wondered about the answers that this new strategic plan might elicit. A soft, warm breeze blew as he left EDPR that day, and he remembered Bob Dylan's words from more than 41 years earlier:

> *"How many roads must a man walk down*
> *Before you can call him a man?*
> *How many seas must a white dove sail*
> *Before she can sleep in the sand? (…)*
> *Yeah and how many times must a man look up*
> *Before he can see the sky?*
> *The answer, my friend, is blowin' in the wind"*

He wondered to himself, "Was it, still?"

Appendix A – EDP Group Structure and companies by business segment



Source: EDP Group

Appendix B – Competitor Comparison

	Iberdrola	EDPR	ENEL	EDF	RWE
Upstream	W		S		W | S[1]
Midstream	W	W | S	W | S	W | S	W | S
Downstream	W | S	W	W | S	W | S	W

Source: McKinsey& Company

LEGEND:

W | Company has a presence in the wind segment in the value chain link under analysis

S |Company has a presence in the solar segment in the value chain link under analysis

Upstream | Equipment manufacturing

Midstream | Includes Project development / M&A and EPC (Engineering, procurement and construction)

Downstream | Includes financial activities & asset ownership, O&M (Operations and Maintenance and (in the case of solar power) retail

(1) Projected future development area

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Appendix C – Remuneration Schemes in different countries

REGULATORY SNAPSHOT

Country	Remuneration scheme
Portugal	Feed-in Tariff – Moratorium for new projects
France	Feed-in Tariff
Spain	Feed-in Tariff – Moratorium for new projects
Belgium	Pool + Green certificates
Poland	Pool + Green certificates
Romania	Pool + Green certificates
Italy	PPA set in tender
UK	Green certificates. New system under debate (offshore)
US	Pool + Green certificates/ PPA set in tender and tax incentives
Canada	Feed-in Tariff (Ontario)
Brazil	PPA set in tender

Source: EDPR

Note: Pool = Spot Market

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Appendix D – Statement of Financial Position

Condensed Consolidated Statement of Financial Position
as at 30 June 2013 and 31 December 2012

Thousands of Euros	Notes	2013	2012
Assets			
Property, plant and equipment	15	10,370,909	10,536,907
Intangible assets	16	25,540	24,915
Goodwill	17	1,287,352	1,301,930
Investments in associates	18	58,034	47,473
Available for sale financial assets	19	9,407	9,407
Deferred tax assets	20	107,470	89,378
Debtors and other assets from commercial activities	23	52,772	55,153
Other debtors and other assets	24	270,944	251,220
Collateral deposits associated to financial debt	30	109,316	48,433
Total Non-Current Assets		12,291,744	12,364,816
Inventories	21	16,770	16,209
Trade receivables	22	163,544	180,259
Debtors and other assets from commercial activities	23	99,416	104,165
Other debtors and other assets	24	524,113	334,490
Current tax assets	25	68,655	55,089
Financial assets at fair value through profit or loss		684	389
Collateral deposits associated to financial debt	30	660	719
Cash and cash equivalents	26	337,251	245,837
Total Current Assets		1,211,093	937,157
Total Assets		13,502,837	13,301,973
Equity			
Share capital	27	4,361,541	4,361,541
Share premium	27	552,035	552,035
Reserves	28	-69,586	-74,385
Other reserves and Retained earnings	28	693,546	458,202
Consolidated net profit attributable to equity holders of the parent		128,987	126,266
Total Equity attributable to equity holders of the parent		5,666,523	5,423,659
Non-controlling interests	29	398,575	325,168
Total Equity		6,065,098	5,748,827
Liabilities			
Medium / Long term financial debt	30	3,638,991	3,657,083
Employee benefits		195	222
Provisions	31	67,367	63,603
Deferred tax liabilities	20	403,399	380,592
Institutional partnerships in US wind farms	32	1,632,741	1,679,753
Trade and other payables from commercial activities	33	454,981	376,503
Other liabilities and other payables	34	326,326	258,824
Total Non-Current Liabilities		6,524,000	6,416,580
Short term financial debt	30	285,768	217,237
Trade and other payables from commercial activities	33	321,507	704,610
Other liabilities and other payables	34	169,151	157,876
Current tax liabilities	35	137,313	56,843
Total Current Liabilities		913,739	1,136,566
Total Liabilities		7,437,739	7,553,146
Total Equity and Liabilities		13,502,837	13,301,973

Appendix E – Statement of Consolidated Income

Condensed Consolidated Income Statement
for the six-month period ended 30 June 2013 and 2012

Thousands of Euros	Notes	2013	2012
Revenues	6	685,217	602,416
Income from institutional partnerships in US wind farms	7	70,897	71,051
		756,114	673,467
Other operating income / (expenses)			
Other operating income	8	25,379	14,152
Supplies and services	9	-125,812	-119,569
Personnel costs and employee benefits	10	-35,199	-29,300
Other operating expenses	11	-60,037	-35,217
		-195,669	-169,934
		560,445	503,533
Provisions		-228	-
Depreciation and amortisation expense	12	-242,868	-229,237
Amortisation of deferred income (government grants)	12	9,373	7,571
		326,722	281,867
Gains / (losses) from the sale of financial assets		-	2,857
Financial income	13	76,346	37,587
Financial expenses	13	-206,537	-172,834
Share of profit of associates		9,599	3,626
Profit before tax		206,130	153,103
Income tax expense	14	-56,376	-47,671
Profit for the period		149,754	105,432

Source: EDPR

Appendix F – EDP and CTG partnership's key principles

EDP-CTG Strategic Partnership: Key Principles

	Key Markets	Investments identified by EDP	Investments identified by CTG
EDP's Leadership Markets	• Europe (1) • US and Canada • Selected South America assets	• EDP allowed to invest on wholly owned basis • If EDP wishes to invite 3rd party - CTG Preferred Partner	• If EDP wishes to co-invest, JV • If EDP does not seek investment and direct competition applies, waiver required
CTG's Leadership Markets	• Asia (2)	• If CTG wishes to co-invest, JV • If CTG does not seek investment and direct competition applies, waiver required	• CTG allowed to invest on wholly owned basis • If CTG wishes to invite 3rd party - EDP Preferred Partner
Other Markets	• Other South American Markets • Africa: focused primarily in South Africa, Angola and Mozambique	• Right of First Offer • Proposal for Partnership Committee • If EDP wishes to invite 3rd party - CTG Preferred Partner	• Right of First Offer • Proposal for Partnership Committee • If CTG wishes to invite 3rd party - EDP Preferred Partner

Source: EDPR

Appendix G – EDP and Portuguese Sovereign Debt Ratings

EDP Rating

	S&P	Moody's	Fitch
EDP S.A. e EDP Finance BV	BB+ / Neg / B	Ba1/ Neg / NP	BBB- / Neg / F2
HC Energia		Ba1 / Neg / NP	BBB- / Neg / F2
Energias do Brasil		Ba1/Aa2.br/Stab	
Bandeirante	BB+ / brAA+ / Stab	Baa3 / Aa1.br / Stab	
Escelsa	BB+ / brAA+ / Stab	Baa3/Aa1.br/Stab	

(August 2012)

Source: http://www.edp.pt/en/Investidores/divida/rating/Pages/default_new.aspx

Portuguese Sovereign Debt Ratings

Agency	Short Term	Long Term (LT)	Outlook (LT)	Last Rating Alteration (LT)	Last Rating Evaluation (LP)
DBRS	R-2 *(middle)*	BBB (*low*)	Negative	30-Jan-12 *Downgrade* (BBB to B (low))	30-Nov-12 *Negative Trend Confirmed*
Fitch Ratings	B	BB+	*Negative*	24-Nov-11 *Downgrade* (BBB- p/ BB+)	12-Nov-12 *Negative Outlook Confirmed*
Moody's	*Not Prime*	Ba3	Negative	14-Feb-12 *Downgrade* (Ba2 to Ba3)	14-Feb-12 *Downgrade Outlook Negative*
Standard & Poor's	B	BB	Stable	13-Jan-12 *Downgrade* (BBB- to BB)	7-Mar-13 Confirmed Stable Outlook

Source: http://www.igcp.pt/gca/?id=54

Technical Notes

Acronyms

O&M: operations and maintenance

PPA: Purchase power agreement

FIT: Feed-in tariff

Concepts

Availability – % of total time in which the device is available for production (i.e., not malfunctioning or out of service)

Load Factor or Net Capacity Factor– A measure of how constant the device's activity is. In the case of EDPR, the higher the load factor, the more regular the electricity production.

Power

Watt (W) – Unit of power. Power corresponds to an amount of energy per second

Kilowatt, megawatt, gigawatt, etc. – Multiples of watt. 1 Kw = 10^3 W, 1 MW = 10^6 W , 1 GW = 10^9 W

Articulation between power and energy:

Watt Hour (Wh) – Unit of energy. Corresponds to the amount of Energy produced / spent by a device with 1 Watt of Power operating during 1 hour.

Kilowatt hour, Megawatt hour, Gigawatt hour – Multiples of watt hour 1 kWh = 10^3 Wh, 1 MWh = 10^6 Wh, 1 GWh = 10^9 Wh

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