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STRATEGIC OPTIONS FOR UTILITIES' RENEWABLE ASSETS

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Ringraziamenti

Molti giovani laureati e non saranno costretti a lasciare l'Italia per trovare una occupazione che li soddisfi; altri, e spero vivamente la maggior parte, lavoreranno in Italia ma si dovranno relazionare con persone provenienti da altre nazioni. Pertanto la conoscenza dell'inglese è divenuta fondamentale. Io ho studiato in inglese ed ho scritto la mia tesi in inglese ma ho deciso di scrivere i ringraziamenti in italiano. Questo per un semplice motivo: ho passato la maggior parte della mia vita in Italia e sono divenuto quel che sono, nel bene e nel male, grazie alle persone, italiane, con cui ho condiviso questi anni. Perciò, indipendentemente da dove lavorerò e dove vivrò nei prossimi anni, non dimenticherò mai da dove vengo e cercherò di contribuire a dare al mondo una immagine migliore dell'Italia, completamente diversa da quella odierna.

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Fabrizio Ciabatti

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Abstract

Renewable energies are gaining more and more importance since they are considered to be the solution to avoid global warming. This is why political institutions, i.e. the European Parliament, are continuously supporting the development of such industry. However, the financial crisis started in 2008 hit the REs sector; as a result, governments were forced to cut incentives and REs utilities' financial performance was negatively affected.

This dissertation, indeed, will analyze and predict the main trends of the REs industry and their effect on corporate activity (i.e. M&A and IPOs); moreover, it will also analyze whether utilities made a good choice listing (or not) and taking private their REs divisions.

As for the first goal, an analysis including REs M&A and IPO trends (strongly cyclical), together with the description of the main characteristics of REs industry (i.e. debt financing and subsidies dependence) led us to believe that a new M&A wave is likely to hit the sector. The reasons behind this statement must be sought in more attractive prices and the sake of a more proper geographical diversification (one of the key drivers of REs growth), easily achievable trough acquisitions.

Then, after a detailed description of the REs companies (both public and private) taken into consideration and their IPO/delisting, the second goal has been fulfilled comparing installed capacity, capex, financial performance and multiple valuation of such firms. From an operating standpoint, going public was beneficial since companies' installed capacity and capex experienced an extraordinary growth in the short-term, which did not continue in the medium-term though. On the contrary, from a financial standpoint, while listed REs utilities' revenues, EBITDA and EBIT increased, their margin decreased; in addition to this their EV/EBITDA FY1 multiples decreased from their IPO resulting currently lower than equity research's valuations of their private German competitors'. Then, the delistings of EDF Energies Nouvelles and Iberdrola Renovables have to be dealt with separately: in fact, while EDF bought its REs division back at a similar trading multiple to its IPO, but at a higher price, Iberdrola took Iberdrola Renovables private mainly due to the low value market was evaluating it. The French utility, indeed, proved its commitment to green energies while the Spanish company identified its REs assets as undervalued, thus a good deal.

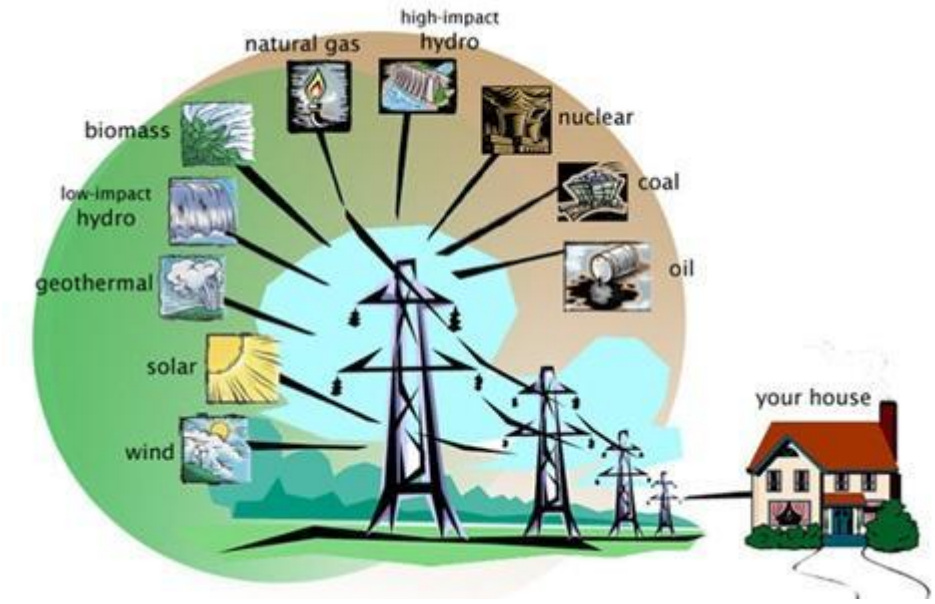
So, concluding, on one hand, one could argue that going public fostered growth and size but, on the other hand, eroded utilities' value in terms of market capitalization and especially multiples.

1) Introduction

Renewable Energies are potentially an unlimited, CO_2 free, source of energy for the entire world. However, electricity is currently produced with the exploitation of other natural resources which, unfortunately, are not green.

In general, electricity sources can be classified in two groups:

- ✓ **Fossil fuels**: this category includes energy sources which are limited (their supply will come to an end) and contribute to 96.5% of the overall CO_2 generation[1]. These are coal, gas and oil.
- ✓ **Non-fossil fuels/Renewable energies**: energy sources belonging to this group are potentially unlimited and do not produce CO_2. They are small hydro, biomass, geothermal, wind and solar.



So, given that most of the electricity production, currently comes from coal and gas (fossil fuels)[2], more and more CO2 will be generated if no regulations are seriously implemented.

[1] Source: What's your impact?, (2013)
[2] As for oil, it is used more in the transport sector as fuel rather than in the power sector as combustible

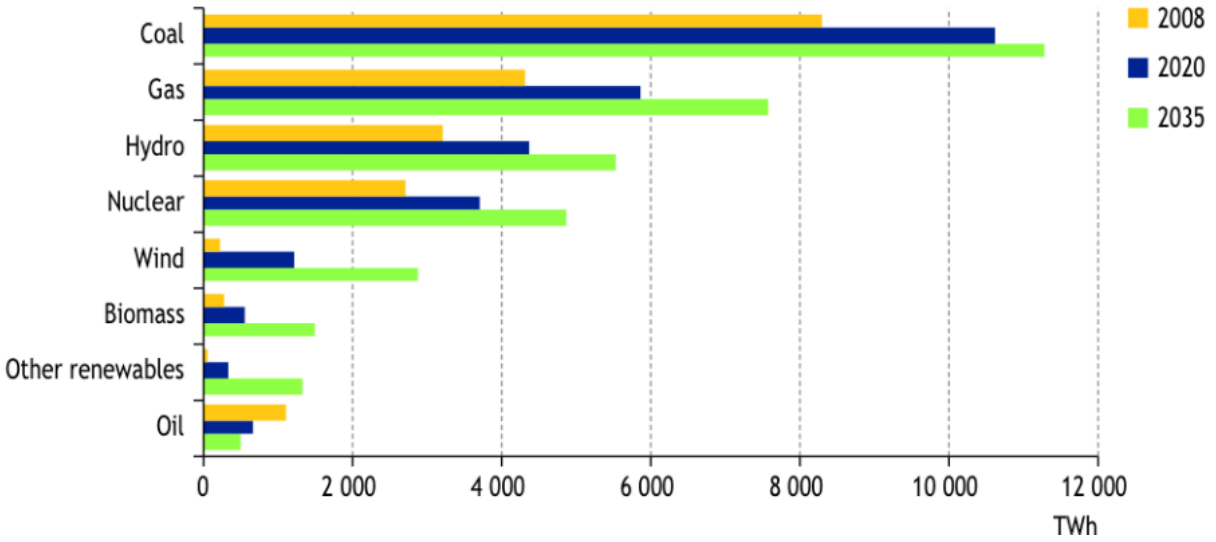


Figure 1: *World Electricity generation in the New Policies Scenario*, International Energy Agency, (2010)

The effect of more CO_2 (created through the combustion of fossil fuels which emit carbon as carbon dioxide) would cause a global increase of the temperature, a consequent increase of the sea level (Maldives could literally be cancelled by our maps) with a snowball effect whose gravity cannot be easily predicted yet.

So, since it is very likely that the world will consume more energy in the future[3] because both population and GDP are likely to grow, most of the increase (100% is utopia) should come from non polluting sources if we want to avoid the augment of CO_2 in earth's atmosphere.

As a result, given that REs do not create CO_2 and are unlimited, they should theoretically represent the dominant energy source of our planet. The reality is far different from the expectations since there are **several factors** that **slow** the development of **clean energy**.

One phenomena that characterizes XXI century, is the so called "**carbon lock-in**"[4]. According to Unruh, carbon lock-in is the group of self-reinforcing barriers created by the techno-institutional complex ("TIC"), that inhibit policy, actions. From his point of view, the TIC is the set of technologies which becomes established due to an "evolutionary progress among infrastructures, organizations, society and governing institutions". In a few words, the difficulty/resistance to change.

However, in a more practical view, the main factors that slow the development of REs can be grouped in three sources:

[3] Energy consumption is mainly a function of: f(GDP, population)
[4] Source: Unruh G., (2002)

- ✓ Economic Impediments: such as high investment costs, relative low returns, non alignment between electricity cost and price
- ✓ Political impediments: intermittent political support to R&D, mainly driven by elections, crisis, etc
- ✓ Behavioral impediments: public ignorance towards electricity issues, different interests

Moreover, there is one last problem which is more technical: electricity production from renewable sources is dependent on the availability of the natural resource. In fact, given that stocking electricity is quite hard, if the a certain source of energy is not available in a part of the day, then, as a consequence, no electricity would be available. The typical example is solar power: how can a PV technology give electricity by night? This restriction is totally overcome by fossil fuels given that they can be easily stocked (gas & coal) and they can be used as a back-up capacity.

So, given that global warming could be detrimental for the health of our world and that this can be reduced only by common efforts, regulators have spent more and more of their time trying to give birth to "green" policies.

In fact, in 1997 the Kyoto Protocol was adopted by most of the developed countries and has been enforced by 2007. It is composed of some measures such as the Clean Development Mechanism and Emission Trading (trading of green certificates)

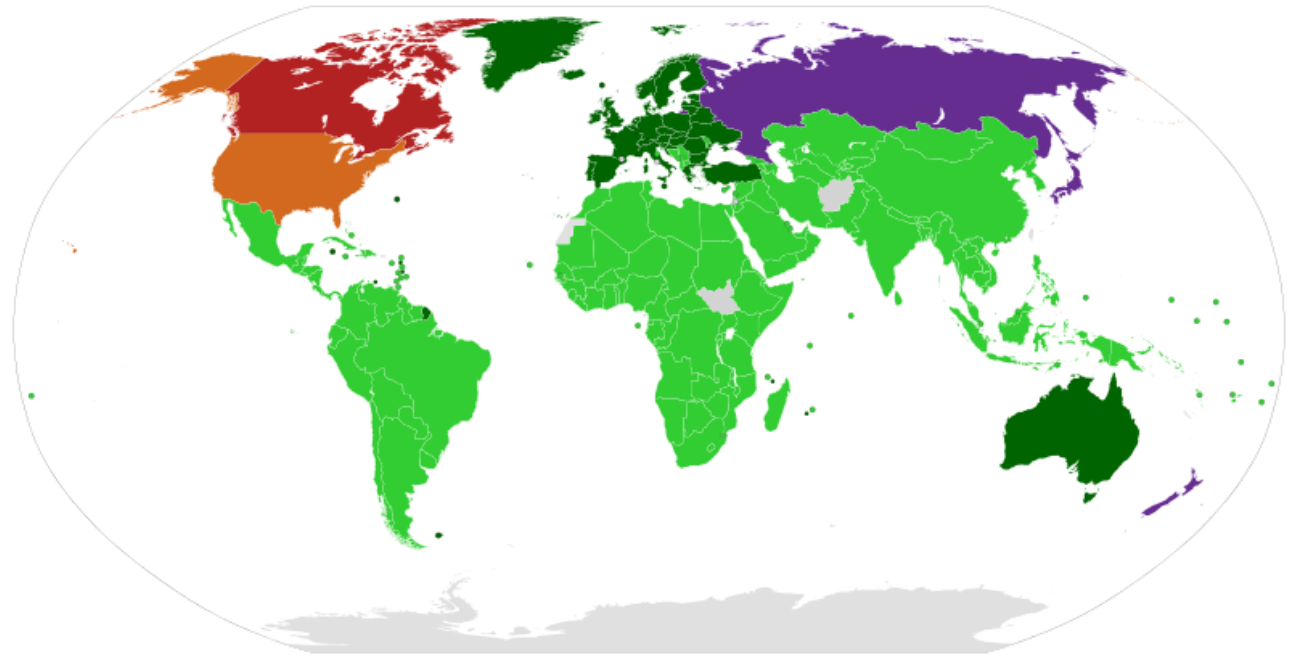


Figure 2: *Kyoto Protocol participation map (commitment period: 2013-2020)*, Wikipedia, (2013)

However this was not enough and, due to rising concerns on global warming, the EU Parliament established strict standards for EU countries. In fact, on December 2008, the European Parliament gave its backing at the climate change package[5] (20-20-20) which aims at a threefold target by 2020:

- 20% reduction in greenhouse gas emissions
- 20% improvement in energy efficiency
- 20% share for renewable energy generation in the EU energy mix

In particular, the last point must result from the weighted average of the EU-27. So, even though there were some countries whose share of renewable was already higher than 20% (e.g. Sweden), every State must contribute to the achievement of the common goal.

[5] Source: European Parliament, (2008)

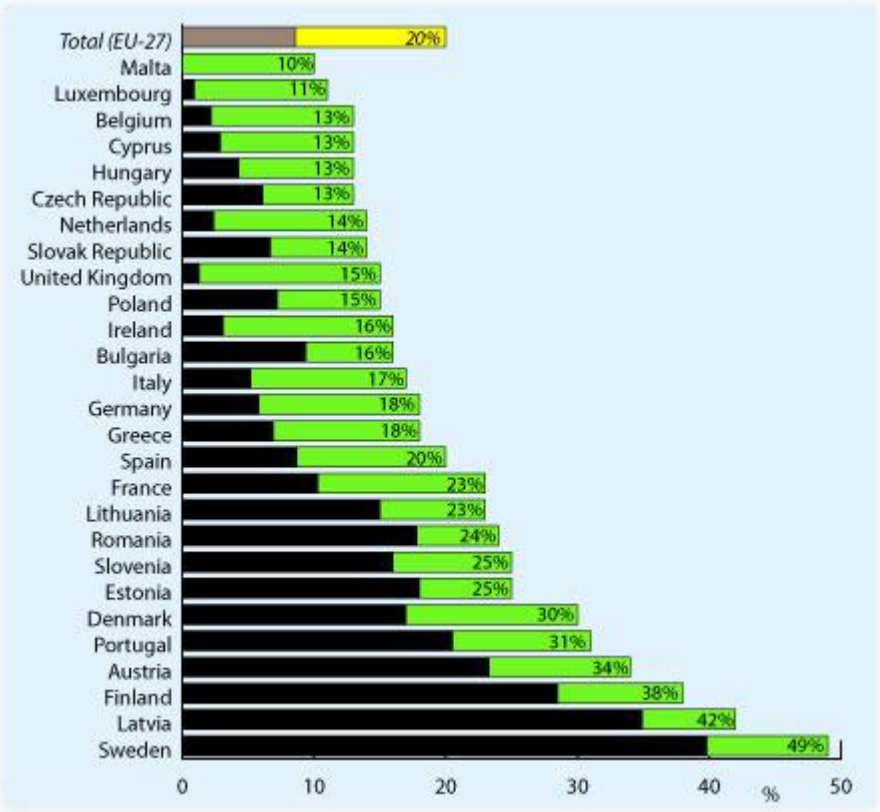


Figure 3. *The renewable target share by country*, Green Rhino Energy, (2012)

As a result, since the enforcement of international regulation, renewable energy investments have been increasing in the last decade starting from 2004. In fact, overall investments kept soaring by around $30 billion a year from 2004 and, up to around $275 billion (without R&D) reached in 2011. Then, one year later, mainly due to Eurozone debt crisis, investments in clean energy dropped by 11% to nearly $247 billion[6] as it is highlighted by the following figure.

[6] Source: The PEW Charitable Trusts, (2012)

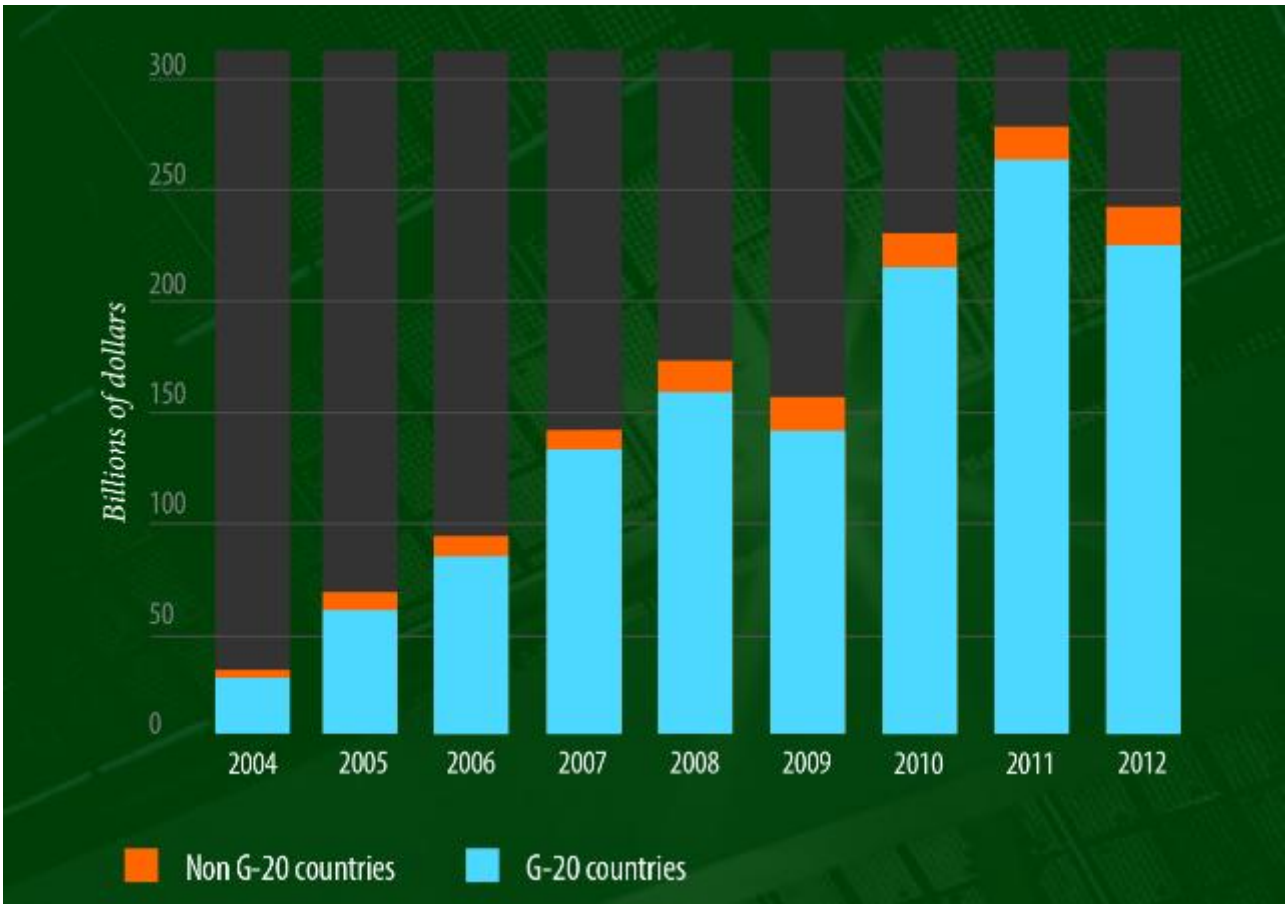


Figure 4*: Renewable energy investment*, The PEW charitable trusts, (2012)

As a consequence of increasing investments, both global installed capacity and electricity generation, increased during such period. As it is evident by the following figure[7], most of the increase of renewable electricity production (TWh) will come from non-OECD countries: China will play an important role in this scenario since it will account for more than 40% of the new renewable installed capacity expected by 2017.

[7] Source: Environmental Leader, (2012)

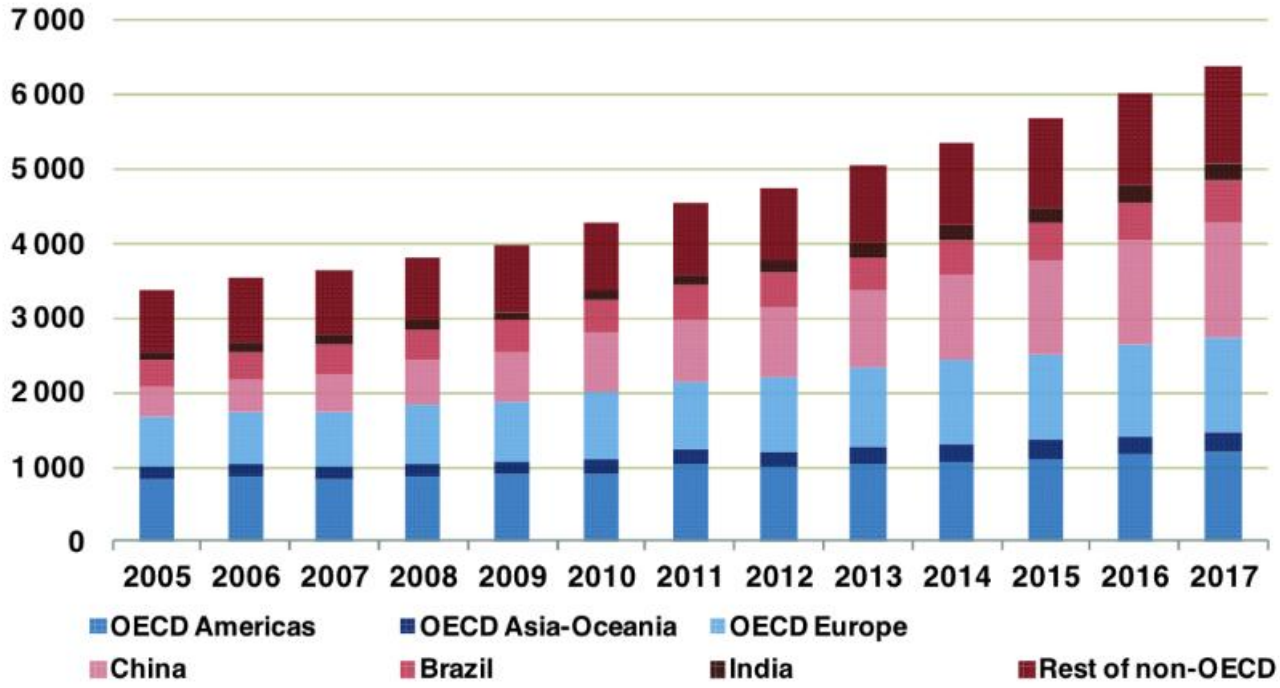


Figure 5: *Renewable electricity production*, Environmental Leader, (2012)

Environmental Leader[8] also says that, despite the troubles it has dealt with so far, EU will continue to support the development of renewable energies production with incentive schemes. However, as we will see in the following chapters, most of the companies operating in the REs industry are dependent on subsidies; therefore, any reduction or withdrawal of such incentives, could be detrimental to their financial performance.

After a brief presentation of REs, it is worth mentioning which are the goals of this paper:

- Analyzing and predicting the main trends in the REs industry and their impact in terms of corporate activity (i.e. M&A, IPO, etc)
- Understanding whether utilities made a good choice listing their REs divisions or not

The first theme will be dealt with analyzing macro trends (i.e. IPO and M&A trends) while the second question will be answered trough the analysis of extraordinary operations which led to the flotation of some REs utilities. However, in order to assess whether these transactions were good choices, some of the main private REs utilities will be used as a means of comparison. In particular, all the companies that will be taken into account are the biggest players in Europe:

- Iberdrola Renovàbles ("IBR")
- EDF Energies Nouvelles ("EEN")

[8] It is the leading daily trade publication about energy, environmental and sustainability topics

- EDP Renovàveis (“EDP”)
- Enel Green Power (“EGP”)
- RWE Innogy
- E.ON Climate & Renewables (“EC&R”)

So, the first step is to analyze the main features of REs industry in order to better assess macro/micro trends afterwards.

2) Renewable Energy Industry Analysis

The Renewable Energy Industry is rather a new industry which presents specific characteristics. The major ones are listed below:

- ✓ Green Premium
- ✓ Capital intensity
- ✓ Subsidies dependence
- ✓ Debt financing dependence

Each of these factors will be analyzed separately in the following sections.

2.1) Green Premium

Green Premium was a term coined to describe the willingness of investors to pay more for businesses exposed to the renewable energy sector. According to S&P Capital IQ, before 2008, REs companies were traded at very high multiples, testifying the appetite of investors due to the perceived structural growth that existed in markets pursuing a low carbon agenda. In fact, while Iberdrola, EDP and EDF listed their renewable energy arms at EV/EBITDA FY1 and multiples around 17x before the crisis (between 2006 and 2008), Enel Green Power flotation (in 2010) was marketed at a EV/EBITDA of 8.4x reflecting the new scenario.

The "green premium" is, indeed, strongly related to the economic situation which in turn is the main determinant of two of the pillars renewable energy industry is based on: subsidies and debt financing availability. In fact, given that governments, especially in EU, need to decrease their expenses, they cannot afford large subsidies such as those approved in the past. In addition to this, during economic crisis, due to the increased riskiness of the companies, banks are less willing to lend money, and, if they are not, they lend at worse conditions.

These two factors together are those which, according to KPMG survey "Green Power 2012", will be the key drivers for the growth of renewable energy industry. In fact, while subsidies will enable to keep investing in early-stage pipelines, debt financing will push financial investors to enter the market and renovate the appetite for the industry.

So, even the lack of one the these drivers could be detrimental for the industry since it could create uncertainty, a feeling that drives multiples down.

2.2) Capital Intensity

According to Deloitte[9], wind and solar farm developers can be valued using a multiple regression based on the specific sector multiple EV/MW. In particular, through their analysis it emerged that the later the stage of the project, the higher the EV/MW multiple. In order to better understand the reasons of such differences, each step will be analyzed separately.

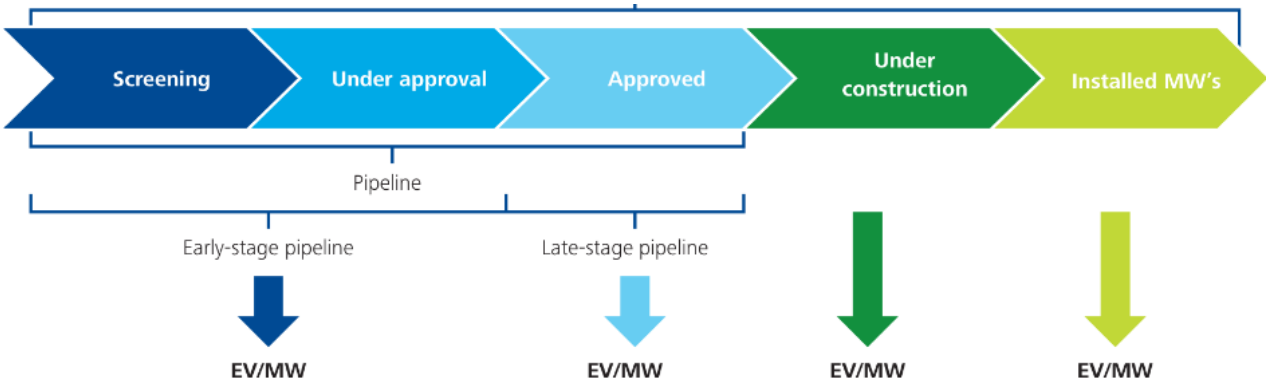


Figure 6: *Wind and solar farms project lifecycle*, Deloitte, (2011)

1. **Early-stage pipeline**: given that this is the stage which is most characterized by uncertainty regarding the success of the process (since it includes only securing land, wind testing, planning etc.), the EV of projects in this stage is close to zero, also because almost no capital has been invested yet.
2. **Late-stage pipeline**: in this stage, the wind farm developer secures turbines, debt financing and obtain project permits from local authorities. Given that substantial capital expenditures begin during this stage, the project's value starts to increase as well.
3. **Under construction**: this is the stage where most capital expenditures occur and therefore, projects' values are close to their peak.
4. **Installed MWs**: this is the last stage of the project. Construction of turbines/panels is over and therefore the site is evaluated for the amount of MWs it can produce.

So, it is evident how capital expenditures are fundamental for the lifecycle of a project, given that it seems to be a strong positive correlation between them and EV. Moreover, given that multiple valuation (EV/MW) gives a relative value rather than absolute, at a confidence level of 95%, the lower bound value is represented by those projects which are characterized by lower than the average capital expenditures (and vice versa). However, this is not true if the project is in the installed MWs stage: in fact, in this case, differences in valuation occur due to reasons other than capex, such as power purchase agreements, subsidies, local tax rules etc.

[9] Source: Deloitte, (2011)

Concluding, one can state that capex are vital for the development of projects in the renewable energy industry and therefore, sources of capex are fundamental as well. Projects can be financed by own money, subsidies, banks' money; if one lacks at least two of them (like it is happening now), the success of the project is at risk.

2.3) Subsidies dependence

Incentive schemes for renewable energy production are fundamental for the development of the projects and can take several forms. The most used are listed below:

- ✓ **Feed-in tariffs**: market based incentive through which renewable energy producers are offered with a long-term contract which awards them with more than competitive prices paid for green energy.
- ✓ **Renewable Portfolio Standard (RPS)**: regulation that obliges companies to produce a certain fraction of the overall energy from renewable energy sources.
- ✓ **Biofuel Obligation Scheme (BOS)**: regulation that obliges suppliers of mineral oil to ensure that a percentage of the motor fuels they sell comes from renewable energy sources (e.g. Biodiesel).
- ✓ **Tradable Renewable Energy Certificates (RECs)**: scheme that enables REs producers to obtain certificates representing the proof they produced a certain amount of green energy (e.g. green certificates in Italy). These RECs can be sold and traded in the market.
- ✓ **Fiscal Incentives**: companies can enjoy reductions in VAT or tax credits.
- ✓ **Public Financing**: governments can provide companies with help in terms of loans, investments and/or grants.

This is a wide range of policies that only a few countries in the world have implemented so far (Italy and Canada above all). In order to have a better knowledge of which are the policies adopted worldwide, the following table aims at summarizing them:

Table 1: *Summary of Support schemes available in the 23 countries highlighted*, KPMG, (2012)

According to Green Power 2012 survey by KPMG, the respondents show fear about the possibility of subsidies cuts: in particular, they are mainly afraid that incentives expiring in the very next future will not be renewed. This could harm the whole industry since, together with no availability of debt financing, development pipelines could actually not be developed. As a consequence of this, the value of development pipelines with lead times that go beyond the timeframe of tariff reductions, could be negatively impacted: in particular, the lower the stage, the stronger the impact.

Moreover, an even more dangerous risk is the possibility of retroactive cuts, that is, companies which have based their investments in the past on subsidies schemes, will need an immediate source

of finance to match past expenses. This is actually what is expected to happen in Spain and, as a result, investors are very cautious before entering that uncertain market.

However, governments are likely to cut subsidies in the future not only for budget reasons, but also because of "grid parity" achievement. In fact, incentives are fundamental when production costs are so high to discourage the development of a technology; on the contrary, when production costs decrease, incentives are likely to decrease as well down to zero when grid parity is reached, otherwise this would turn out to be a waste of money that governments cannot afford.

2.4) Debt Financing dependence

As we have already explained, renewable energy industry performance is strongly correlated with subsidies, but most of all, with debt financing availability. In fact, recalling that the S&P Global Clean Energy Index lost more than 50% of its value in a few months after Lehman Brothers filing.

The rationale behind this collapse is the following: if debt financing is tighter, development pipelines cannot be completed and therefore their value should be around zero. If their value is around zero, the value of the company should consequently decrease substantially reflecting a waste of investments and absence of growth, if not negative.

3) M&A activity in the Renewables sector

This chapter aims at providing a basic background on M&A activity over the last 5 years in the renewable energy sector. After a brief introduction, the chapter is structured in different sections, each of those highlighting the main features of the years taken into consideration.

M&A activity is only a part of the total amount of investments occurred (and occurring) in the renewable energy industry during the last decade. However, as it is evident from Figure 7, developed countries have contributed more than developing countries with the exception of China.

Both Europe and US did not increase their investments in REs immediately after the beginning of the financial crisis in 2009; in particular, US decreased its expenses, EU's did not rise, while China seemed not to be affected by the financial crisis since their capex (as well as their GDP) kept growing after Lehman.

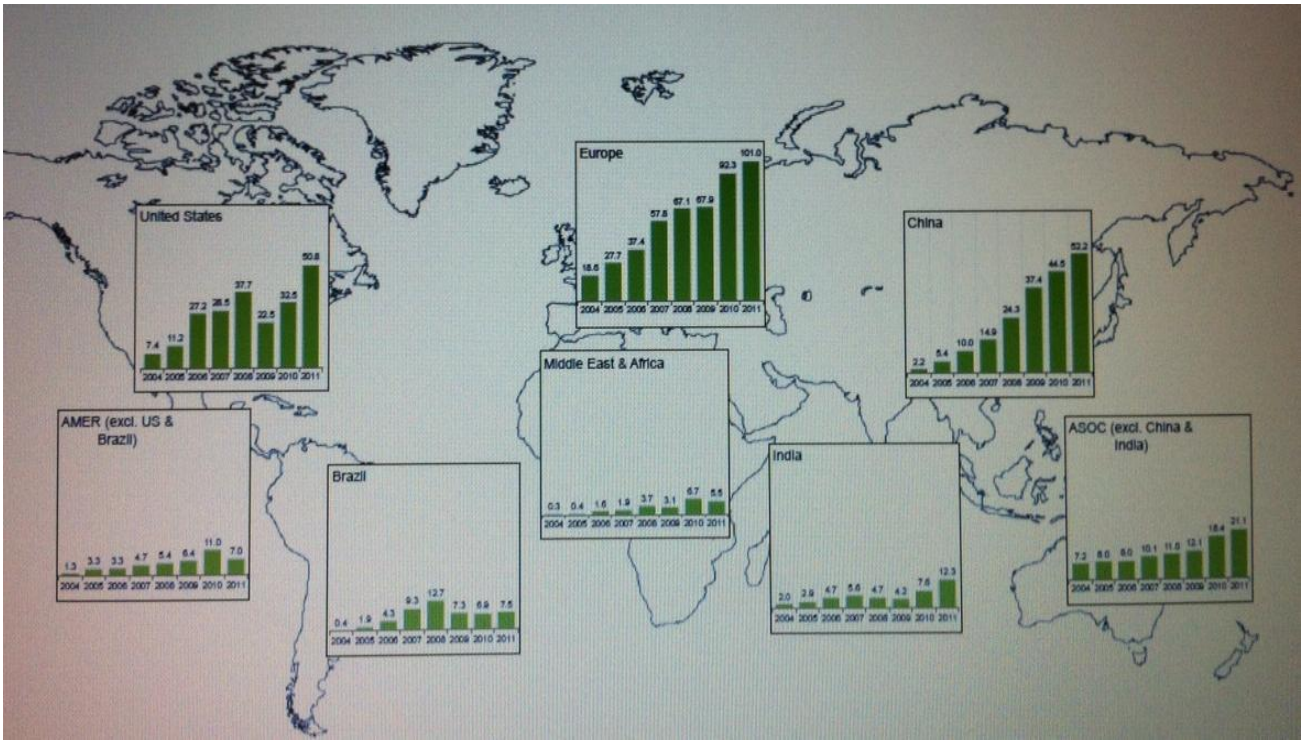


Figure 7: *Investments in REs worldwide*, Frankfurt School – UNEP Collaborating Centre for Climate & Sustainable Energy Finance, (2012)

Overall, M&A activity in the renewable energy industry (both in energy generation and manufacturing) has been very volatile in terms of "Deals Value" and "Avg. Deal Value". On the contrary, as shown by Table 2, there is a positive trend in terms of "Number of deals", which more than doubled from 2007 to 2011.

	2007	2008	2009	2010	2011
Deals Value ($ bn)	43,4	26,9	48,8	38,2	53,5
# Deals	207	234	319	606	570
Avg. Deal Value ($ bn)	0,210	0,115	0,153	0,063	0,094

Table 2, RE M&A activity 2007-2011, Pwc, (2008, 2010, 2011)[10]

So, one can say that, while in 2007, the total value of the transactions was driven up by abnormally high prices, in 2011, due to the increased interest in the sector, along with lower prices (affected by the financial and sovereign debt crisis), the whole value was pushed up by the high number of deals.

However, the economic landscape drastically changed across this period, thus, a brief analysis of the main features and trends that characterized those years seems appropriate to better understand the renewable energy industry[11].

3.1) 2007-2008: the beginning of the financial crisis

- ✓ **Economic Scenario**: before Lehman filing, the whole world was in a prosperous time, maybe too much. This prosperity drove prices up, especially for renewable energy assets given the recent concerns about climate change. EU commission, indeed, set in 2008 a 20% renewable share target by 2020. As a consequence, governments started to incentivize the production of renewables through subsidies such as those discussed before.
- ✓ **Credit crunch**: the economic downturn, along with the difficulty of securing debt financing contributed to the increase of uncertainty around the industry that, in turn, got prices to shrink by almost 50%.
- ✓ **Main sectors**: Wind continues to be the most attractive sector (55% of the total value in 2007 and 57% in 2008) but solar in 2008 overtook hydro as the second renewable deal category in 2008 (both value and number of solar deals quadrupled in a year). The most mature technologies were Onshore Wind and Hydro while Solar was the top growing.
- ✓ **Large Acquisitions**: the largest acquisition registered in 2008 has been carried out by UK-based utility Scottish and Southern Energy (SSE) which bought Irish-based renewable energy production and development company Airtricity Holdings for $2.1 billion. After this deal, SSE was the largest wind asset owner in UK. Then, in 2008, the acquisition by GDF Suez SA of FirstLight Power Enterprises ranks second, in a deal worth $1.9 billion.
- ✓ **Top IPOs**: the main deal in 2007 was the IPO of Iberdrola Renovables through which the parent company Iberdrola, managed to raise €4.5 billion floating a 20% stake in the

[10] Source: Pwc (2008, 2010, 2011)
[11] All the sub-section below are taken from Pwc reports previously mentioned

former[12]. 2008 was characterized by only 5 IPOs worth more than $1 billion, 4 of which in EU. Again, the largest transaction was an IPO: in particular the Portuguese power company EDP listed its renewable energy arm EDP Renovàveis raising around $2.8 billion through the flotation of a 25% stake of the latter.

3.2) 2009-2010: the recovery?

- ✓ **Economic Scenario**: This biennium shows the highest level of uncertainty due to the extreme differences on a year-on-year base. Several kinds of subsidies are provided by Governments but difficulties in securing debt are raising doubts over the profitability of the industry. However, 2009 is characterized by an increase of the overall transactions' value and number of deals. On the contrary, in opposition to the forecasts, this trend did not continue in 2010, the year with the lowest value per deal in the last 5 years.
- ✓ **Main sectors**: Wind (Onshore) and Solar become the most important technologies representing together around 2/3 of all renewables deals in 2010 by value.
- ✓ **Chinese IPOs**: Chinese renewable companies are looking for expansions with a series of IPOs in the Hong Kong Stock Exchange (4 out of 5 of the largest IPOs in 2010). Sinovel and Goldwind will threaten western mature companies such as GE and Vestas. Chinese players will use the proceeds of the IPOs to invest more in R&D and expand their pipelines.
- ✓ **Large Acquisitions**: 2010 was characterized by the lowest average value per deal, feature which is easily observable analyzing the size of the major deals. In fact, in 2010, only 1 transaction was worth more than $1 billion, the acquisition by Royal Dutch Shell plc of Cosan ltd, worth $1.6 billion.
- ✓ **Top IPOs**: The largest transaction of 2010 was the IPO of Enel Green Power, through the parent company Enel raised around $3.4 billion through the flotation of a 30% stake of the former. Then, as a result of Chinese growth, the second largest IPO involved Xinjiang Goldwind Science & Technology Co. Ltd for an overall value of $1 billion.

3.3) 2011 – to date: another crisis hitting the industry

- ✓ **Economic Scenario:** 2011 seems to be the year of renewable energy industry maturity. In fact it is characterized by a huge number of deals and by the highest level of deals value, $53.5 billion. $1 billion plus deals become more common even in other sectors other than hydro, such as solar, wind and even energy efficiency. However, especially during Q4 2011, EU begins to be strongly affected by the sovereign debt crisis that in turn is leading governments to revisit renewable energy subsidies, also in the light of decreasing production

[12] Source: MarketWatch, (2007)

costs[13]. Nevertheless, what really scares investors is the possibility (very likely in countries like Spain) of retroactive subsidies cut, with a tremendous negative effect on new investments and thus, on M&A activity. The industry future will be characterized by consolidation: a few big players will buy smaller companies and they will dominate the competitive landscape.

- ✓ **Main sectors**: Solar and energy efficiency deals are the winners of the year, in fact, together, they account for 79% of the $15.3 billion increase in M&A value. In addition to this, for the first time, solar is the first sector in terms of both deals value and number of transactions reflecting how the technology is finally mature and ready take-off.
- ✓ **EU and North America differences**: these regions moved in different directions. While EU target deals value rose 80%, North America's ones decreased 5%. Although EU M&A activity is destined to slow in 2012 due to the sovereign debt crisis, North America's trends reflect the raising concerns regarding the tax credit and other subsidies cuts.
- ✓ **Large Acquisitions**: 2011 is characterized by the presence of mega-deals, in fact ten $1 billion plus deals have been registered, 2 of which only are IPOs. The largest transaction is the $2.9 billion acquisition of the Brazilian ERSA Energia Renovàveis SA by CPFL Energia SA. What emerges from top deals figures is a trend that seems the opposite of what happened a few years before, i.e., the buy back of renewable energy arms by utilities such as the acquisition by Electricite de France SA of EDF Energies Nouvelles SA. This trend will also continue in 2011 with the purchase by Iberdrola of the floating 20% of Iberdrola Renovables, listed in 2007.
- ✓ **Top IPOs**: All the top 5 renewable energy IPOs of 2011 occurred in China, two of which worth more than $1 billion. These were the listing of Sinohydro Corporation Ltd for $2.1 billion and Sinovel Wind Group Co. Ltd for $1.4 billion, both on the Shanghai Stock Exchange.

[13] As we stated before, subsidies are effective when production costs are too high; therefore, if the latter decrease, the former should decrease as well

4) IPO Trends

Another important trend to be considered is the global IPO trend over the last years, with special focus to renewable energy IPOs.

As it is evident by the figure below, volumes and number of global and across sectors IPOs are strongly correlated with the economic situation. In fact they decreased after the internet bubble and increasing again after the recovery until Lehman filing in 2008. So, it is possible to state that IPOs constitute a cyclical activity.

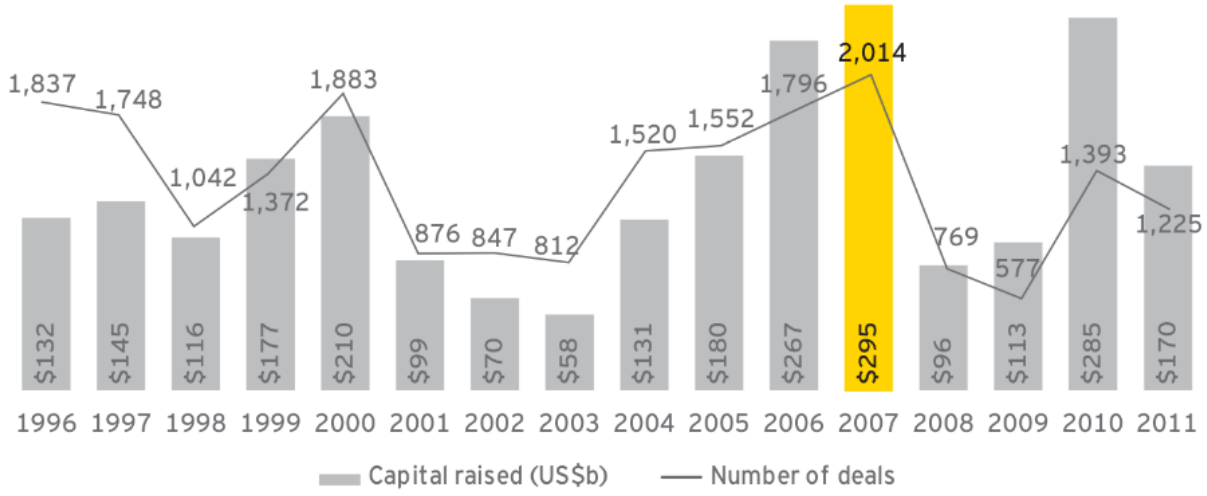


Figure 8, *IPO volumes and number by year*, Ernst & Young, (2012) 14

Before Lehman filing, IPO activity reached its peak in 2007, a level that has never been achieved again so far. Although it is expected that IPOs will increase as soon as the equity market shows signs of recovery[15], it is quite unlikely that in the years to come, we will soon see such levels. In fact, 2012 IPO data tend to confirm this statement: as of November 2012, IPO decreased both in terms of capital raised ($119 billion compared to $170 billion of 2011) and number (768 against 1,225 of 2011)[16]

2007 was the year of BRIC's rise: given their expected high growth, investors shifted their assets to BRIC and, as a result, China was the country which raised more capital through IPOs, followed by US and Brazil.

[14] Source: Ernst & Young, (2012)
[15] Private equity firms use IPOs as exit strategies
[16] Source: Ernst & Young, (2012)

Venture capital and private equity firms used IPOs as an exit strategy to monetize their investments, and multinational began the practice of "**carve-out**". Companies such as Iberdrola listed their renewable energy arms that, as of 2007, benefited from a very good valuation at IPO (the so-called green premium). So, spin-offs were not only a way to raise expansion capital or to cure levered balance sheets, but a way to enjoy financial arbitrage (i.e. to benefit from some value creation because of higher valuation multiple at IPO then the one implied by current market valuations)..

The beginning of the financial crisis was characterized by a slowdown in the IPO activity, with signs of recovery in 2010, just immediately before the threat of the European sovereign debt crisis. In fact, Q4 2010 can be considered as an outlier given that, around that quarter, as shown by the following figure, volumes and number of IPOs did not vary substantially.

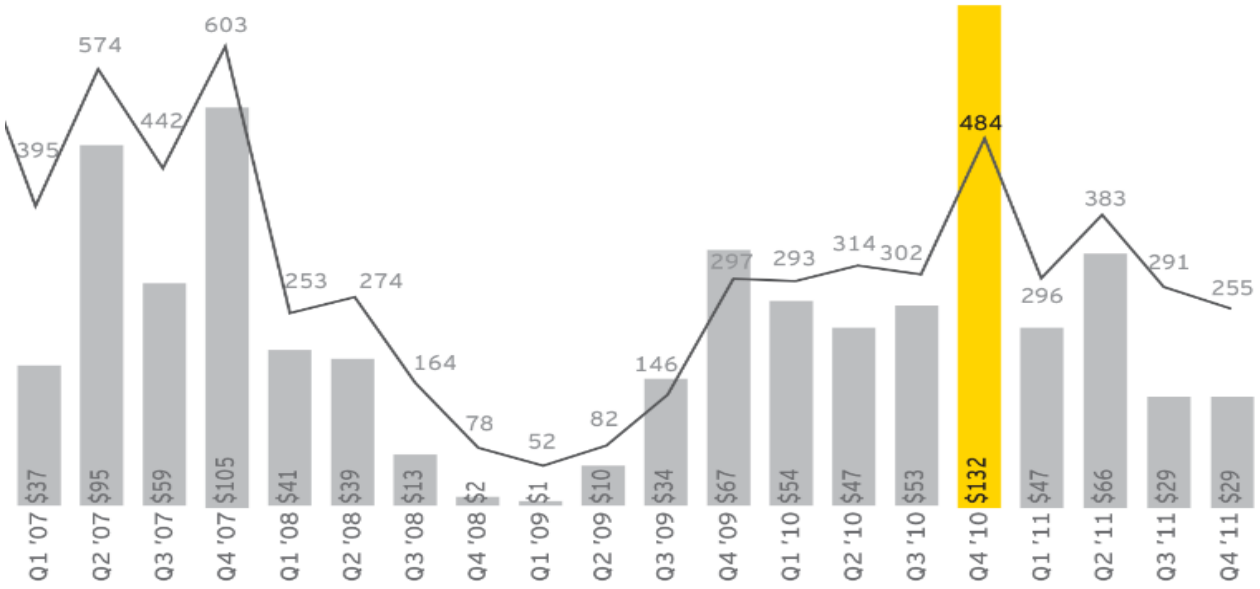


Figure 9, *IPO volumes and number by quarter*, Ernst & Young, (2012) 17

As for the future of the IPOs, the CEO of Borsa Italiana Mr. Raffaele Jerusalmi, interviewed by Adriano Bonafede, journalist of "La Repubblica", states which are his thoughts[18]. In particular he confirms that 2011 has been a difficult year in Europe for the IPOs, especially in Italy, given that only one company went public. He states that there are **two main reasons** that caused this **decline**:

- **Cyclicality of IPOs**
- **Pension funds changes in their investment plans**

[17] Source: Ernst & Young, (2012)
[18] Repubblica Affari e Finanza, (2013)

With regard to the second reason, in particular in UK and US, in the last 10-12 years, pension funds reduced their equity share of invested capital from 70% to 45% due to the abnormal economic downturns occurred recently.

As for the first reason, an additional hint confirming the correlation between IPO activity and economic situation is explained by the volatility index (VIX, figure below). The **VIX** is a measure of implied volatility of S&P index Options and reflects the expectation of the stock market volatility in the 30 days to come. Also known as the "**fear index**", it seems to be strongly correlated with IPO activity. In particular, there seems to be a negative correlation because, when VIX rocketed after Lehman filing, the volume of IPOs in the months after it were close to zero.

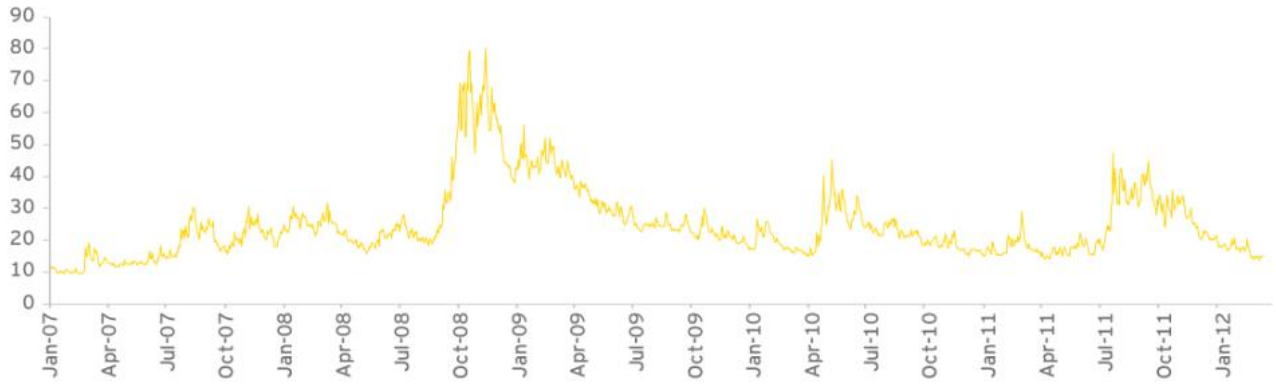
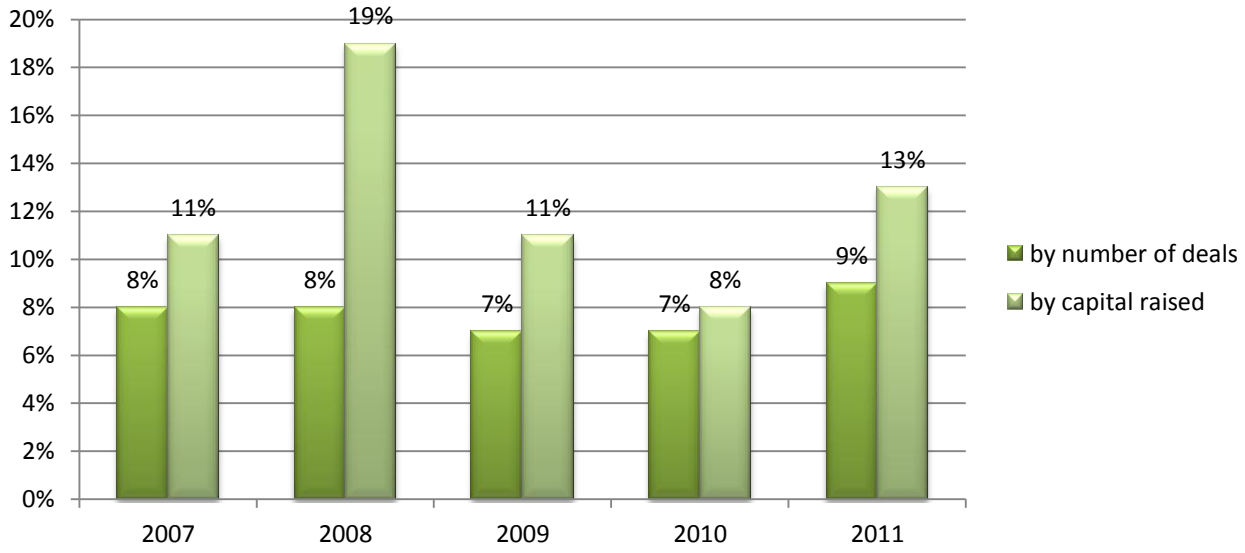


Figure 10, *VIX Index*, Yahoo Finance, (2013)

So, concluding, it is possible to state that, high levels of VIX index do not constitute a healthy environment for IPOs. The reason behind this statement could be explained by the fact that, in a high volatility environment, since a company going public is even more volatile of the stock market itself, given that investors do not have enough information on its equity story, deep aftermarket price changes is a risk that neither the issuer, nor the advisors, are ready/willing to tackle.

However, if we analyze the **energy related IPOs** over the same time frame, it is possible to extrapolate some features of the industry. In order to do that, the graph below provides with a general background of the history of energy-related IPOs in terms of capital raised and number of transactions, as a percentage of the total.



Graph 1, Volumes and number of energy related IPOs (% of total), data retrieved from Ernst & Young, (2012)

The first feature one can notice is that, energy-related IPOs are larger than the average. Their weight is, indeed, higher in terms of capital raised than in number of deals. In fact, 2008 was characterized by mega-deals in the energy-industry recording 3 IPOs in the top ten annual IPO ranking by capital raised.

So, one can state that **energy-related IPOs** have the following features:

1. Almost **perfect positive correlation** with the **IPO trends** in terms of **number of deals**[19], and **weak correlation** in terms of **capital raised**
2. **Larger deal size**

As for the following years, the main features are highlighted by the table below.

[19] Their percentage on the total does not vary substantially

	2009	2010	2011
Number of deals	577	1,393 (▲141%[1])	1,225 (▼12%[2])
Capital raised (US$)	$112.6b	$284.6b (▲153%[1])	$169.9b (▼40%[2])
Average deal size (US$)	$195.1m	$204.8m	$138.7m
PE-backed IPOs	53 deals, $16.2b	155 deals, $35.0b	118 deals, $38.3b
Top five sectors (number of deals)	Industrials (101) Materials (96) High technology (59) Consumer staples (49) Financials (46)	Materials (307) Industrials (236) High technology (180) Consumer staples (113) Energy (94)	Materials (268) Industrials (199) High technology (149) Consumer products[3] (124) Energy (110)
Top five sectors (capital raised)	Industrials ($23.2b) Financials ($22.6b) Energy ($12.1b) Real estate ($10.8b) Materials ($7.2b)	Financials ($80.0b) Industrials ($57.6b) Materials ($38.5b) Energy ($23.2b) High technology ($20.7b)	Materials ($29.2b) Industrials ($26.4b) Energy ($21.3b) Financials ($15.9b) High technology ($14.7b)
Top five exchanges (number of deals)	Hong Kong (56) KOSDAQ (56) Shenzhen – SME (54) Australian (37) Shenzhen – ChiNext (36)	Shenzhen – SME (205) Shenzhen – ChiNext (116) Australian (92) Hong Kong (87) New York (82)	Shenzhen – ChiNext (128) Warsaw – NewConnect (123) Shenzhen – SME (115) Australian (101) Hong Kong (68)
Top five exchanges (capital raised)	Hong Kong ($21.9b) Shanghai ($20.4b) New York ($19.1b) NASDAQ ($8.1b) Shenzhen – SME ($6.2b)	Hong Kong ($57.4b) New York ($34.7b) Shenzhen – SME ($30.2b) Shanghai ($27.9b) Tokyo ($14.3b)	New York ($30.5b) Hong Kong ($25.3b) Shenzhen – SME ($15.7b) Shanghai ($15.1b) London ($13.9b)

Table 3, Key Global IPO statistics, Ernst & Young, (2012)

The main aspect one can immediately notice is that the **most active sectors** are often the same ones, say, **Industrials, Financials, Materials, Energy** and **High-tech**. In addition to this, these years have finally consolidated China's position: in fact, the Stock Exchanges which registered most of the IPO activity are located in China, i.e. Hong Kong, Shangai and Shenzen.

We have seen how energy is one of the top IPO markets, however, the **renewable energy industry IPOs segment** is even more interesting to study. According to Ernst & Young (2008, 2009, 2010, 2011, 2012)[20], in the time frame 2007-2011, for each year, there has been one renewable energy IPO, ranking in the top 10 deals by capital raised. In particular these were:

- 2007: Iberdrola Renovables (€4.5 billion)
- 2008: EDP Renovàveis (€1.6 billion)
- 2009: China Longyuan Group Corporation ($2.26 billion)
- 2010: Enel Green Power (€2.6 billion)
- 2011: Sinohydro Group ($2.1 billion)

It is interesting to say that some of them, say, **Iberdrola Renovables, EDP Renovàveis and Enel Green Power**, were carve-outs (**EDF Energies Nouvelles**, similar transaction, occurred in 2006); in fact, the parent companies of these firms, needed either to raise expansion capital or to reduce

[20] Source: Ernst & Young, (2008 – 2012)

leverage (such as Enel)[21]. Then, a few years later, things reversed: **EDF** and **Iberdrola** bought back their renewable energy arms in 2011 making them 100% part of their groups.

In the following chapters we will analyze separately each of the six transactions[22] mentioned above, trying to understand which were the drivers of these operations, and, based on the background provided by the previous paragraphs, along with macroeconomic expectations, we will try to depict how the future of renewable energy arms corporate activity (e.g. carve out / listing and take private) will look.

[21] Additional drivers of those IPOs will be further analyzed

[22] 4 IPOs and 2 Take Private. In addition to this, there will be taken into consideration RWE and E.On which decided not to take public their RE division

5) Strategic options for utilities' renewable assets

This paragraph will analyze the strategic options that utilities have with regard to their renewable assets. In particular, it will be divided into three sub-paragraphs each representing a strategic option. Finally, for each strategic option, two examples (occurred within the past decade) will be analyzed in order to try to assess which companies made the right decision and which did not.

The strategic options, and the related cases, that will be dealt with are:

- IPO and delisting: EDF Energies Nouvelles and Iberdrola Renovables
- IPO: EDP Renovàveis and Enel Green Power
- Renewable Assets 100% controlled by the parent company: E.ON and RWE

The following table summarizes the most important features of each company that will be further analyzed and explained in the chapters below[23].

	EDF Energies Nouvelles	Iberdrola Renovables	EDP Renovàveis	Enel Green Power	E.On Climate & Renewable	RWE Innogy
Listed	not anymore	not anymore	yes	yes	no	no
Dominant Technologies (by installed capacity)	Wind	Wind	Wind	Hydro and Geothermic	Wind	Wind and Biomass
Main Asset Location	US and France	Spain and US	Spain and US	EU and Latin America	US, Spain and UK	Germany and UK
Capacity at IPO	1036 (MW) November 29, 2006	7432 (MW) December 13, 2008	5032 (MW) June4, 2008	5761 (MW) October 31, 2010	n.a.	n.a.
Pipeline U.C. at IPO (MW)	615	1.210	1.612	800	n.a.	n.a.
Reasons IPO	Debt reimbursement Financing operations	Debt reimbursement IBR Development	Financing EDPR growth Debt reimbursement	Enhancing Res assets value Increasing EGP visibility Debt Reimbursement	n.a.	n.a.
Reasons take private	EDF target of diminishing nuclear dependence	Achievement of IPO goals Synergies Low share price	n.a.	n.a.	n.a.	n.a.
Current Capacity (31/12/2012)	5.372	14.034	7.987	8.001	4.237	3.700
CAGR from IPO	31%	13%	11%	16%	n.a.	n.a.
Current Pipeline U.C. (31/12/2012)	1.329	570	1.165	696	2.273	1.300

Table 4, *Summary of the key REs companies' features*, data retrieved from this paper

[23] U.C. stands for "Under Construction". Since investors do not consider that "early-stage" pipeline contributes to value creation, only the closest stage to become "installed capacity" has been considered, say, "Under Construction".

5.1) IPO and delisting: EDF Energies Nouvelles and Iberdrola Renovables

This paragraph will analyze four operations carried out in 2006, 2007, and 2011 (both delistings occurred during this year). In particular these are:

- 2006: IPO of EDF Energies Nouvelles
- 2007: IPO of Iberdrola Renovables
- 2011: acquisition of EEN and IBR by their parent companies, respectively EDF and Iberdrola

The paragraph will analyze these two companies separately, although following the same structure. First, it will deal with the details of the IPO, and finally with the main features regarding the buy-back.

5.1.1) EDF Energies Nouvelles

Founded in 1990, the company was originally named Société Internationale d'Investissements Financiers (SIIF), changed to EDF Energies Nouvelles (EEN) in 2004. EEN was floated in November 2006 and raised around €530 million with EDF that kept 50% of the share capital[24].

All the information presented in this paragraph, is retrieved from EDF annual report 2006, EEN IPO Prospectus and Press Releases regarding the IPO.

5.1.1.1) Financial information about the parent company in the year of the IPO

In 2006 EDF registered a positive financial performance, since its revenues (coming mostly from electricity sales), as well as EBITDA and EBIT, showed a double-digit growth on a year-on-year basis. The table below summarizes the most relevant of them.

€ million	2005	2006
Revenues	51,047	58,932
EBITDA	12,906	13,930
Margin (%)	24%	25%
EBIT	7,993	9,356
Margin (%)	16%	16%
Net Income	3,230	5,605

Table 5, *EDF Income Statement*, EDF Annual report, (2006)

[24] Only 25.09% was left to the founder of the SIIF, Mr. Mouratoglou

Net income growth is what is most surprising of 2006, being higher by 74% than in 2005. This huge increase was mainly determined by gains on the disposal of financial assets[25] (higher €467 million than in 2005) and by a more efficient financial management (less financial expenses).

As EDF registered a high income, its balance sheet grew consequently. In fact it reached €179,086 million worth of assets, up from €171,136 million of 2005. Most of this increase was caused by the increment of current and non-current financial assets held for sale (+€10 billion YoY) which was outweighed by the decrease of other items such as cash and equivalents.

So, even if the overall amount of financial liabilities did not change substantially, net indebtedness did. The reason lies is the purchase of financial assets held for sale. In fact, given that they are considered like cash, they contributed to decrease **net debt** by €3.7 billion, from 2005 €18.6 billion to 2006 €14.9 billion.

However, while on one hand such purchase has contributed to improve the leverage of EDF, on the other hand has been the main cause of cash decrease from 2006. In fact, although the operating cash flow soared, it could contributed only partially to outweigh the decrease of investing (increase of financial assets) and financing cash flow (more repayment of borrowings and dividends), as highlighted by the table below.

€ million	2005	2006
Operating CF	8,439	11,795
Investing CF	(10,621)	(13,769)
Financing CF	5,555	(1,794)
Change in cash	**3,373**	**(3,768)**

Table 6, *EDF Cash Flow Statement*, EDF Annual Report, (2006)

5.1.1.2) Information about the issuer

EEN Group is the division of EDF that carries out the renewable energy business of the Group. As of December 2006, EEN had an installed capacity of 1,036.7 MW (770.3 MW of which, entirely owned by the Group) spread all over the world. The country with more installed capacity was US (437 MW) followed by France (161.7 MW) and Portugal (143.8 MW).

[25] Financial assets include investments (non-consolidated investments, dedicated assets, and other investment securities), loans and financial receivables, and the positive fair value of derivatives

Figure 11, *EEN installed capacity location*, EEN IPO Prospectus, (2006)

Its renewable portfolio was composed of several sources, although wind represented the majority of the capacity (78.4%).

Figure 12, *EEN renewable portfolio*, EEN IPO Prospectus, (2006)

In addition to this capacity, EEN also had 615.4 MW under construction.

EEN showed high potential at the time of the IPO, in fact, even if revenues in 2006 were slightly lower than 2005, margins substantially improved. This positive effect was reflected in each of the other profit indicators.

€ million	2005	2006
Revenues	336.2	334.8
EBITDA	62.3	91.8
Margin (%)	*18%*	*27%*
EBIT	39.7	61.7
Margin (%)	*12%*	*19%*
Net Income	16.6	21.9

Table 7, *EEN Income Statement*, EEN IPO Prospectus, (2006)

Due to high capex, EEN was forced to get new long term debt reaching €541 million in 2006.

However, due to more cash availability, EEN's **net debt** recorded a substantial decrease from 2005 €478 million to 2006 €240 million.

The effects on the Cash Flow Statement of EEN were the following ones:

€ million	2005	2006
Operating CF	1.2	89.4
Investing CF	(134.8)	(314.9)
Financing CF	98.1	583.3
Change in cash	**(35.5)**	**357.8**

Table 8, *EEN Cash Flow Statement*, EEN IPO Prospectus, (2006)

As it is evident, the table shows how EEN substantially improved its operating CF. Most of the increment was caused by a reduction of working capital requirements amounting to €78.8 million. This cash, was used to finance the expansion of EEN operations with a resulting increase in PPE, but it was not sufficient though. In fact, the remaining part came from new borrowings and EEN IPO which contributed to augment financing CF. As a result, the Group registered a large positive change in cash which led to the decrease of its Net Debt (and its leverage) by some €220 million[26].

5.1.1.3) Risk Factors of the issuer

The management of EEN identifies six areas of risks associated with the IPO. These are

1) **Risks associated with the renewable energies industry and in particular wind energy**
2) **Risks associated with the Group's business activities**
3) **Risks associated with the company**
4) **Market risks**
5) **Legal risks**
6) **Insurance and risk coverage**

Each of them will be briefly analyzed singularly.

1. **Risks associated with the renewable energies industry and in particular wind energy:** they contain risks faced by both EEN and its competitors.
    - *Risks associated with weather:* since wind energy produced depends on weather conditions, it can vary from the assumptions made when building the farm.

[26] Even if the borrowings increased by around €130 million

- *Risks associated with national and international incentive schemes:* if national and/or international authorities do not support the development of renewable energy production as they did in the previous years, the financial performance of EEN could be negatively affected.
- *Risks associated with regulation:* since EEN operates in a strictly regulated environment, changes in such rules could have a negative impact on the profitability of the company.
- *Risks associated with changes in electricity prices:* a price decrease could negatively impact EEN revenues, and consequently (ceteris paribus), its profitability.

2. **Risks associated with the Group's business activities:** these risks represent those which are faced in the day-by-day operations of the company.
    - *Risks associated with the dependence on suppliers and availability of equipment and raw materials:* any increase in price or any delay in contractual commitments could be detrimental for EEN performance.
    - *Risks associated with fluctuations in revenues:* past trends of revenues may not turn out to be a proper indicator for the very next future.
    - *Risks associated with connection to power transmission and distribution networks:* if transmission and distribution experience a congestion, EEN could be negatively affected since it would not turn out to be able to deliver its services.
    - *Risks associated with dependence on major customers:* even if the Group considers the risk of losing a major customer highly unlikely, if it happened, it would negatively affect EEN performance.
    - *Risks associated with the effect of acquisitions or investments:* given that these operations are risky, any integration problem could be detrimental for EEN.

3. **Risks associated with the company:** these are the risks that EEN may experience, independently on external causes.
    - *Risks associated with dependence on key employees and senior managers*: the loss of key managers and employees could result in a loss of experience that EEN may not recover from immediately, leading to a lower performance.

- *Risks associated with the shareholding structure of the Group***:** since EDF, through its wholly-owned subsidiary EDEV, owns 50% of EEN share capital, it is in the position to decide on most major choices of EEN operations.

4. **Market risks:**
   - *Interest-rate risk*: since most of project financing of the Group is strongly dependent on debt financing, an increase in interest rates could affect EEN performance negatively.
   - *Currency risk*: given that 58.3% of 2006 EEN revenues were earned in currencies other than euro, any change in exchange rates could affect the financial performance of the company (either negatively or positively).

5. **Legal risks:** in the ordinary course of the business, EEN may become involved in a number of judicial, administrative or arbitration proceedings that could lead to invalidation of permits, payment of fines and so like.

6. **Insurance and risk coverage**:
   - *Risk management policy:* the group seeks to curb exposure to suppliers of components by diversifying them, and risk exposure overall by diversifying its operations geographically.
   - *Insurance:* the company is covered by insurance during the construction and operational phase protecting EEN from equipment breakdown, fire and related risks and so like.

5.1.1.4) Details of the IPO

The key terms of the IPO were the following:

- French and Institutional Offer: a maximum number of n. 12,139,472 shares, representing 20.22%[27] of the share capital, had to be sold to French and International Investors as well as to French retail investors.

[27] Without considering the over-allotment option. In case of full exercise of it, the French and Institutional Offer would have represented 22.57% of new share capital.

- Employee offering: a maximum number of n. 435,000 shares, representing 0.72% of the share capital, priced at a discount had to be sold to employees
- Capital increase reserved to EDEV: a maximum number of n. 4,798,464 shares, representing approximately 7.99% of the share capital, had to be sold to EDEV, fully owned by EDF, in order to enable EDF to maintain the control of EEN.

The IPO also included a greenshoe option through which, EEN share capital would have increased by 15%[28] of the French and Institutional Offer, that is, n. 1,820,920 additional new shares.

The price range set for the offer, between €24.1 and €28 per share, would have led from a capital increase from €463 million to €537 million, with a consequent EEN market cap highlighted by the table below[29].

€	Stock Price	Mkt Cap
Min	24.1	1,616,901,234
Max	28	1,878,557,450

Table 9, *EEN Stock Price Range*, Press Release, (2006)

The syndicate of financial institutions underwriting the Offering was led by J.P. Morgan Securities Ltd and Lazard-IXIS (Joint Global Coordinators and Joint Bookrunners), Merril Lynch International (Senior Co-Lead Manager) and Dexia and Sociètè Gènèrale (Co-Lead Managers).

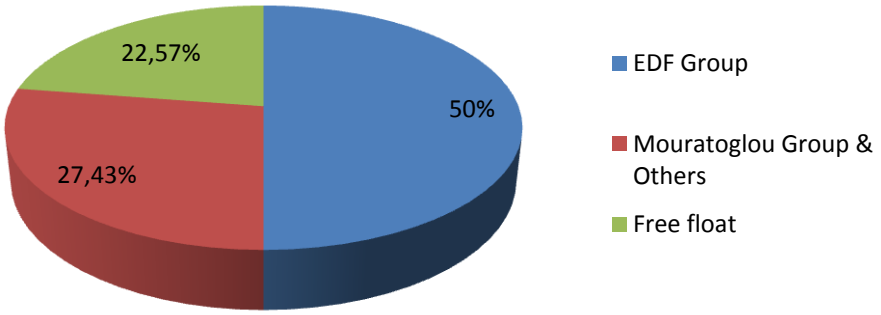
5.1.1.5) Results of the IPO

On November 29, 2006 EEN became a public company. Institutional demand resulted in a over-subscription rate of 31 times and the French public offer was over-subscribed by 9.5 times.

The price set for the offer was €28[30] a share, the high end of the original price range, with a consequent capital raise of €525 million[31] and an EV/EBITDA 08E multiple of 12.9x[32].

The resulting ownership structure after the IPO was the following:

[28] At maximum
[29] Assuming full exercise of greenshoe option and all demand covered
[30] Source: Press Release - Success of EDF Energies Nouvelles' Initial Public Offering, (2006)
[31] Excluding Employee Offer
[32] Assuming full exercise of greenshoe option



Graph 2, *EEN Ownership Structure after IPO*, Press Release, (2006)

5.1.1.6) Drivers of the IPO

According to EEN IPO Prospectus and press releases at the launch of the IPO, the company had a two-fold target:

- Reimbursing part of the debt contracted with EDEV
- Financing of EEN activities

Having a look at EEN financial statements 2006, it is evident how this is actually what happened. In fact, they used €240.8 million to reimburse debt[33], while the remaining contributed to finance capex[34].

5.1.1.7) Delisting of EEN

EDF kept holding 50%[35] until May 2011 when it decided to launch a tender offer on the remaining part of the share capital, say, n. 38,784,208 shares. So, this was a €1.5 billion offer, representing a €3.1 billion equity value, €6.9 billion EV with a consequent 2011 EV/EBITDA multiple of 12.4x[36].

EDF'sproposal[37] was a mixed offer which enabled shareholders to choose either:

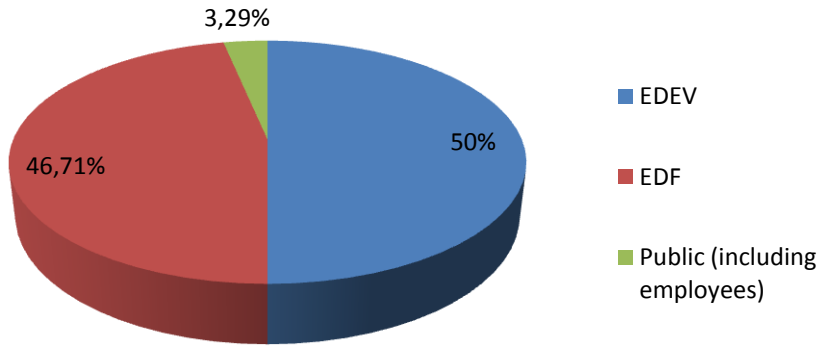
- Public Cash Offer: tender offer for €40 per EDF Énergies Nouvelles share (ex-dividend).
- Public Exchange Offer: exchange offer with a parity of 13 EDF shares issued that will carry full rights as of 1st January 2011 to 11 EDF Énergies Nouvelles shares (ex-dividend).
- Mix of them.

[33] See above: "Information about the issuer"
[34] Investing CF
[35] Through EDEV
[36] A bit cheaper than the IPO EV/EBITDA multiple.
[37] Source: Press Release - The Board of Directors of EDF Énergies Nouvelles unanimously approves EDF's offer, (2011)

EDF Offer was considered to be fair by the independent appraiser, Mr. Didier Kling, and the details are stated below:

- Public Cash Offer: the price of the public ash offer presents respective premiums of 10.4% and 15.3% over the closing price on 7 April 2011 and the 30 days VWAP on 7 April 2011 of the EDF Énergies Nouvelles share.
- Public Exchange Offer: the price of the public exchange offer brings out respective discounts of 12.6% and 3% over the historical parity adjusted, respectively, based on the closing price on 7 April 2011 and the 30 last days VWAP on 7 April 2011.

However EDF could not manage to buy all the remaining shares and, as of July 2011, the ownership structure of EEN was the following:



Graph 3, *EEN Ownership Structure before the Squeeze-out*, Press Release, (2011)

So, since public shares represented only 3.29%[38] of the share capital[39], EDF could buy minorities with the "squeeze out"[40]. The "squeeze-out" was made at the same price of the public cash offer without the possibility for shareholders to for an exchange offer and it was, again, considered fair as evident by the following figure:

[38] Less than the minimum 5% which stops a squeeze-out
[39] Total number of shares was equal to n. 77,568,416 shares
[40] Source: Press Release – Squeeze-out of the shares of EDF Energies Nouvelles, (2011)

	Adjusted EEN (€/Share)	Offered premium (%)
Trading price on April 4th, 2011		
Closing price (04/07/2011)	36.2	10.4%
30-day VWAP	34.7	15.3%
60-day VWAP	33.9	18.2%
6-month VWAP	32.3	23.8%
12-month VWAP	31.4	27.5%
12 months high	38.4	4.2%
12 months low	26.4	51.7%

Table 10, *EEN trading prices before the Squeeze-out*, Press Release, (2010)

So, EEN public shareholders were forced to sell their shares to EDF, that, after the success of the "squeeze-out", delisted EEN and took it private, as it was before 2006.

One of the main reasons for which EDF decided to take private its REs division was the positive effect of synergies, estimated to be around €30 million in the first full year.

Moreover, according to its CEO and Chairman, Henri Proglio[41], the reasons behind the tender offer first, and the squeeze-out later, had to be sought in an increased interest of EDF towards low-carbon energies. In fact, he also said that EDF's ambition is "to reach a diversified energy mix by 2020, of which 25% of renewable energies including hydro".

[41] Source: Press Release – Success of the Squeeze-out of EEN shares, (2011)

5.1.2) Iberdrola Renovables

Iberdrola Renovables, the renewable energy division of the Spanish utility Iberdrola, was listed in December 2007 and delisted a few years later in 2011. So, it is currently a division of Iberdrola, as it was before its flotation. All the data presented in these paragraphs are retrieved from Iberdrola Financial Statements, IBR IPO Prospectus and other relevant press releases.

5.1.2.1) Financial information about the parent company in the year of the IPO

Since IBR's IPO occurred at the end of 2007, the IBE annual report[42] taken into consideration is the 2008 one, which includes the situation of the Group as of 31st December 2007 and 31st December 2008.

At the time of the IPO, IBE showed a positive performance characterized by a positive net income and a profit margin around 13%. One year later, the company grew in terms of absolute values in all of the relevant profit items, but worsened its margins. EBITDA and EBIT margin decreased by around 5% each while the profit margin only by 2% mainly due to higher gains on disposals and higher finance income[43].

€ million	2007	2008
Revenues	17,468	25,196
EBITDA	5,538	6,413
Margin (%)	*32%*	*25%*
EBIT	3,697	4,262
Margin (%)	*21%*	*17%*
Net Income	2,353	2,861

Table 11, *IBE Income Statement*, IBE Annual Report, (2008)

Although the cash flow statements presented below seem quite stable on a YoY basis, what varies substantially is the composition of them.

[42] Source: Iberdrola, (2008)
[43] Mainly coming from non-hedging derivatives and exchange gains

€ million	2007	2008
Operating CF	7,059	7,728
Investing CF	(13,310)	(13,346)
Financing CF	6,709	6,780
Exchange rates effect	(181)	(56)
Change in cash	**277**	**1,106**

Table 12, *IBE Cash Flow Statement*, IBE Annual Report, (2008)

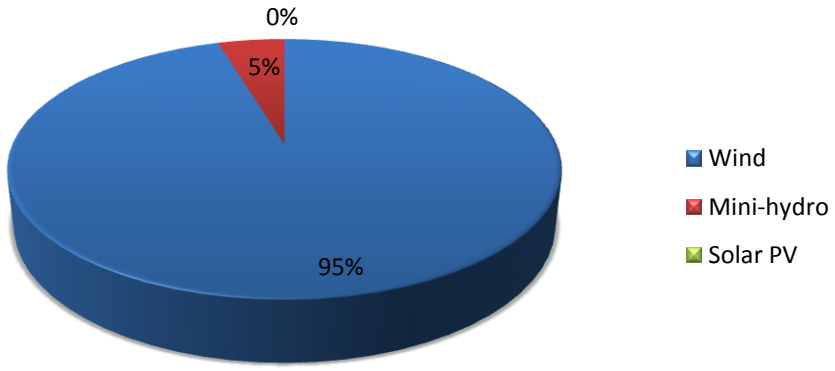
Operating CF is the only one which does not show any relevant changes from 2007. As for the Investing activities, the main differences are to be sought in two items: investments in subsidiaries and investments in PPE. In fact, while the former decreased by around €6 billion on a YoY basis, the latter increased by some €1.8 billion. The reduction of investments in subsidiaries is also reflected by an equally lower amount of debt taken for this purpose in the Financing CF. However, the most relevant item of the latter is the net-change in short and long-term financial debt. In fact, while in 2007 IBE reimbursed almost €7 billion, in 2008 it completely changed its policy since it increased its financial debt by €6 billion. As a result, **net debt**, indeed, went from around €21 billion to €29 billion.

Nevertheless, IBE as a whole registered a positive change in cash of more than €1 billion as shown by the table above.

5.1.2.2) Information about the issuer

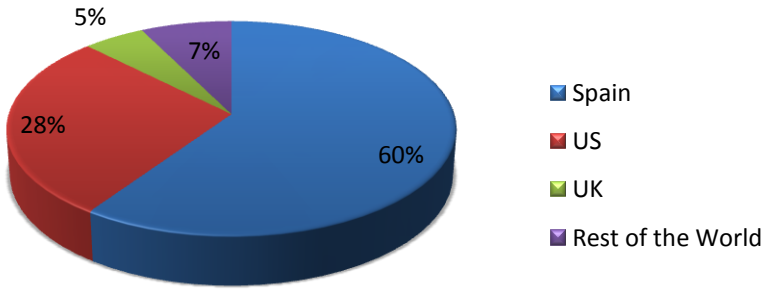
As previously mentioned, IBR is the division of Iberdrola that carries out the renewable energy business. It also owns some subsidiaries in the US which operate in the natural gas storage business, but this line is not so relevant since it accounted for only 2.4% of IBR 2007 EBITDA. This paragraph will illustrate in a more detailed way the main features of IBR as of the IPO; in order to do this, all the information presented below are taken from IBR IPO Offering Memorandum.

As of the IPO, IBE had an installed capacity of 7,342 MW, 7,000 MW of which (95,3%) represented by Wind Power. It also operates in different technologies but they were not so relevant since they accounted for less than 5% of the total Installed capacity, as of September 30th 2007.



Graph 4, *IBR renewable portfolio*, IBR IPO Prospectus, (2008)

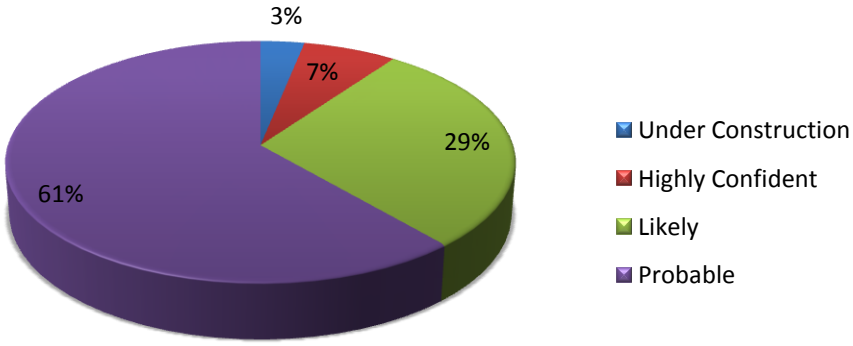
So, while on one hand it is a very concentrated company in terms of technology, on the other hand its assets are spread all over the world. The majority of its assets are located in Spain (4,377 MW), but US ranks second accounting for a relevant share (28%).



Graph 5, *IBR Asset location*, IBR IPO Prospectus, (2008)

In addition to this, IBR had a 41,266 MW portfolio through which it planned to expand both in Wind capacity and in new technologies such as solar thermal and biomass. The overall target of the company is to install 2,000 MW each year in order to reach a 10,600 MW capacity by 2010.

The main technology in the pipeline portfolio is, again, wind, accounting for 40,338 MW (97,8%) of the total portfolio. In particular, wind pipeline is divided according by the development stage as highlighted by the following table.



Graph 6, *IBR pipeline portfolio*, IBR IPO Prospectus, (2008)

In particular, "Under Construction" is the stage that is closest to be operating while "Probable" is the farthest.

At the time of the IPO, IBR 9M 2007 financial statements showed that the company profitability was declining. In fact both revenues and profit indicators highlighted a reduction as well as margins. For example, 9M revenues decreased by only €20 million while EBIT fell by €70 million signaling a substantial increase of costs. The effect of this was a consistent reduction of profit margins that, in case of 9M EBIT margin, presented a double-digit drop, close to 13%.

In order to have a clearer idea on the most important items of IBR income statements, the table below indicates the main numbers referred to 9M and 2006 annual performance.

€ million	2006	9M 2006	9M 2007
Revenues	695.6	514.4	494.4
EBITDA	556.7	410.4	357.9
Margin (%)	*80%*	*80%*	*72%*
EBIT	374.3	272.8	200.6
Margin (%)	*54%*	*53%*	*41%*
Net Income	189.7	144	48.7

Table 13, *IBR Income Statement*, IBR IPO Prospectus, (2008)

As for its balance sheet, IBR kept growing since 2004 at a €700 million annual rate reaching €5,435 million on September 30th 2007. This growth came exclusively by the increase in non-current assets, more specifically PPE, while all the other assets remained unchanged.

The funding of these capex came from Debt, since equity did not vary in the years taken into consideration. In particular, most of IBR operations were not directly financed by bank borrowings, but by Iberdrola. In fact that is the item which shows the highest growth reaching €3,180.5 million on September 30th 2007. This debt was composed of two voices:

- Current debt[44]: €2,803.4 million
- Non-current debt: €377.1 million

Other current and non-current debt (mainly bank borrowings) did not represent a problem for IBR since Iberdrola Debt alone (both current and non-current), accounted for roughly 85% of **total net indebtedness**[45]. So, the issue was the high level amount of current debt owed to IBE which was planned to be partially reimbursed with the proceeds of IBR IPO[46].

Finally, during the years taken into consideration, IBR cash flows gave positive signals. In fact, while 9M 2007 operating CF doubled with respect to 9M 2006, and investments kept increasing, IBR seemed to have started a policy which was aimed at debt reduction, as it shown by the following table.

€ million	9M 2006	9M 2007
Operating CF	348.6	706.9
Investing CF	(407.3)	(616.2)
Financing CF	91.9	(91.8)
Change in cash	**33.2**	**(1.1)**

Table 14, *IBR Cash Flow Statement*, IBR IPO Prospectus, (2008)

Overall change in cash is negative, but the reason is not operating rather financial. In fact, keeping debt increase constant at 9M 2006 level, IBR would have registered an overall change in cash amounting to some €183 million.

[44] Reciprocal current account
[45] Amounting to €3.755,1 million
[46] This is what actually occurred since IBR 2008 Annual Report states that "Other Current Liabilities" (where IBE Debt was included) decreased by more than €1 billion. However, "Other non-current Liabilities" increased by €2 billion, signaling that the Current Account had been re-financed with debt (again owed to Iberdrola) with a longer maturity (this operation, named "2007 Iberdrola, S.A. Loan Agreement" and expiring in 2014, was contractually established before the launch of the IPO)

5.1.2.3) Risk factors of the issue

Risks that were taken into account before the flotation of Iberdrola Renovables could be divided in six areas:

1) **Risks Associated with the Renewable Energy Industry**
2) **Risks Associated with the Non-Renewable Energy Industry**
3) **Risks Relating to the Integration of the Scottish Power Assets**
4) **Risks Relating to IBR Business Activities**
5) **Risks Relating to the Presentation of Financial Information**
6) **Risks Relating to the Offering**

1. **Risks Associated with the Renewable Energy Industry:** these risks are common to all the players of REs industry. Some of them are:
    - *Profitability of wind farms is highly dependent on suitable wind and associated weather conditions:* IBR can not guarantee that observed climate conditions will be the same in the future: therefore, any worsening, could be detrimental for IBR performance.
    - *Profitability in any regional market the company operates in, is dependent on incentive schemes:* any withdrawal or decrement of incentives could deteriorate IBR financial performance.
    - *Highly regulated industry:* energy industry is strongly regulated: thus, non-compliance with regulation could result in the revocation of permits, sanctions and fines.
    - *Revenues are dependent on market prices:* user demand, cost of raw material could affect market prices and consequently, revenues.

2. **Risks Associated with the Non-Renewable Energy Industry:** these risks affect all the companies which operate in the same industries, other than REs, IBR operates in, such as gas storage.
    - *Gas business is highly dependent on the existence of a spread between current and future gas prices and prices across geographic markets:* prices differences in the future are a source of profit for gas business, as well as the transportation of gas from low-price regions to high-price ones.

- *Dependence on transportation facilities owned by third parties*

3. **Risks Relating to the Integration of the Scottish Power Assets**
    - *There is no guarantee that the expansion of the operations will be successfully implemented:* although it is probable that expansion in new countries will contribute to IBR growth, it is not sure due that the combined businesses will generate higher profitability.
    - *The rapid expansion of IBR business as a result of Scottish Power assets acquisition will lead to considerable demands on our resources:* increased complexity of operations may place a significant strain on managerial, operational and financial resources.

4. **Risks relating to IBR business activities:** these risks are faced by IBR due to the features of its business, such as asset location, technologies and so like.
    - *The majority of revenues come from Spain, US and UK:* the effect is that, any changes in regulation, demand or costs, could materially affect IBR performance.
    - *The basis for the classification of the pipeline portfolio were developed internally without any audit by external parties:* since pipeline portfolios of REs companies are fundamental to assess the future growth of the utility, any mistake in their classification could be detrimental to financial performance.
    - *IBR relies on a limited number of suppliers to purchase wind farm equipment:* so, if IBR fails to keep a relation with a key supplier, it could not meet cost targets with the effect of a reduced profitability.
    - *Revenues and borrowings are in different currencies and interest rates:* IBR is, indeed, subject to exchange and interest rate risk. Any worsening could negatively affect IBR financial performance.
    - *IBR is not able to insure against all potential risks:* even if it could, insurance premia would be too high. Moreover, risks such as breakdowns, manufacturing defects and natural disasters can not be easily avoided.
    - *Loss of senior management and key employees could result in more difficulties to deliver the expected results*
    - *Iberdrola S.A., even after the IPO, will continue to exercise significant control over IBR:* if IBE and IBR have different ideas or a conflict of interest, IBE opinion will prevail.

- *Financial and operational relationships with IBE may be terminated:* since IBE always offered favorable terms in operational and financing activities to IBR, if such relationships could come to an end, there is no guarantee that IBR will find similar conditions offered by other parties.
- *Most of debt financing has historically come from IBE:* there is no guarantee that IBE will continue to finance IBR operations. So, any withdrawal of current accounts and non current debt, could generate some liquidity issues to IBR.

5. Risks relating to the presentation of financial information

- *Unaudited pro-forma financial statements presented in the offering memorandum, may not be indicative of consolidated future results of Scottish Power Assets and IBR Group.*
- *Certain financial information presented in the offering memorandum is unaudited.*

6. Risks relating to the Offering

- *Sales of a substantial amount of IBR shares in the aftermarket could cause IBR stock price to decline:* any sale by IBE after the lock-up period or issuance of new shares by IBR may negatively affect IBR stock price.
- *There is no prior trading market for our shares:* IBR can not guarantee that the stock price determined with Global Coordinators will accurately reflect the market price of the shares following the Offer.
- *Market price may be volatile:* the effect is that investors may not be able to resell the shares they acquired at or above the price they paid.

5.1.2.4) Details of the IPO

The offered consisted in a capital increase of n. 768,011,800 new shares, for a face value of €0.50 each, corresponding to 18.18% of IBR new share capital. However, this amount could be increased up to n. 844,812,980 shares, in case of full exercise of the greenshoe option, corresponding to 20% of IBR new share capital.

The offer, excluding the exercise of the greenshoe option, was divided in three tranches:

- Retail and employee tranche: an initial number of n. 154,602,360 shares, corresponding to 20% of the shares offered in the IPO, were assigned to retail investors resident in Spain/Andorra and to IBR employees.
- Tranche for registered investors in Spain and Andorra: an initial number of n. 115,201,770 shares, corresponding to 15% of the shares offered in the IPO, have been allocated to these investors.
- International Tranche: an initial number of n. 499,207,670 shares, corresponding to 65% of the shares offered in the IPO, have been assigned to institutional and registered investors non-resident in Spain.

The offer was priced in a range between €5.3 and €7 that would have led IBR to raise from €4,478 million to €5,914 million[47]. This price range would have given a market cap[48] as highlighted by the following table:

€	Stock Price	Mkt Cap
Min	5.3	22,387,543,970
Max	7	29,568,454,300

Table 15, *IBR Stock Price Range*, Press Release, (2007)

This valuation would have placed IBR among the 10 largest companies on the IBEX-35 by market cap.

The Global Coordinators of the listing were BBVA, J.P. Morgan, Credit Suisse, Merrill Lynch and Morgan Stanley.

5.1.2.5) Results of the IPO

IPO price was set at €5.3[49] that is, the lower end of the price range originally expected, implying a multiple of 17.8x EV/EBITDA 2008.

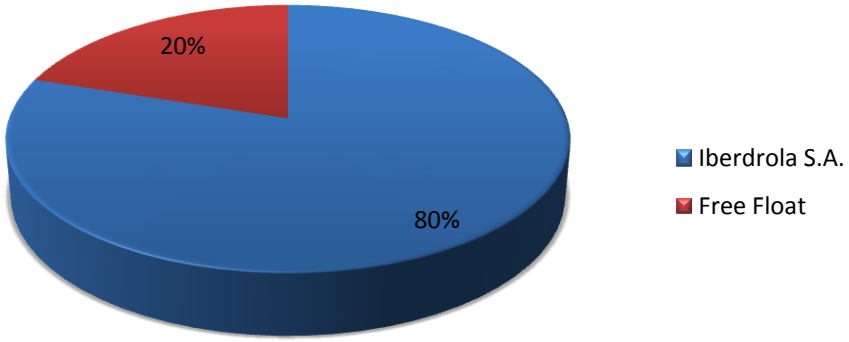
The "Retail and employee tranche" was 3.4 times oversubscribed, while the "Spanish tranche" and the "International tranche" were oversubscribed by 3.0x and 1.6x times respectively.

Through its IPO, IBR could raise €4,478 million implying a market cap of €22.4 billion.

[47] Assuming full exercise of the greenshoe option
[48] Assuming n. 4.224.064.900 shares

[49]Source: Press Release – IBR sets IPO price at €5,3 per share, (2007)

So, IBR sold all the shares it expected to sell, including the incremental amount available thanks to the full exercise of the greenshoe option, for a total of n. 844,812,980 shares. IBR ownership structure resulting after the IPO is the following:



Graph 7, *IBR Ownership Structure after IPO*, Press Release (2007)

5.1.2.6) Drivers of the IPO

According to the IPO offering memorandum, IBR IPO was mainly carried out in order to achieve two targets:

1. Reimbursement of most of the debt which IBR owes to IBE (mainly in the form of current account)
2. Facilitation of the financing of IBR development plans

5.1.2.7) Delisting of IBR

Iberdrola Renovables was delisted on July 8, 2011 after nearly four years as a public company.

The merger proposal was approved by the board of directors of IBE and IBR on March 22, 2011[50] with the following terms:

- Share price: €3.08
- N. 844,812,980 shares
- Type of the Offer: Exchange Offer
- Exchange ratio: 0.5045 IBE shares for 1 IBR share

[50] Source: Press Release – IBE and IBR approve merger plan, (2011)

- Premium: 13.8% over the last closing price before the proposal was announced and 20.7% over IBR average share price in the 6 months prior to the announcement
- Expected synergies: €20 million a year starting from 2012

IBR minority shareholders were also offered with an alternative:

- Payment of an extraordinary dividend of €1.20
- New Exchange ratio: 0,3027 IBE shares for 1 IBR share

So the offer changed into a mixed offer which also included some cash. On May 30, 2011 IBR minority shareholders approved the transaction and opted for the alternative including the €1.20 extraordinary dividend implying a 9.4 EV/EBITDA 2012 multiple.

The rationale for this merger, as highlighted by IBE board of directors can be summarized into six bullet points:

- *Changes in the REs sector since IBR's IPO*: fewer investment opportunities in US and Spain, alongside the effect of economic crisis, contributed to these major changes.
- *Achievement of the majority of the targets set at the IPO*: these included additional capacity (+5.400 MW since the IPO), increased visibility of the renewable business, repayment of the debt owed to IBE.
- *Share price not reflecting the potential growth of IBR:* Market value is lower than Invested capital + project pipeline.
- *Improved ability to extract value through a single business platform:* while financing through IBE is more feasible and efficient, IBR can also benefit from enhanced risk diversification.
- *Greater flexibility and efficiency:* the absorption will lead to improve Group's net profit growth profile and to gain from expected €20 million cost savings each year.
- *Improvement of the profile of the shareholder base:* achieved through the expansion and the homogenization of the shareholder base, as well as through a larger free-float offering no arbitrage opportunities IBE-IBR.

All these reasons led to the completion of the merger on July 8, 2011 and Iberdrola Renovables ceased to be a public company, being fully absorbed by its parent, Iberdrola S.A.

5.2) IPO: EDP Renovàveis and Enel Green Power

This paragraph will analyze two operations occurred in 2008 and 2010 that led to the listing of two utilities' renewable energy division, respectively EDP Renovàveis and Enel Green Power. Their parent companies, EDP and Enel Group, unlike Iberdrola and EDF, have not delisted them yet but decided to keep them public (so far). The following paragraph will deal with these two cases in a more detailed way.

5.2.1) EDP Renovàveis

EDP Renovàveis (EDPR), the renewable division of EDP went public in June 2008, when EDP sold 22.5% of its share capital. EDP currently owns 62% of EDP Renovàveis[51].

All the financial information presented below is taken from EDP 2008 annual report[52], EDPR IPO Prospectus and other management reports/press releases.

5.2.1.1) Financial information about the parent company in the year of the IPO

At the time of the IPO, EDP was a growing company whose operating revenues mostly came from Electricity sales (around 90%).

EDP operating revenues increased from 2007 to 2008 by 26.2% mainly due to a substantial growth of electricity sales (25.5%) and the start of the gas business which contributed to around €1.2 billion. In addition to this, all the other relevant items of the income statement presented below increased as well, in a range between 20.3% and 23.7%, although margins are almost stable or slightly lower.

€ million	2007	2008
Revenues	11,010.8	13,894.1
EBITDA	2,628.3	3,154.9
Margin (%)	*24%*	*23%*
EBIT	1,560.3	1,930.9
Margin (%)	*14%*	*14%*
Net Income	907.3	1091.9

Table 16, *EDP Income Statement*, EDP Annual Report (2008)

As a result of a positive net income and new investments, EDP assets grew from 2007 by more than €4 billion mostly due to the increase of PPE (around €2.5 billion), supporting the evidence of more

[51] 15.5% is owned by Hidroelectrica del Cantabrica S.A
[52] Source: EDP Annual Report, (2008)

expansion capex. In fact the latter literally skyrocketed with a 47% increase on a YoY base, reaching €2.8 billion in 2008. On the other hand, **net debt** soared to €13.9 billion, up from €11.7 billion of 2007 mostly due the increase of regulatory receivables (€1.2 billion), expansion capex 1.5x higher (mainly devoted to EDPR) and €759 million payment for hydro domain. Only a small part of these expenses were outweighed by the cash flow generated by EDP Renovàveis IPO (€1.5 billion) since most of the latter, as previously stated, was invested in EDPR expansion.

Moreover, EDPR registered a positive operating cash flow of €1.7 billion, which was abnormally negatively affected by a change in operating working capital (€790 million) and the increase of regulatory receivables (€1.1 billion). Without the latter, the total amount of debt would have increased only by €1 billion rather than €2.2 billion, with a positive effect on leverage.

5.2.1.2) Information about the issuer

EDPR, is the division of EDP that carries out the renewable energy business of the parent company. It is organized geographically in three sub-divisions for each area they serve:

1. Renewables North America
2. Renewables Europe
3. Renewables other regions

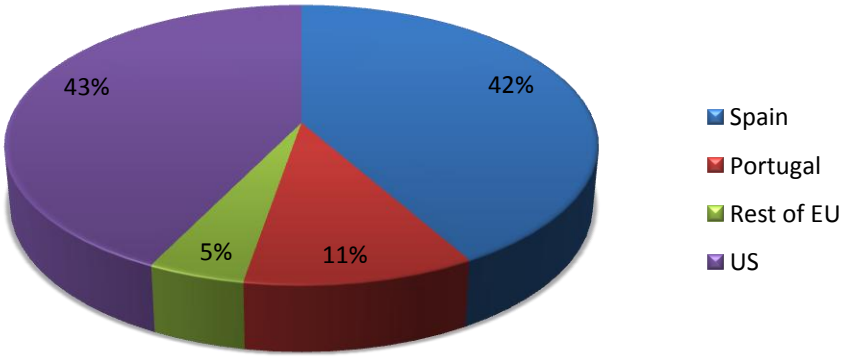
All the information of this sub-paragraph are taken from EDPR IPO offering memorandum and EDPR 9M 2008 results[53].

EDPR is a wind company; in fact all of its business is based on the sale of electricity stemming from wind energy. As of March 2008, EDPR owned 3,706 MW of installed capacity while at the end of 2008, maybe helped by increased visibility thanks to the IPO, it had installed 5,032 MW.

At the end of 2008 EDPR was present in two main areas:

- Europe: 57% of total installed capacity, with most of that in Spain (42%)
- US: 43% of total installed capacity

[53] Source: EDPR, (2008)



Graph 8, *EDPR Asset Location*, EDPR IPO Prosepctus, (2008)

EDPR's pipeline is roughly seven times its capacity (as of 3rd quarter 2008), amounting to 29,227 MW, although two thirds of it are projects in the very early stages.

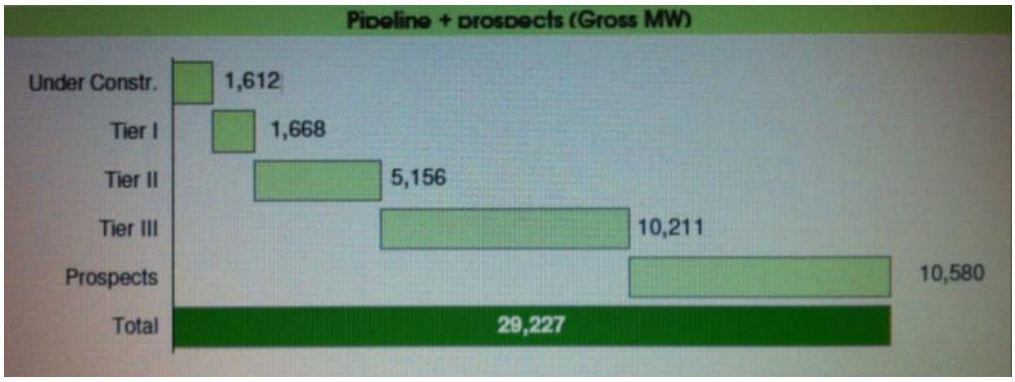


Figure 13, *EDPR pipeline portfolio*, EDPR IPO Prospectus, (2008)

Most of the project pipeline is in US (around 64%) maybe in order to strengthen its position in an area that is characterized by a higher load factor than Europe (US 31% while Europe 24.9%) and to diversify the regulatory risk.

Unlike its peers, EDPR was not a company that healthy at the launch of the IPO; in fact, it was beginning its growth in the first quarter of 2008 with a positive net income of €30 million.

The previous year, EDPR registered a poor performance if compared to the first nine months of 2008, that partially include the benefits of the IPO. Its margins, indeed, improved substantially:

€ million	2007	9M 2008
Revenues	315.8	371.1
EBITDA	229.7	306.5
Margin (%)	*73%*	*83%*
EBIT	104.1	159
Margin (%)	*33%*	*43%*
Net Income	4	58.8

Table 17, *EDPR Income Statement*, EDPR 9M Results, (2008)

Both EBITDA and EBIT margins are 10 pp higher in the first nine months of 2008, but profit margin spread is even higher, 14.5 pp. The cause of this is mostly lower interest expenses due to the reduction of debt. In fact, from the end of 2007, net debt decreased by some €1.9 billion from €2.4 billion, manly thanks to the repayment of part of the financial debt from related companies (around €1.7 billion), as it is more evident by the following table taken from EDPR 9M results report.

€ million	2007	9M 2008
Bank Loans and Other	510.5	591.1
Loans with EDP Group Related Companies	2,371.6	606.9
Financial Debt	**2,882.1**	**1,198**
Cash and Equivalents	388.5	290
Loans to EDP Group Related Companies	34.3	366.4
Financial assets held for trading	44.8	28.6
Net Debt	**2,414.5**	**513**

Table 18, *EDPR Debt*, EDPR 9M Results, (2008)

The source of cash used to reimburse part of "Loans with EDP Group Related Companies" came from shareholders loans (€1.3 billion), offset a month later by the proceeds EDPR IPO (€1.6 billion).

5.2.1.3) Risk Factors of the Issue

Risks to be taken into account while considering the flotation of EDPR can be divided in three main areas:

1) **Risk factors related to the industry the issuer and its group operate in**
2) **Risk factors related to the issuer and its group ownership structure**
3) **Risk factors related to the IPO process and to the securities offered**

In this part, they will be briefly analyzed singularly.

1) **Risk factors related to the industry the issuer and its group operate in:** this section regards the "internal" risks the company could face, independently on economic situation. The most relevant are:
    - *EDPR profitability depends on wind availability and other favorable atmospheric conditions*
    - *EDPR financial performance could be negatively affected by changes in policies and incentive schemes regarding the renewable energy sector:* if incentives such as Renewable Portfolio Standards, Tax Credits, Feed-in Tariffs are revoked, revenues could substantially decrease, and so profits.
    - *EDPR financial results depend on market electricity price:* again, even is sale of "green" electricity is mostly subject to incentive schemes, a part of revenues depends on electricity market prices which are affected by raw materials price. So, a decrease of electricity prices could negatively affect EDPR performance.
    - *EDPR depends on other companies to transport and supply customers with energy:* since EDPR has no control over the grid, eventual damages or dysfunctions can not be solved by EDPR itself, and therefore, they could be detrimental to its business.
    - *EDPR can not be sure that expansion of its operations will be successfully carried out*
    - *Classification of project pipelines is an internal process that neither auditors nor third parties have audited:* in a few words, there is no guarantee that Pipeline Level 2 is actually Level 2. So, if it were Level 3, there would need more time and money to render the project operating.
    - *EDPR may not be able to finance its capex in the years to come:* the higher the cash flows, the higher the possibility to finance capex without recurring to external sources.

2) **Risk factors related to the issuer and its group ownership structure**
    - *EDP will continue to have a significant ownership share in EDPR:* in fact, after the IPO, EDP owned 77.5% of EDPR.
    - *Relations with EDP might terminate:* this could be negatively affect EDPR performance since most of its business depend on EDP.

3) **Risk factors related to the IPO process and to the securities offered**

- *Risks related to aftermarket price drop:* if a substantial amount of shares is sold, then, possibilities of a price drop are higher
- *Risks related to shares liquidity:* given that before the IPO, EDPR shares have never been traded on a secondary market, a low liquidity could harm the stock price
- *EDPR capability of paying dividends to its shareholders is subject to its subsidiaries capability of paying dividends*
- *Exchange rates fluctuation could negatively affect EDP performance*

5.2.1.4) Details of the IPO

The IPO of EDPR consisted of the sale of n. 225,427,952 shares which represented 25% of total share capital. Before the IPO, EDPR had n. 676,283,856 shares outstanding whose book value was €5; most of them (80%) was owned directly by EDP while the remaining 20% was owned by Hidrocantabrico, controlled in turn by EDP. So, with a capital increase, EDP suffered from a dilution.

The Global Offer was divided in two tranches[54]:

1. Public Offer: a maximum number of n. 45,085,590, representing 5% of the share capital, had to be sold to EDP employees, EDP shareholders and to individual investors
2. Institutional Offers: a maximum number of. 180,342,362, representing 20% of the share capital, had to be sold to qualified national of foreign investors.

The offer also contained a lock-up clause through which EDPR is obliged not to sell or do anything that could be detrimental to its shares price within a 180 day time horizon from the flotation.

In addition to this, as previously mentioned, the IPO also included a greenshoe option through which the floating capital could actually reach 25% of share capital[55].

The offer was priced in a range between €7.40 and €8.90. The consequent new market cap for EDPR is summarized in the following table[56].

[54] Upon the full exercise of the greenshoe option
[55] Without the greenshoe option, the floating share capital would be 25%/(1+15%) = 21.74%
[56] Assuming full exercise of greenshoe option and n. 901.711.808 shares outstanding

€	Stock Price	Mkt Cap
Min	7.4	6,672,667,379.20
Max	8.9	8,025,235,091.20

Table 19, *EDPR Stock Price Range*, EDPR IPO Prospectus, (2008)

The financial institutions underwriting the offering were Caixa Banco de Investimento, Espirito Santo Investment and Millennium Investment Banking.

5.2.1.5) Results of the IPO

On June 4th, 2008 EDP Renovàveis, S.A. started trading on NYSE Euronext's Lisbon market. It raised a total of €1,566/$2.42 billion of proceeds and ranked 1st as the largest IPO in Western Europe during 2008.

It was priced at €8, with a consequent market cap of €7.2 billion, midway the price range originally expected, implying an EV/EBITDA 08E multiple of 15.3x and an EV/EBITDA 09E multiple of 10.3x.

Both the public and the institutional offer were oversubscribed. In particular, including the exercise of greenshoe option, the Public Offer was oversubscribed by 87.9 times while the institutional offer "only" 6.1 times.

5.2.1.6) Drivers of the IPO

According to EDP's IPO prospectus, its listing was carried out for mainly two reasons:

1) Financing the growth of EDPR
2) Paying part of the large amount of financial debt

This is actually what happened. In fact, part of the proceeds were used to pay back shareholders loans (used to reimburse part of the EDPR financial debt) and the remaining part, to finance the expansion of EDPR operations (such as the €759 million extension of the concession domain of EDPR hydro plants in Portugal.

5.2.2) Enel Green Power

Enel Green Power, the division of Enel Group that focuses its activity on the development of renewable energies, was created in 2008 but became a public company only in 2010, through the sale of 32.5% of its share capital by Enel, its parent company. All the data presented below are taken from Enel Group Annual Report 2010[57], EGP IPO Prospectus and relevant press releases.

5.2.2.1) Financial information about the parent company in the year of the IPO

Enel Group sold part of Enel Green Power in October 2010. Thanks to being an utility, thus operating in a regulated environment, Enel Group enjoys stable market conditions and low risks.

Its Revenues (€73.4 million in 2010) grew by 14% compared to 2009 and mainly came from higher revenues from the sale and transport of electricity by the Iberia and Latin America division.

Its main profit figures are represented by the table below.

€ million	2009	2010
Revenues	64,362	73,377
EBITDA	16,371	17,480
Margin (%)	*25%*	*24%*
EBIT	11,032	11,258
Margin (%)	*17%*	*15%*
Net Income	5,586	4,390

Table 20, *Enel Group Income Statement*, Enel Group Annual Report, (2010)

As for its balance sheet, most of Enel Group's assets are constituted by PPE (almost €100 billion). Moreover, at the time of EGP's IPO, the group suffered from high debt levels mainly stemming from the acquisition of Endesa. As a result, after the IPO of EGP, Enel reduced its net debt by around €6 billion, from €50.9 billion in 2009 to €44.9 billion in 2010.

Enel cash flow statement supports the evidence of a substantial debt decrease thanks to a negative financing CF.

[57] Source: Enel Group Annual Report, (2010)

€ million	2009	2010
Operating CF	8.926,0	11.725,0
Investing CF	(12.676,0)	(4.910,0)
Financing CF	2.669,0	(5.976,0)
Exchange rates effect	159,0	214,0
Change in cash	**(922,0)**	**1.053,0**

Table 21, *Enel Group Cash Flow Statement*, Enel Group Annual Report, (2010)

5.2.2.2) Information about the issuer

Enel Green Power, established in December 2008, is the Enel Group company dedicated to developing and managing energy generation from renewable sources at an international level, with a presence in Europe and the American continent.

Enel Green Power is a major global operator in the field of energy generation from renewable sources, with an annual production of 22.5 TW/h mainly from water, sun, wind and the Earth's heat, covering the energy consumption of over 8 million families and avoiding 16 million tonnes of CO_2 emissions every year.

As of the IPO semester, Enel Green Power (EGP) had an installed capacity of 5,761 MW[58], produced by over 700 plants in 16 countries and with a generation mix that includes wind, solar, hydro, geothermal and biomass.

However, at the launch of the IPO (November 2010), the situation was slightly different. The following figure summarizes EGP assets all over the world.

[58] As of March 2013 is 8,044 MW

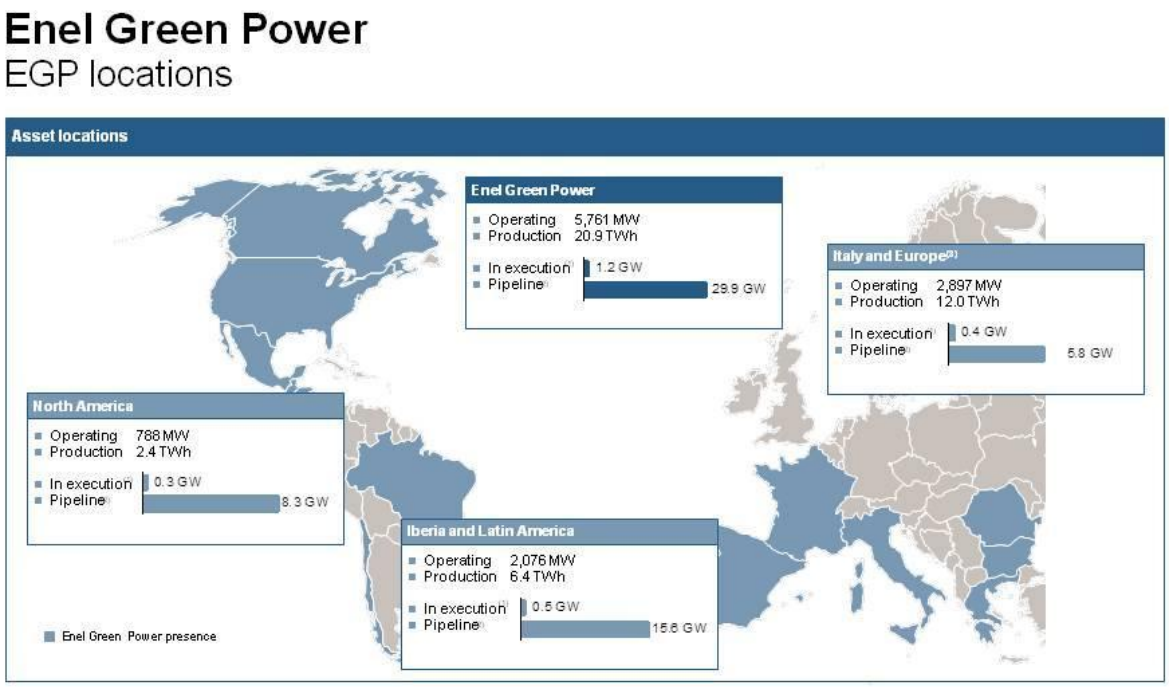


Figure 14, *EGP Asset location*, EGP IPO Prospectus, (2010)

Here there is some terminology in order to better understand the meaning of this table:

- ✓ **Operating (capacity)**: total amount of capacity, denominated in Watt, the standard measure to assess electricity
- ✓ **Production**: is the total amount of electricity produced in a whole year. It is expressed in Watt/hour[59] and it is calculated as follows:

$$\text{Production} = \text{Operating Capacity} * 24\text{h}\ ^{60} * 365 * \text{load factor}^{61}$$

- ✓ **In execution**: it includes the operating capacity, under construction and projects ready to be build.
- ✓ **Pipeline**: projects which are after the "screening phase" but not under construction yet.

As for renewable energy sources, EGP is present in all of REs generations, in fact its portfolio was composed of[62]:

[59] Number of Watt produced in one hour
[60] Hours a day
[61] Load Factor: tradeoff between the "Theoretical annual production of electricity" and "Electricity actually produced"
[62] As of June 2010

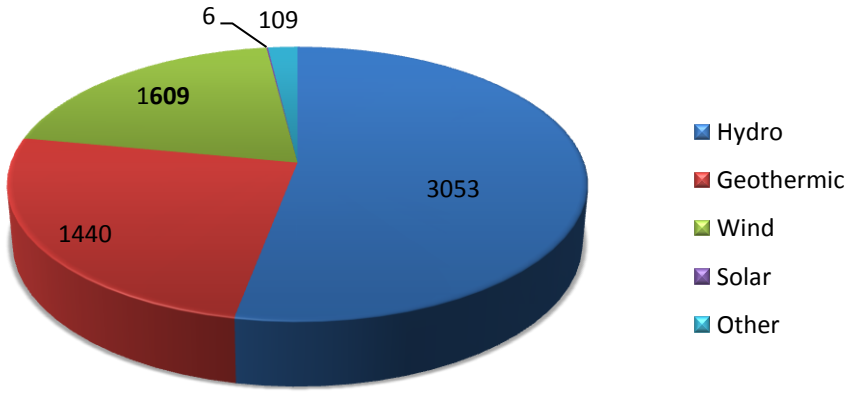
1) **Hydro**: hydroelectric plants transform kinetic energy in electric energy through the "jump" of large volumes of water from an altitude to another. Main energy source, it represents 53% of the whole energy production.

2) **Geothermic**: it is the energy generated by the heat which, constantly, tends to move from the subsoil to the surface. It represents 25% of the total production of energy.

3) **Wind**: the shift of large volumes of air is exploited by wind turbines which, through their movement, generate electricity. It corresponds to 20% of total energy production.

4) **Solar**: coming from solar radiations, solar energy can be converted either in electricity or heat. It represents 0,1% of the whole production of energy.

5) **Other sources**: mainly biomass, it represents 1.9% of total energy production.



Graph 9, *EGP renewable portfolio*, EGP IPO Prospectus, (2010)

Such a portfolio is considered a key success factor for EGP management. Along with this, managers also believe that geographic diversification is a source of competitiveness since it enables to diversify the risk of major changes in governments, incentive schemes and so on. However one of the most important characteristics of EGP is the high load factor (42%) with respect to its competitors (Iberdrola Renovables 24%, EDF Energies Nouvelles 25%, EDP Renovàveis 24%) representing higher efficiency. The reason of the higher load factor has to be sought in the different technology portfolio: in fact, while its competitors are mainly wind players, EGP is a strong hydro player. Hydro, indeed, has a far higher load factor than wind, thus positively affecting the company load factor as a whole.

As it is evident from the financial statements[63], EGP is a healthy company. In fact, it registers a higher profit than the first semester of 2009, characterized by a lower EBIT (due to higher costs especially related to raw material) and lower net interest expenses which have, in a little extent though, outweighed counterbalanced costs increase.

€ million	I sem 2009	I sem 2010
Revenues	893	976
EBITDA	691	860
Margin (%)	*77%*	*88%*
EBIT	490	624
Margin (%)	*55%*	*64%*
Net Income	239	263

Table 22, EGP Income Statement, EGP IPO Prospectus, (2010)

The income statement constitutes a proof of the health of EGP which can not be fully appreciated without taking a look at its balance sheet. Most of the items, indeed, register an increase, supporting the thesis of a healthy, growing company.

In addition to this, the financial situation of Enel Green Power has substantially improved in the first semester of 2010 due to Enel withdrawal of the intercompany current account (registered as short-term liability by EGP) amounting to €3.7 billion. So, the whole amount has flown into "other reserves" contributing to increase the total shareholders equity. The result is an enormous decrease of leverage.

In fact, as of 31/12/2010, EGP's **net debt** decreased by €2.2 billion from €5.3 billion in 2009 to €3.1 in 2010, although mainly owed to the recapitalization of €3.7 billion by Enel Spa[64].

Finally, as for the Cash Flow breakdown, it is possible to note how the operating CF, lower than the 6-month 2009, is mostly negatively affected by an extraordinary high amount of taxes paid (€ 297 million). Then, it is evident how EGP has strongly increased its equity investments following the acquisition of Endesa, which have contributed to decrease Investing CF by €809 million. These expenses, together with investments in PPE (€336 million) have been more than outweighed by an increase in financing cash flow with a net effect of + €67 million from the beginning of the year.

[63] As of June 30th 2010
[64] Source: Enel, (2010)

€ million	I sem 2009	I sem 2010
Operating CF	319	261
Investing CF	-292	-1,242
Financing CF	-65	1,037
Currency Effect	0	11
Total CF	**-38**	**67**

Table 23, *EGP Cash Flow Statement*, EGP IPO Prospectus, (2010)

5.2.2.3) Risk Factors of the Issue

Now that the most important features of Enel Group and Enel Green Power have been pointed out, it is possible to begin with the description of the characteristics of the IPO. In order to do this, risk factors along with details and results of the IPO will be examined.

This section contains the description of those which are considered to be the main threats that could harm the company.

Enel Green Power divides the sources of risk in three main classes:

1) **Risk factors related to the issuer and to its group**
2) **Risk factors related to the industry the issuer and its group operate in**
3) **Risk factors related to the IPO process and to the securities offered**

For each of the classes mentioned above, the main risks will be pointed out and briefly discussed, if necessary.

1) **Risk factors related to the issuer and to its group**: this section regards the "internal" risks the company could face, independently on economic situation. The most relevant are:
   - *Risks related to the recent reorganization of the Group along with the integration of the companies recently acquired*: Enel Green Power was founded less than two years from its IPO and companies like Endesa Cogeneraciòn y Renovables S.L. were acquired in the first quarter of 2010; therefore, some integration risks could be tackled.
   - *Risks related to scarce financial information available on Enel Green Power*: the reason behind this is that EGP was established in 2008 and thus, investors can only rely on a 2-year equity story
   - *Risks related to the carve-out of EGP*: in case assets or liabilities ownership can not be inferred by the spin-off project, they are intended to be assigned to EGP.

- *Risks related to Enel Group control*: even if EGP went public, it is still controlled by Enel Group and therefore, it could exert pressure on EGP major business administration
- *Risks related to the accomplishment of EGP 5-year plan*
- *Risks related to interest and exchange rates:* as of June 30, 2010 89% of long-term debt is composed by bonds with a floating interest rate: thus, EGP uses "interest rate swaps" and "interest rate options" in order to diminish risks coming from variable interests. As for exchange rate risks, EGP is more concerned on dividends and equity investments rather than on liabilities contracted in foreign currencies: therefore, it uses "forward contracts" to stabilize dividends in other currencies.
- *Risks related to Power Purchase Agreements (PPA) dues:* mainly in North America and Latin America, EGP sells energy through PPAs, long-term contracts stipulated with energy acquirers that oblige Enel to provide them with a certain amount of electricity at a given price (variable in function of other commodities prices as well as inflation). So, if EGP can not supply enough electricity, it is forced to buy it on the market with possible negative effects on the financial situation of the company.

2) **Risk factors related to the industry the issuer and its group operate in:** this section regards all the risks EGP could face, notwithstanding its actions, because operating in that industry.
    - *Risks related to regulation*: the renewable energy sector is a highly regulated industry. So, given that regulation affects sale price, a change in regulation could negatively affect the financial situation of the company.
    - *Risks related to change of incentive schemes*: 35% of the electricity produced by EGP is subject to incentive schemes and more important, 22% of revenues comes from such incentives. Consequently, changes regarding incentive schemes could be detrimental to EGP financial situation
    - *Risks related to the pipeline "classification"*: projects can be "potential" (20% of success), Likely (50% of success) and Highly Confident (90% of success); however these measures are discretionally determined by the management.

3) **Risks related to the IPO process and to the securities offered**
    - *Risks related to liquidity and volatility of EGP shares:* these aspects cannot be guaranteed 100% ex ante.

- *Risks related to lock-up clause:* substantial sale of shares after the expiration of the lock-up clause could negatively impact the stock price
- *Risks related to potential conflict of interest:* conflict of interest is intended to regard Global coordinators.

5.2.2.4) Details of the IPO

The total maximum number of shares to be sold are n. 1,415,000,000 with a €0.20 face value and at least 12.5% of this amount has to be sold in Italy. At the end of the IPO process, 28.3% of EGP share capital is expected to be public.

However, the IPO process includes the "greenshoe option[65]" on n. 210,000 shares corresponding to 15% of the shares to be sold. In case of a full exploitation of the option, 32.5% [66]of EGP share capital will be public.

The global offer was divided into three tranches:

1) Public offer in Italy: a minimum number of n. 176,875,000 shares, equal to 12.5% of EGP share capital offered, has to be sold in Italy to individual investors, Enel shareholders and employees who live in Italy.
2) Public offer in Spain: a minimum number of n. 35,375,000 shares, corresponding to 2.5% of EGP share capital offered, has to be sold in Spain to individual investors and Enel employees who live in Spain.
3) Institutional offer: a maximum of n. 1,202,750,000 shares, corresponding to 85% of EGP share capital offered, has to be sold to Institutional Investors.

In case the quorum of neither public offer nor the institutional offer, respectively 15% and 85%, is reached, the remaining part of the shares can be sold to the "other group" of investors, only if demand can absorb it.

The offer was initially priced in a range between €1.80 and €2.10 (maximum), resulting in a consequent Market Cap of €9 billion and €10.5 billion respectively as shown by the following table.

€	Stock Price	Mkt Cap
Min	1.80	9,000,000,000
Max	2.10	10,500,000,000

Table 24, *EGP Stock Price Range*, EGP IPO Prospectus, (2010)

[65] Tool used to stabilize the price in the aftermarket
[66] Given by 28.3% * (1+15%)

In order to have the basis for a comparison with EGP competitors' trading multiples, the following table will examine the EV/EBITDA and P/E FY1 ones.

	EV/EBITDA 2011E	P/E 2011E
EDP Renovaveis	9.4x	24.4x
EDF Energies Nouvelles	12.0x	20.2x
Iberdrola Renovables	9.4x	17.0x

Table 25, *EGP Multiple Valuation comparison*, Credit Suisse, (2010)

The financial institutions underwriting the offering were Mediobanca (Sponsor), Banca Imi, Credit Suisse, Goldman Sachs (Global Coordinators), Banco Bilbao Vizcaya Argentaria, Barclays Capital, J.P. Morgan, BofA Merrill Lynch, Unicredit Corporate & Investment Banking (Joint Bookrunners) and Leonardo & Co. (Financial Advisor).

At the end of the IPO process, EGP was listed on the Italian and Spanish Stock Exchanges.

5.2.2.5) Results of the IPO

The final price was €1,60, corresponding to a market capitalization equal to €8 billion (far from the bottom of the range, €9 billion) which allowed Enel to raise only €2.6 billion. The resulting multiple is presented in the below.

	EV/EBITDA 2011E	P/E 2011E
Result	8.5x	17.8x

Table 26, *EGP Multiple Valuation*, Credit Suisse, (2010)

So, EGP IPO was generally priced at a discount if compared to 2011E trading multiples of its competitors, with the exception of IBR P/E 2011.

What was surprising, was the huge participation of retail investors and Enel employees. In fact, the IPO was oversubscribed by them, and undersubscribed by institutional investors. In particular, the following table represents the details of the IPO results.

Investors	Investors types	Requested	Assigned	% on total
Public Offer in Italy	Individual Investors	521,120,000	521,120,000	32.1%
	Enel shareholders	691,648,000	691,648,000	42.6%
	Enel Employees (resident in Italy)	6,014,000	6,014,000	0.4%
	Total	**1,218,782,000**	**1,218,782,000**	**75.0%**
Public Offer in Spain	Individual Investors	44,349,542	44,349,542	2.7%
	Enel Employees (resident in Spain)	252,215	252,215	0.0%
	Total	**44,601,757**	**44,601,757**	**2.7%**
Institutional Offer		**516,610,538**	**361,616,243**	**22.3%**
TOTAL		**1,779,994,295**	**1,625,000,000**	

Table 27, EGP IPO results, Press Release, (2010)

5.2.2.6) Drivers of the IPO

According to EGP offering memorandum, the main drivers that pushed Enel Group were:

1) Continuing Enel Group strategy aimed at enhancing the value of its renewable assets
2) Increasing the visibility of Enel Group renewable energies division, EGP
3) Reduction of financial debt, with decrease in leverage which was part of Enel's deleveraging strategy (c. €10bn of disposals) following the acquisition of Endesa

5.3) Renewable Assets 100% controlled by the parent company

This chapter will analyze into details two examples of REs utilities which were never listed on any stock exchange, so far: E.ON Climate & Renewables and RWE Innogy.

5.3.1) E.ON Climate & Renewables

E.ON is a German utility and one of the world's largest investor-owned power and gas companies. It owns facilities across Europe, Russia and North America and has more than 72,000 employees. It supplies around 26 million customers and it currently owns 68 GW generation capacity[67]. The company is structured as follows[68]:

- Global Units: they encompass the activities performed by E.ON. They are:
    1) Exploration and Production: responsible for oil and gas exploration & production activities
    2) Generation: it coordinates and oversees the operation of the generation portfolio in Europe with the effect of enhanced sharing of best practices, increased efficiency and cost reduction
    3) New Build & Technology: it supports the construction and the operation of existing plants
    4) Optimization & Trading: responsible for buying and selling electricity, natural gas, oil and the like
    5) Renewables: this unit is responsible for expanding renewables capacity across Europe and North America by investing in wind, solar, biomass, biomethane, and marine energies
- Regional units: they manage the operating business in Europe. Each Unit is a country E.ON is active in Germany, United Kingdom, Sweden, Italy, Spain, France, Netherlands, Czechia, Hungary, Slovakia, Romania and Russia.

As we have noticed, E.ON has a global unit for renewable rnergies, called "E.ON Climate and Renewables" (EC&R), with headquarters in Dusseldorf that deals with all the green energies other than Hydro[69]. The company has invested over €8 billion in renewable projects over the last five years and its one of the leading REs players in Europe. As it is highlighted by the following figure, EC&R is present in all the world and owns assets with more the 4.8 GW[70] total capacity[71].

[67] Source: E.On Group profile, (2013)
[68] Source: E.On Group structure, (2013)
[69] E.On carries out the Hydro Business
[70] Excluding large hydro. With large hydro they would be more than 9,000 MW.

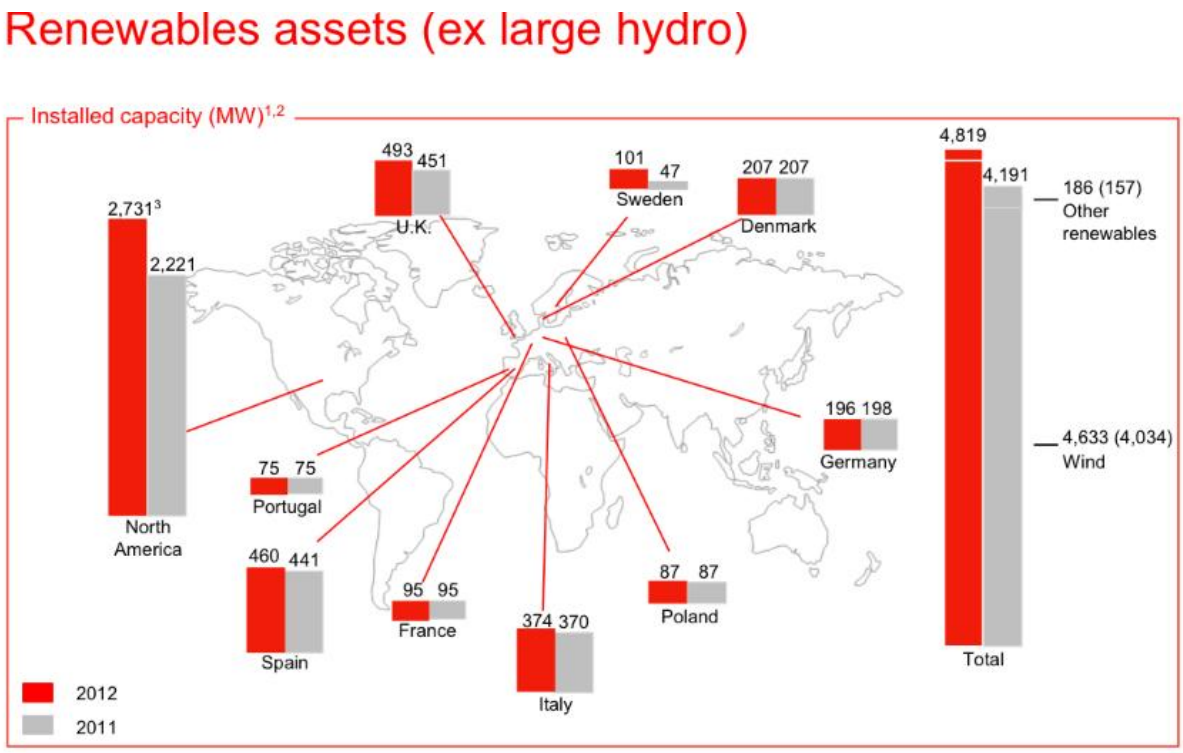
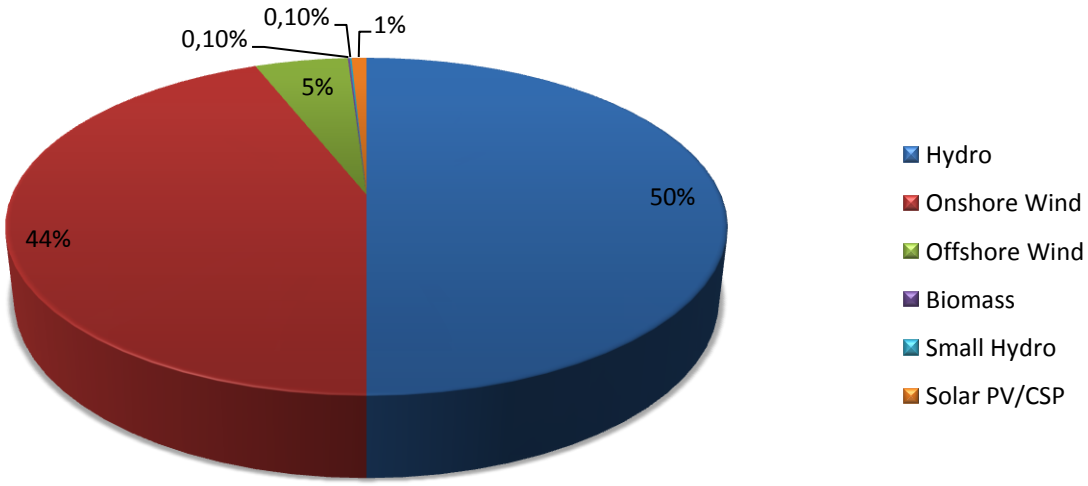


Figure 15, *EC&R Asset location*, E.On Facts & Figures, (2013)

In addition to EC&R "new renewables" like wind and solar, E.On is a particularly strong hydro producer: in fact it owns 4,622 MW of installed capacity mainly located in Germany. So the effective distribution of the total installed capacity at the end of 2012 is represented by the table below[72].



Graph 10, *E.On renewable portfolio*, E.On Facts & Figures, (2013)

[71] Source: E.On Facts & Figures, (2013)
[72] So, the total amount of renewable capacity amounts to more than 9 GW, 4.8 GW of which carried out by EC&R

As it is evident, E.On is mainly a "wind and hydro player". As for the wind business, its wind capacity represents 44% of its assets divided in onshore (39%) and offshore (5%) where it respectively ranks 8th and 3rd in total installed capacity globally.

Moreover EC&R has also around 21.5 GW project pipeline[73], as a consequence of substantial investments occurred in the past years. However, it has more project pipeline in Europe rather than US probably due to the will of increasing European share (only 48%), considered to be poor[74].

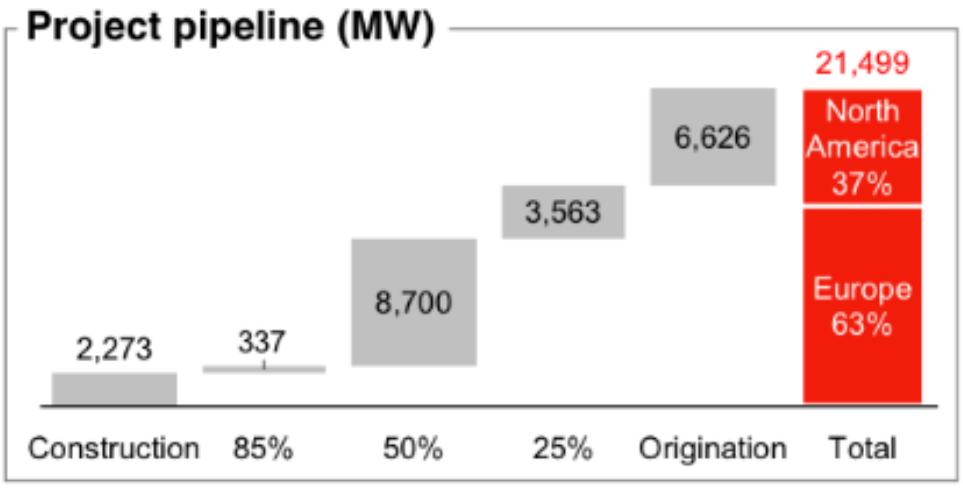


Figure 16, *EC&R pipeline portfolio*, EC&R Compan Presentation, (2012)

[73] As of September 31, 2012
[74] All the analysis carried out in the following chapter will exclude the Hydro business since not belonging EC&R

5.3.2) RWE Innogy

RWE is a German utility based in Essen and is the #1 power producer in Germany, #2 in Netherlands and #3 in the UK. It supplies around 24 million customers with either electricity or gas and it has nearly 70,000 employees[75]. In any of the countries mentioned above, RWE Group is present with a subsidiary generally named after the parent company. In particular these are:

1) Germany: RWE Power (Power Generation) and RWE Deutschland (Sales and Distribution)
2) Netherlands/Belgium: Essent
3) United Kingdom: RWE npower
4) Central Eastern and South Western Europe: RWE East

In addition to this, it owns subsidiaries that carry out complementary functions such as:

1) Renewables: RWE Innogy
2) Upstream Gas & Oil: RWE Dea
3) Trading/Gas Midstream: RWE Supply & Trading

So, like E.ON, RWE owns a subsidiary whose task is carrying out the renewable energy business of the Group. Established in 2008, RWE Innogy is a rather niche player if compared to its competitors and its only focused on Europe. However, it shows significant growth opportunities since it pipeline, as of 31/12/2012, accounts for more than 10 GW, that is, three times the level of its current installed capacity. Moreover, RWE Innogy has installed 93% of its capacity in four countries say, Germany, UK, Netherlands and Spain and it invests mainly in three energy sources with a total installed capacity of 3.7 GW (as of December 31, 2012)[76], representing around 8% of RWE Group capacity:

1) Onshore wind: it represents 44% of the total installed capacity
2) Biomass: 30.4%
3) Hydro: 21.3%

[75] Source: RWE Group profile, (2013)
[76] Source: RWE, (2013)

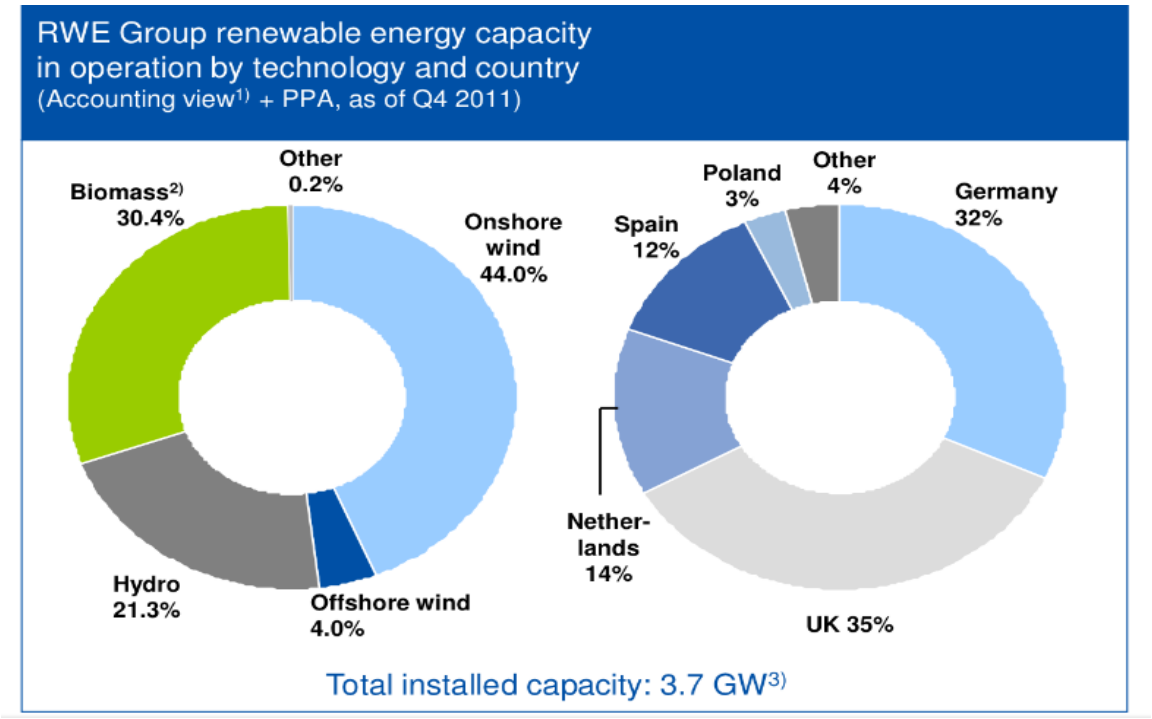


Figure 17, *RWE Innogy renewable portfolio*, RWE, (2013)

So, unlike EC&R, RWE Innogy is a more diversified renewable energy company since its production comes from three main sources: onshore wind, biomass and hydro.

Another difference with EC&R is related to geography: in fact, RWE Innogy has no farms outside Europe, which represents 100% of its farms' location.

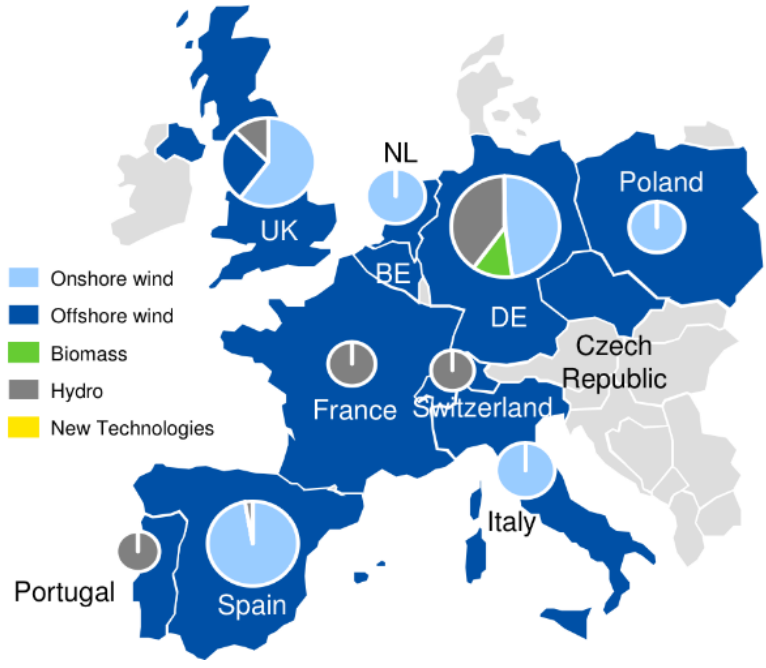


Figure 18, *RWE Innogy asset location*, RWE, (2013)

However, like EC&R, RWE Innogy has a substantial project pipeline amounting to 13.5 GW (including under construction and excluding in operation) mainly focused in the wind technology.

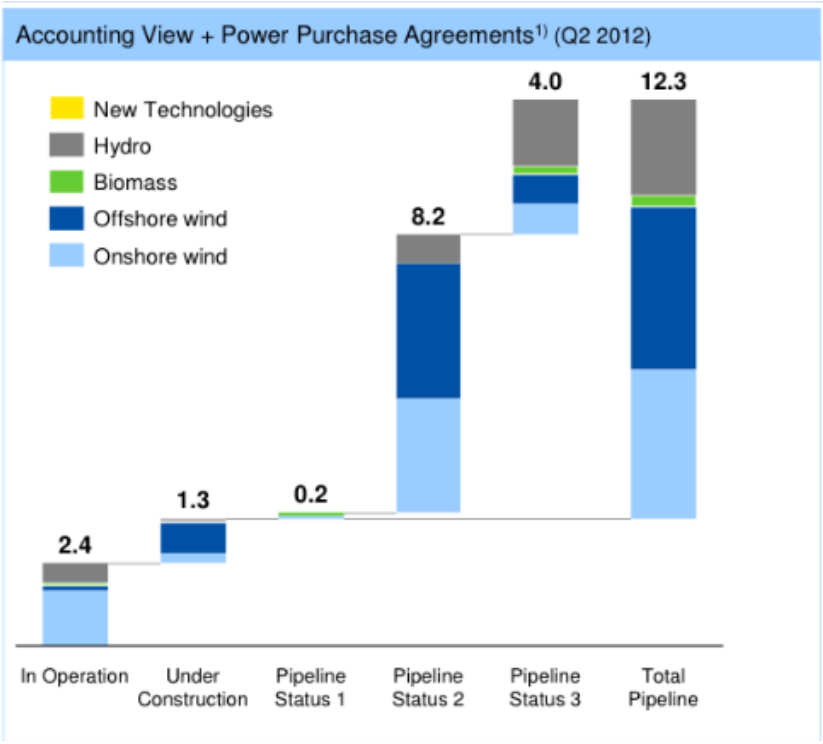


Figure 19, *RWE Innogy pipeline portfolio*, RWE, (2013)

6) Today vs Past

The objective of this chapter is to compare some of the key data of the REs utilities analyzed above (installed capacity, pipeline, capex) in order to try to understand whether going public contributed to the company growth or not.

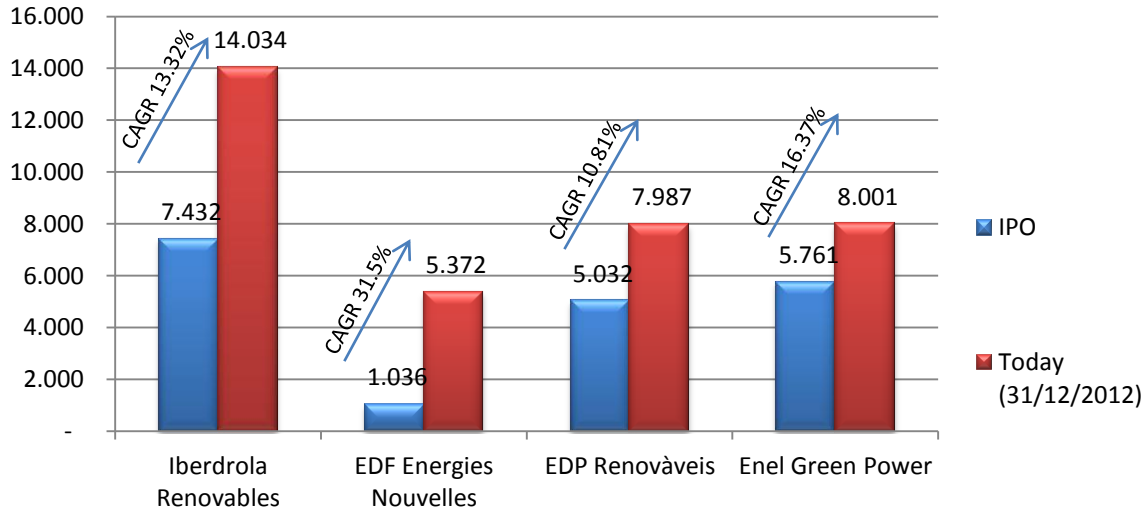
First, all the companies that went public will be analyzed in terms of installed capacity, pipeline portfolio, capex and profitability, then, they will be compared to EC&R and RWE Innogy in order to understand if being public was a key determinant of their growth. All the graphs presented in this chapter contain data retrieved from companies' websites.

6.1) Public Companies

The aim of this section is to analyze the life of the public REs companies (IBR, EEN, EDPR and EGP) in terms of installed capacity, pipeline under construction and capex in order to assess whether they show similar/different characteristics from which it is possible to extrapolate some findings.

6.1.1) Installed capacity

The first feature to be analyzed is the installed capacity since it is what is used to classify utilities' size. The following table highlights the level of installed capacity public companies had at the launch of their IPO and their current situation (31/12/2012).

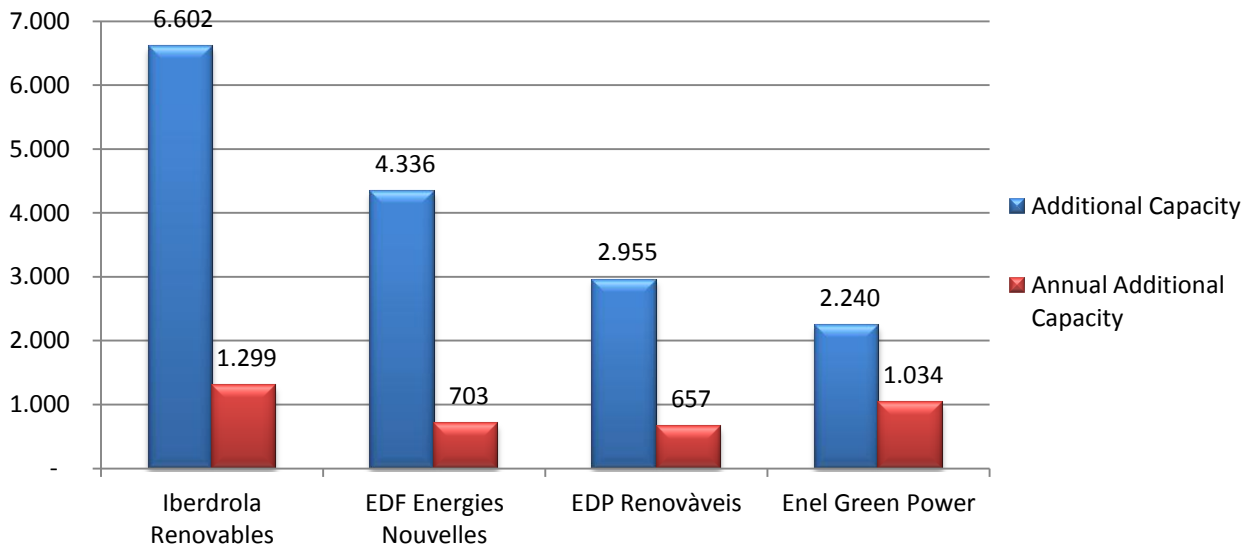


Graph 10, *Public companies' installed capacity (MW)*, Data retrieved from companies' websites, (2013)

As easily predictable, EEN is the utility with the largest growth rate, but this finding is affected by the low level of installed capacity it had in 2006; EEN, indeed, has just started its process to become a player in REs industry, getting closer and closer to EDPR and EGP.

Another finding that can be extracted by the table above, is EDPR lower growth than EGP. This lack of investments contributed to make EGP become the 3rd largest REs utility in terms of installed capacity after Iberdrola and E.On[77], as of 31/12/2012.

Additional focus on the annual installed capacity is presented by the table below.



Graph 11, *Public companies' additional capacity (MW)*, Data retrieved from companies' websites, (2013)

In fact, although EEN and EDPR installed more additional capacity than EGP since their IPO, they made it in a wider time horizon, with the effect of lower Annual additional capacity.

Another evidence of the table above is IBR leadership in European REs industry: it, indeed, added more capacity than its competitors both in absolute value and in annual installations. As a result, IBR (now Iberdrola) is European #1 utility for renewable installed capacity .

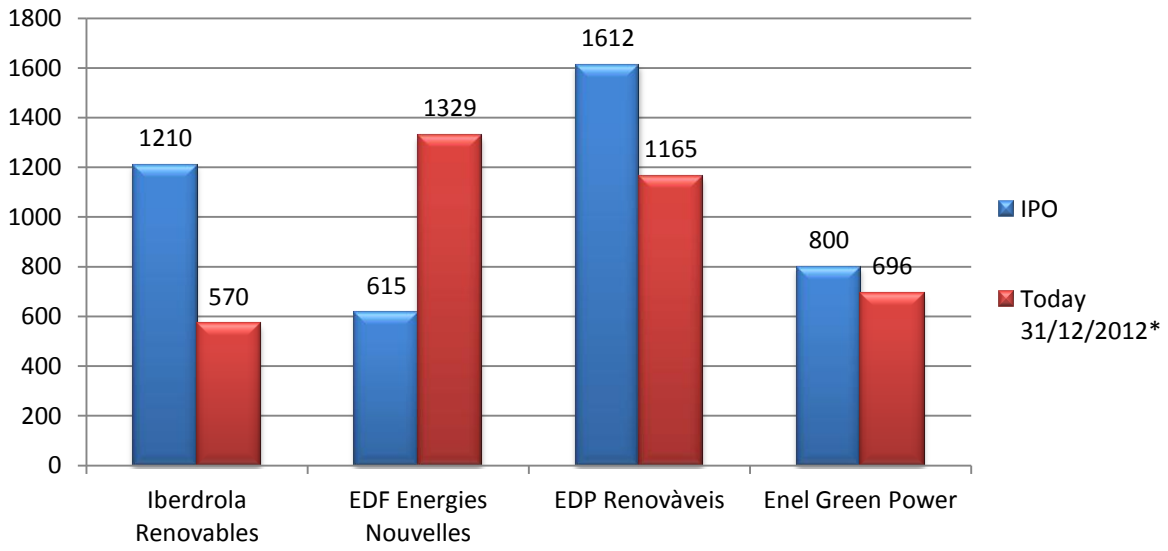
However, as it is evident by the first table of the chapter, when they went public, installed capacities of these companies were very different. In fact, while IBR started with a capacity that EDPR and EGP only reached in 2011, EEN was a very small player (slightly more than 1 GW) but its growth is taking it closer and closer to its rivals.

[77] Taking into account the Hydro business

6.1.2) Pipeline Portfolio

As for pipeline portfolio, there will not be taken into account all the development stages but only the closest stage to being operational: "under construction" or "commercial operation date"[78]. The reason for this choice is that only projects in this stage represent value added for REs companies since the probability of becoming operational in the very next years is higher than 95%[79].

The analysis of the pipeline portfolio of these companies, consequently, can be a good indicator of future performances and, in general, commitment towards the development of REs production. The table below, as it has been done for installed capacity, shows the pipeline under construction (MW) for each of the firms that went public as of their IPO and to date[80].



Graph 12, *Public companies' pipeline portfolios (MW)*, Data retrieved from companies' websites, (2013)

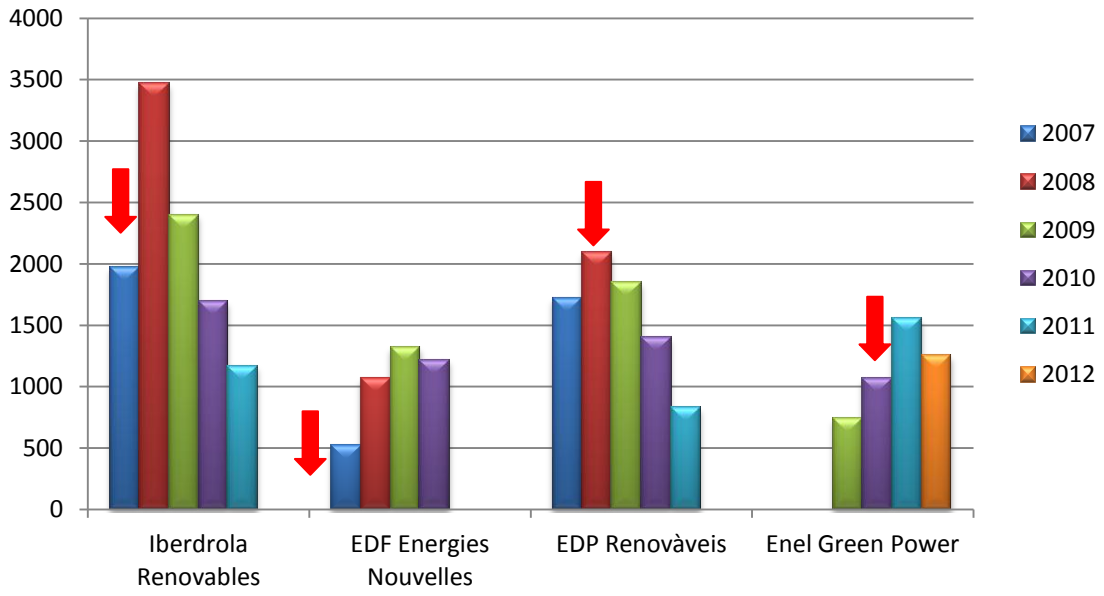
As it is evident, now, IBR, EDPR and EGP have less projects under construction than at their IPO, while EEN is the only outlier. **This shows that the French company is the European utility that is most committed towards renewable energies**: this is also supported by the fact that, when EDF bought back EEN, it paid €40 a share for the same company it listed in 2006 at €28[81]. In addition to this, EDF commitment is also highlighted by its CEO who, as of EEN delisting, confirmed the interest of his company towards green energy sources and set the ambitious target of a diversified energy mix by 2020, 25% of which coming from REs. However, this target may also be sought by

[78] Names vary accordingly to pipeline classifications adopted by the utilities
[79] According to companies classifications
[80] Due to data unavailability, IBR pipeline refers to 31/12/2011 while EGP's is calculated assuming the same % of 2011 pipeline under construction
[81] EBITDA multiple was nearly the same

the French utility since its government wants to reduce the focus on nuclear in favor of an increased electricity generation coming from renewable sources.

6.1.3) Capex

Capex is the most relevant item in order to understand how large were the investments in expanding the operations of a company in a certain time horizon. As it will be evident by the following table, almost all the companies previously analyzed, followed similar patterns in terms of capex showing an important aspect: three out of four, registered their higher level of capex the year after their IPO (with the exception of EEN), so one could argue that, going public actually contributed to finance utilities' investment plans[82].



Graph 13, *Public companies' capex by year (€million)*, Data retrieved from companies' websites, (2013)

In particular:

- IBR went public in 2007 and its 2008 capex were slightly lower than €3.5 billion
- EDPR was listed in 2008 and its 2009 capex reached €1.3 billion
- EGP IPO occurred in 2010 and its 2011 capex peaked in 2011 reaching €1.5 billion

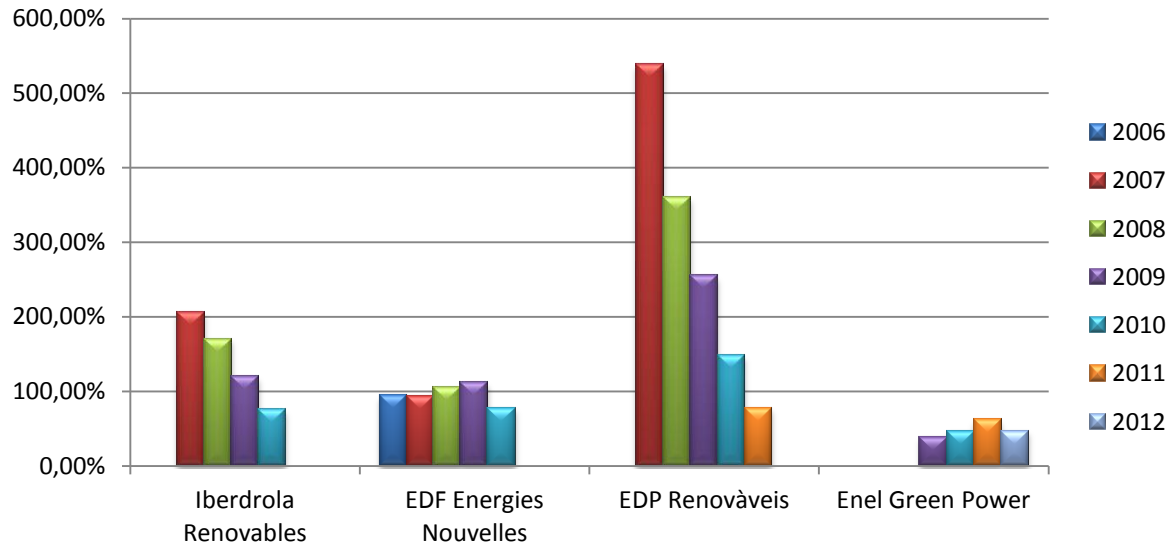
The only exception is EEN whose capex kept growing until 2009 and started decreasing from that year onwards. However EEN, at the time of its IPO, 2006, was far smaller in terms of installed capacity than its peers; so, this feature has probably contributed to slow down its capex in 2007-2008.

[82] The red arrow means "year of the IPO"

Moreover, this table shows that, for the first three firms, capex substantially decreased from 2009 suggesting that these companies have decreased their investments. On one hand this is false. The reason behind this statement is that wind turbine costs[83], as well as other REs technologies, decreased during the years: thus, now, buying/developing a certain amount of MWs is cheaper than in 2009.

On the other hand one could argue that, if these companies really wanted to develop their REs capacity, they should have invested at least the same amount of money of the previous years, in order to secure more capacity than they did before.

Another ratio that is worth analyzing is the Capex/Sales ratio, as shown by the table below.



Graph 14, *Public companies' Capex/Sales Ratio by year*, Data retrieved from companies' websites, (2013)

As it is evident IBR and in particular EDPR invested more than their peers in relative terms. In fact, they both record higher than 100% ratios from 2007 to 2009. EDF and EGP, indeed, applied a more conservative policy trying always to keep a constant Capex/Sales ratio. However, generally, all of them decreased their capex and their Capex/Sales ratio after their IPO.

The main reason which drove REs utilities not to increase their capex at a faster pace was the **financial crisis**. As mentioned in the introduction, the RE industry is strictly dependent on incentive schemes[84] and debt financing; so, if utilities can not exploit both, their financial performance would be negatively affected.

[83] Wind is the core business of most of these utilities
[84] This "risk" is common to all the "risk factor" sections of the IPOs previously analyzed

In fact, **financial crisis brought less incentives** (sometimes even with retroactive effects) and **less debt financing** availability, leading to the impossibility to develop more capacity. In addition to this, given that capex are a determinant of utilities enterprise value[85], if they decrease, the result is a **deterioration of EV** and consequently, **Market Cap**. The effect of all this, is the end of the so-called "**green premium**"[86] that was paid by investors to buy REs players' stock before the effects of the financial crisis.

This trend is highlighted by the following figures representing the evolution of the stock price of the two utilities still public: EGP and EDPR[87].

Figure 20, *EGP Stock price IPO – April 16*, 2013, Yahoo Finanza, (2013)

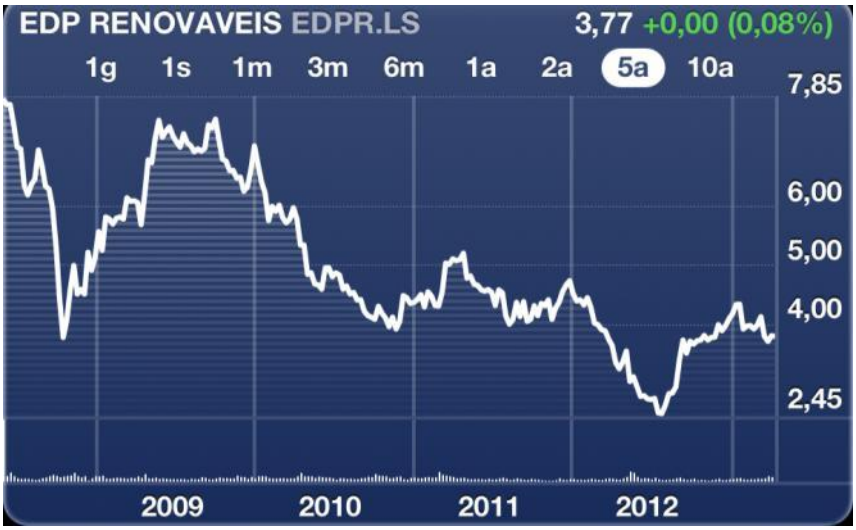


Figure 21, *EDPR Stock price IPO – April 16*, 2013, Yahoo Finanza, (2013)

[85] The higher the capex, the higher the EV. See "Capital intensity" in the Introduction
[86] See "Green Premium" in the Introduction
[87] From their IPO to date, 16/04/2013

As it is evident, while EGP stock priced is almost at the same level of its IPO, EDPR's one decreased substantially by slightly more than 47[88]. Some reasons for this could be sought in EDPR asset location (Spain and Portugal): in fact since Spain and Portugal are among the most troubled countries[89], their difficulties could be reflected in EDPR performance.

Another fact supporting this evidence is the buy-back of IBR by its parent company Iberdrola. The latter bought back the former at €3.08 per share, down 42% from the IPO price set at €5.3. Iberdrola Renovables capacity, indeed, like EDPR, was mainly located in Spain.

As we learnt in this last paragraph, the only exception was EDF Energies Nouvelles which was delisted by EDF at €40, that is, 43% more than its IPO price set at €28. Again, the reason for this could be sought in the location of its assets, say, US and France, solid countries which dealt with the economic crisis better than Spain and Portugal.

So, it is possible to state that, **asset location** and **geographic diversification** could be a **key determinant of REs utilities stock price**.

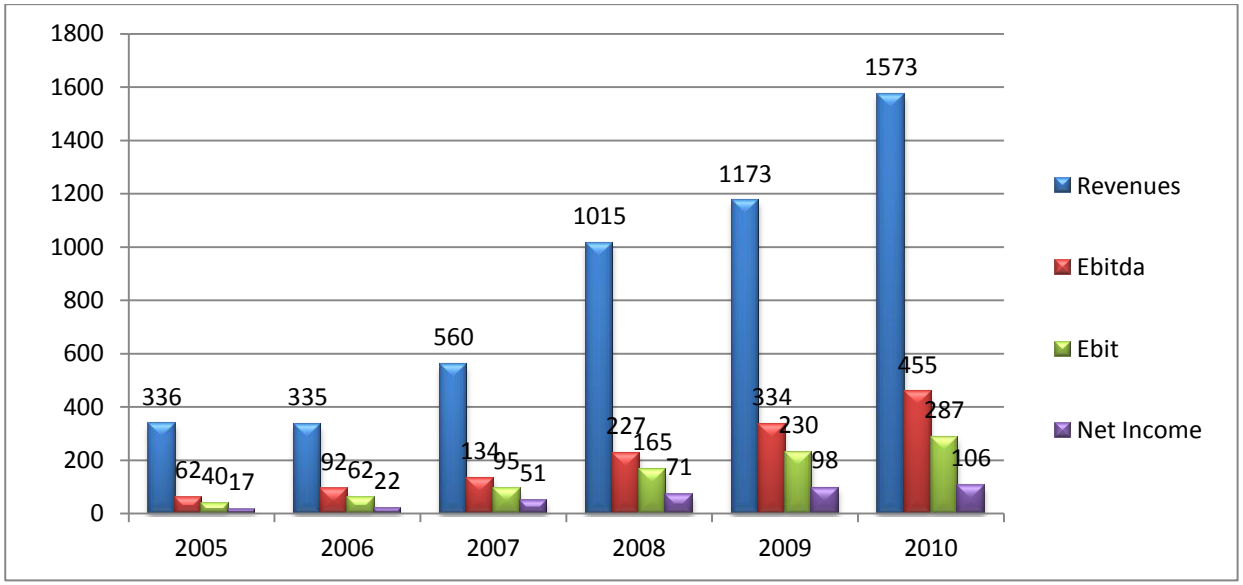
6.1.4) Financial performance

Another important aspect under which the decision of going public has to be analyzed is the financial performance. In order to do this, companies' most important financial items[90] (revenues, EBITDA, EBIT, net income with related margins) will be shown and briefly discussed. The time horizon chosen for the analysis is the period over which utilities' stocks were traded and one or two years before their IPO[91] in order to better assess any differences/similarities. Finally, given that these firms went public in different years, first, each company will be analyzed singularly and then, they will be compared over their "public period" .

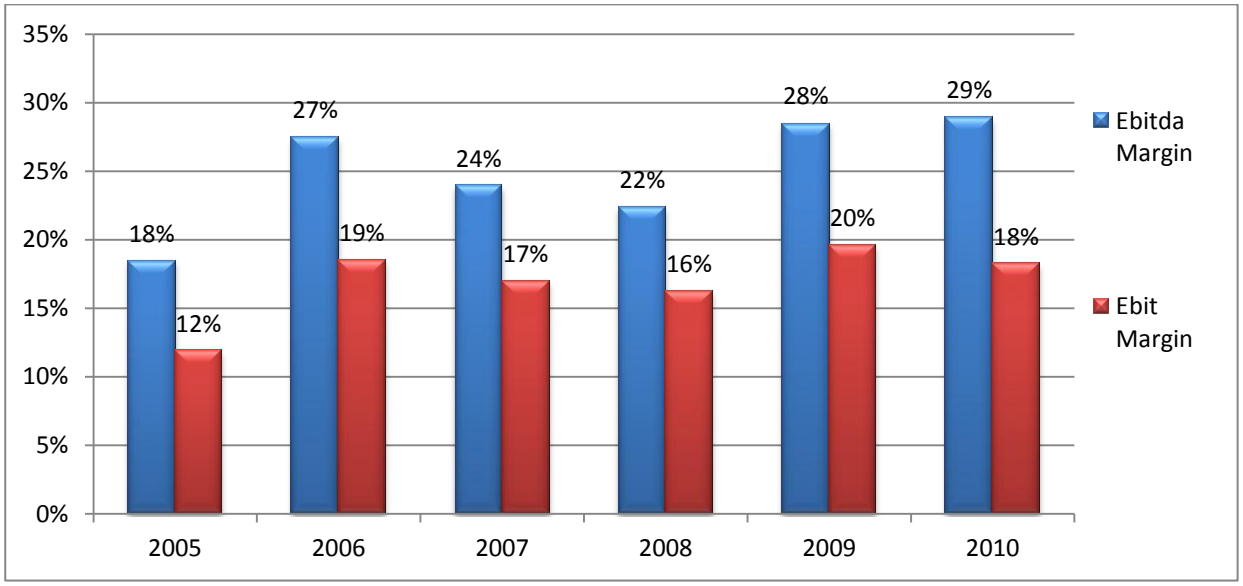
[88] Down from €8 to €3.77 as of April 16, 2013
[89] Most of EDPR assets are located there
[90] Expressed in € million
[91] Depending on data availability

6.1.4.1) EDF Energies Nouvelles

EEN is the fastest growing company (in terms of revenues) but is also the firm that shows the lowest margins. However, EEN margins before its IPO were even lower; therefore, going public was a good choice since the company experienced an exponential growth in absolute values and an improvement of margins (%).



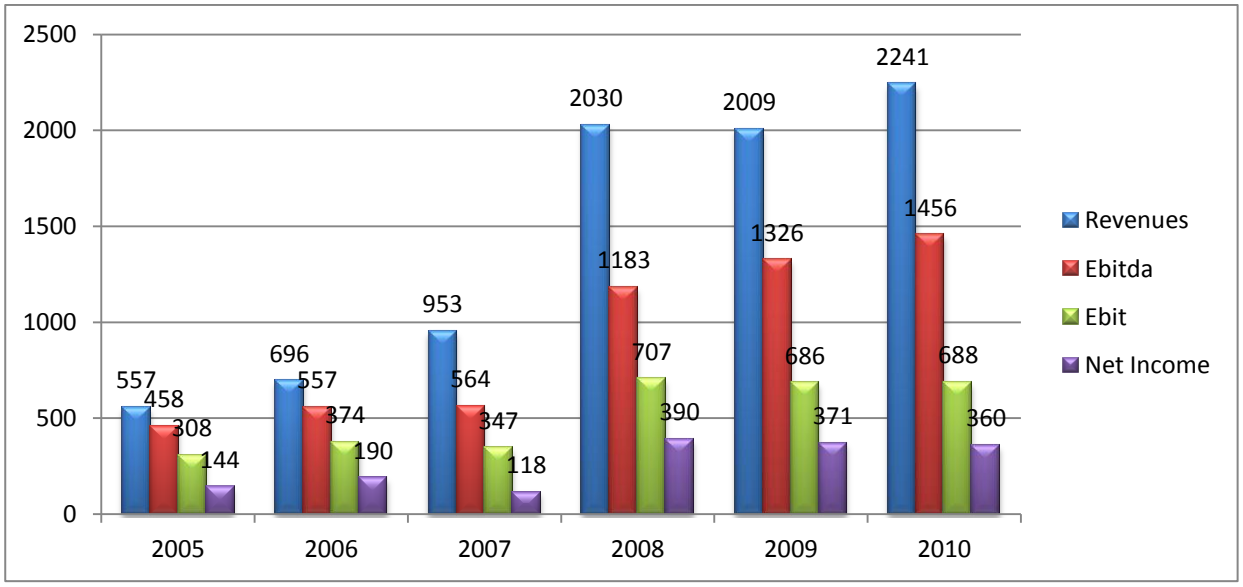
Graph15, *EEN results by year (€ ,000),* Data retrieved from EEN annual reports, (2005-2010)



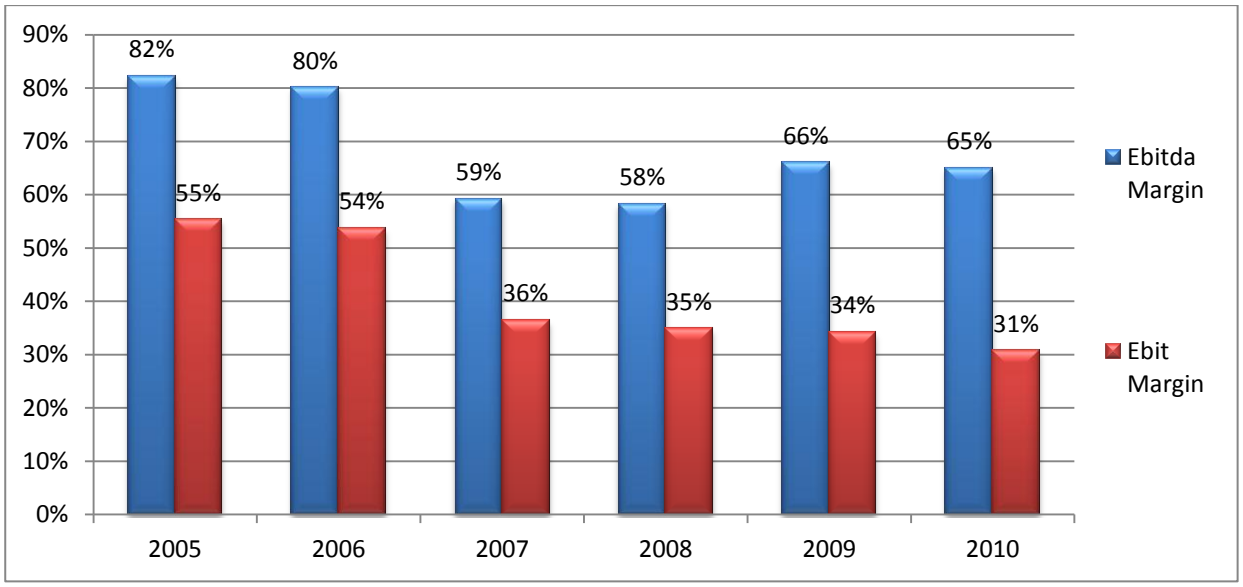
Graph 16, *EEN margins by year (%),*Data retrieved from EEN annual reports, (2005-2010)

6.1.4.2) Iberdrola Renovables

IBR revenues (and all the other items) literally skyrocketed after its IPO (2007) registering more than a 100% increase on a YoY basis. On the contrary, its margins decreased even by 15%. So, going public was beneficial to IBR only in absolute terms.



Graph 17, *IBR results by year (€ ,000)*, Data retrieved from IBR annual reports, (2005-2010)

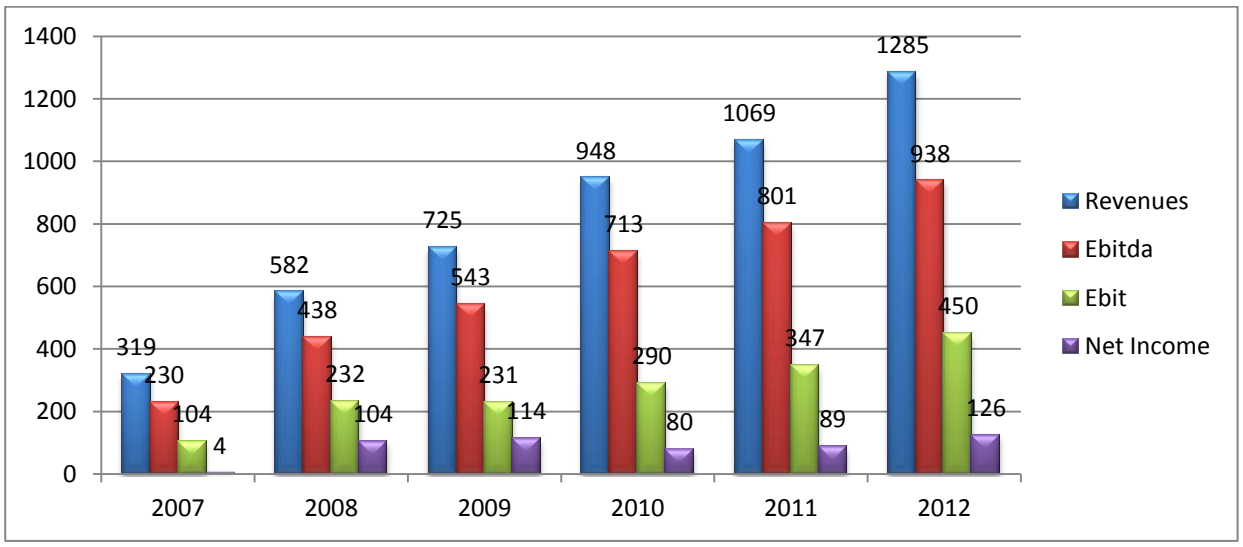


Graph 18, *IBR margins by year (%)*, Data retrieved from IBR annual reports, (2005-2010)

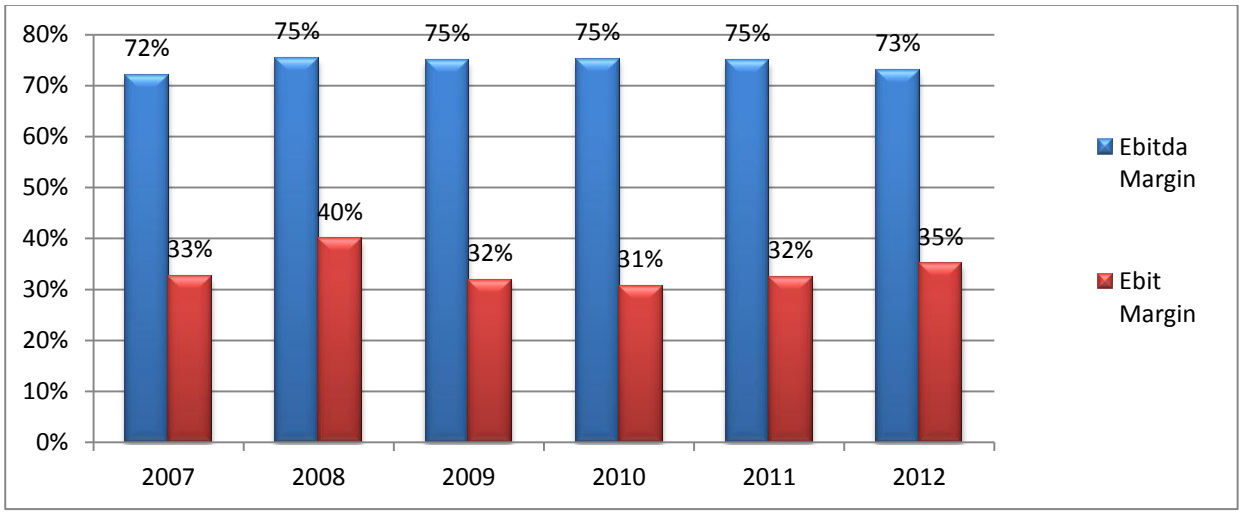
6.1.4.3) EDP Renovàveis

EDPR revenues, EBIT and EBITDA grew almost linearly after its IPO in 2008 while the only item which showed some volatility is Net Income. This trend is also confirmed by a margin analysis: in fact, as it is evident by the following tables, EBITDA and EBIT Margins are very stable while only profit margin is volatile. In particular, the latter, initially skyrocketed after the IPO to 18% but decreased a couple of years afterwards to 8%.

So, given that in relative terms, EDPR performance did not vary, we can conclude that going public was a good choice since the firm kept growing in absolute values since 2008 losing some profit margin though.



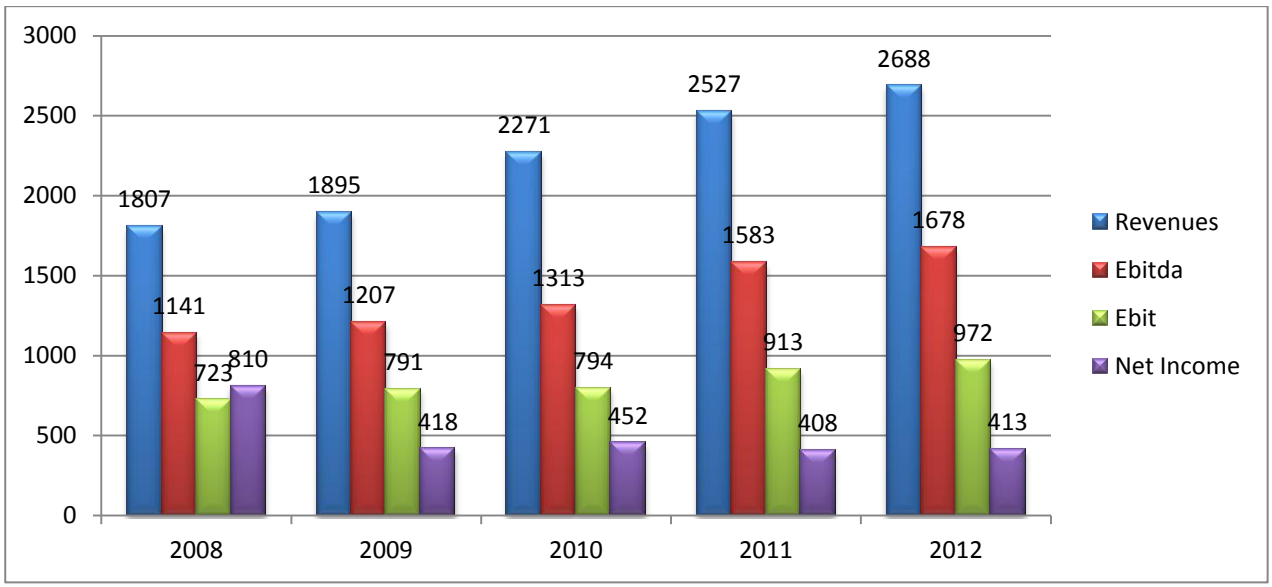
Graph 19, *EDPR results by year (€ ,000),* Data retrieved from EDPR annual reports, (2007-2012)



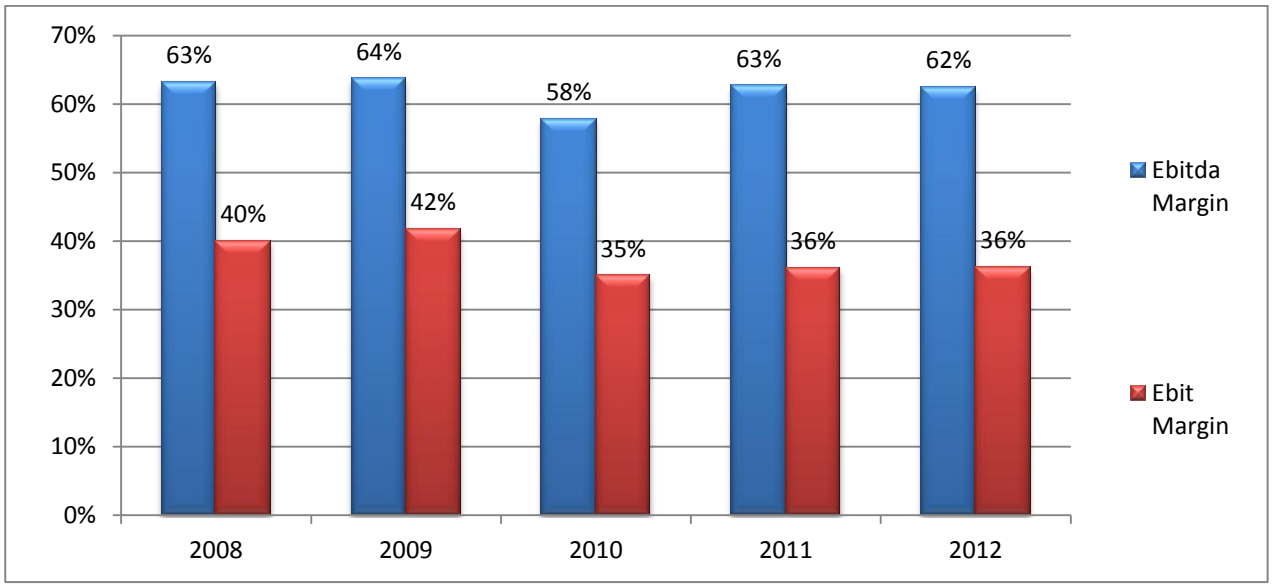
Graph 20, *EDPR margins by year (%),* Data retrieved from EDPR annual reports, (2007-2012)

6.1.4.4) Enel Green Power

EGP shows a similar trend to IBR. In fact, its revenues, EBITDA, EBIT increased after going public while margins (%), with the exception of EBITDA margin, deteriorated[92]. The most negatively affected item is Net income, both in relative and absolute values: in particular, profit margin touched its lowest level in 2012, say, 15%.



Graph 21, *EGP results by year (€ ,000)*, Data retrieved from EGP annual reports, (2008-2012)



Graph 22, *EGP margins by year (%)*, Data retrieved from EGP annual reports, (2008-2012)

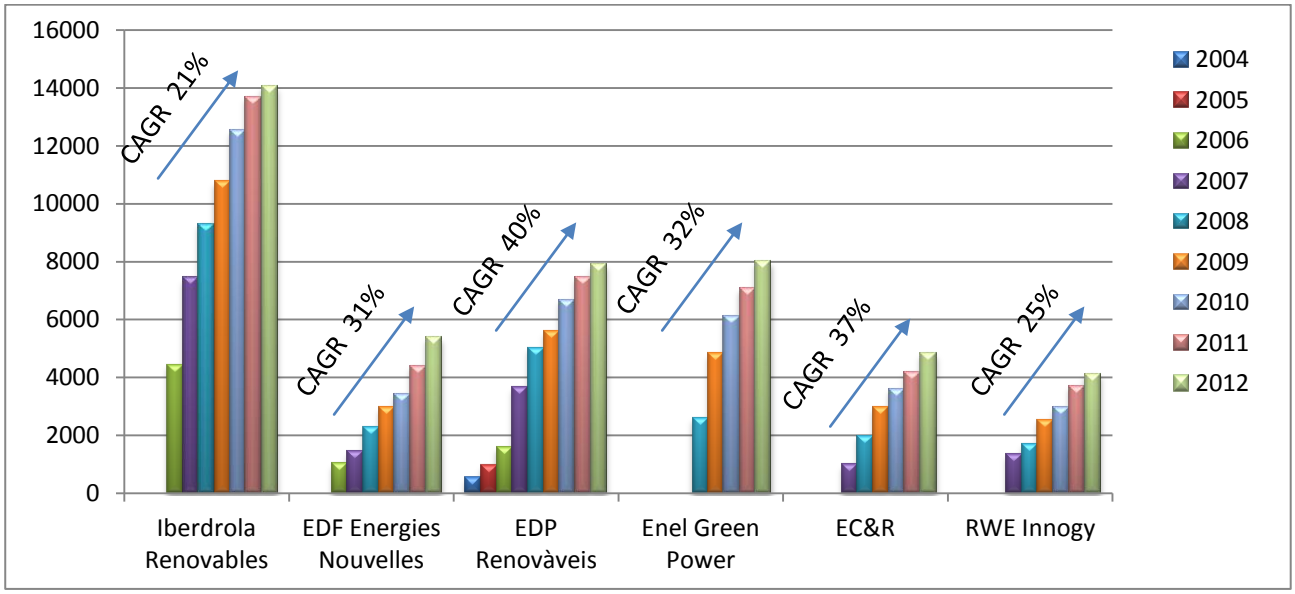
[92] Note that 2008 shows a higher Net Income than Ebit. This is due to a positive tax effect

6.2) Public vs Private

So far only public companies have been analyzed carefully. However, one of the targets of this dissertation is trying to understand whether going public was a good decision or not. In order to understand it, this chapter will compare the main features previously analyzed (installed capacity, pipeline under construction, capex) among public (EEN, IBR, EDPR and EGP) and private companies (RWE Innogy and EC&R).

6.2.1) Installed capacity

This paragraph will analyze the installed capacity of private vs public companies in order to identify any similarities/differences. The table below presents the evolution of the installed capacity of both public and private companies over the last years.



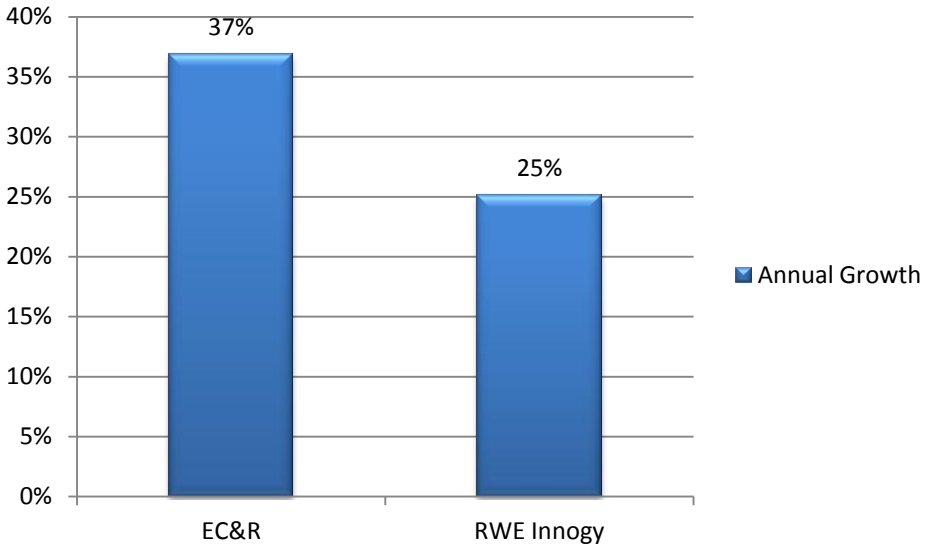
Graph 23, *Public and private companies' installed capacity by year (MW)*, Data retrieved from companies' websites, (2004-2012)

As it is shown, the spread between installed capacities increases with time. In particular, bigger companies grow more than small companies and the only exception is represented by EGP which surpassed EDPR (originally larger than the Italian utility) in 2012.

In addition to this, it is evident how EC&R grew more than EEN even if the latter was public. A bit different story occurred with RWE Innogy: the German utility, indeed, always smaller than EC&R[93], grew at almost the same rate of EEN resulting to own around 200 MW less than its French competitor by the end of 2012.

[93] With the exception of 2007

An important finding is the private companies' installed capacity annual growth rate, reported by the table below.



Graph 24, *Private companies' installed capacity CAGR*, Data retrieved from companies websites, (2007-2012)

As it is evident, the average of these growths is equal to EEN's 31%. So one could argue that, either public or private, companies with similar capacity grow at similar rates: in fact, we can divide these companies in three groups:

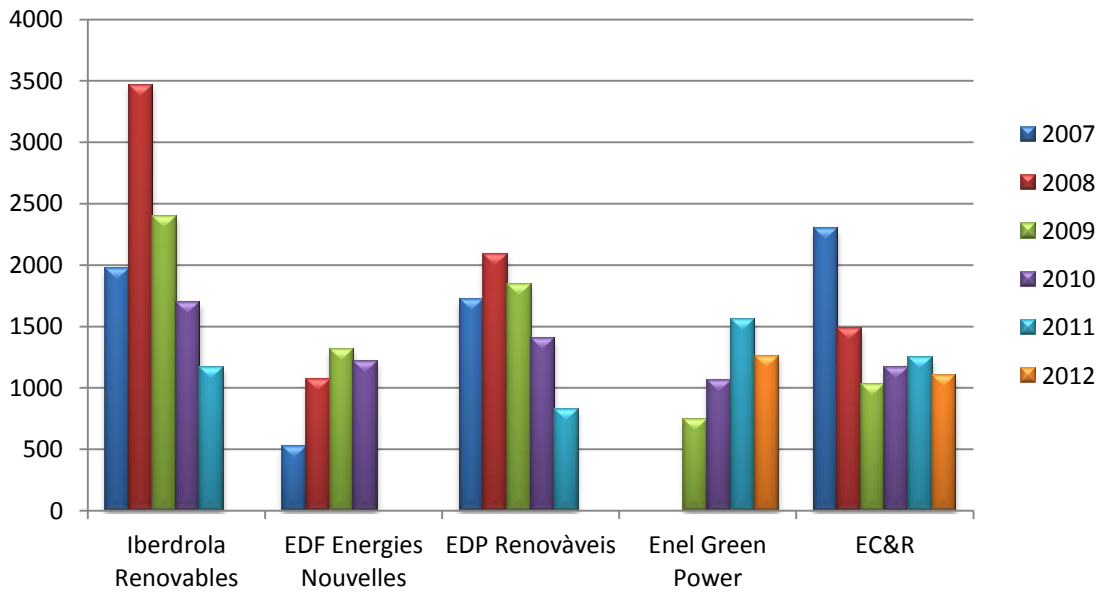
- ✓ EEN, EC&R and RWE Innogy started with similar installed capacity in 2007, and ended up in 2012 with similar capacities again.
- ✓ EDPR began 2007 with less than 50% of IBR capacity and ended 2012 with a little more than 50% of IBR capacity.
- ✓ EGP. Enel Green Power is the only outlier. In fact, it started with a capacity similar to the first Group (EEN, EC&R and RWE Innogy) but ended 2012 surpassing EDPR.

So, one could argue that, in terms of installed capacity, **none of these companies particularly benefited from being public**, with exception of Enel which became the 3rd European REs utility in 2012[94].

6.2.2) Capex

By adding EC&R capex (€ million) to the table previously presented regarding public companies capital expenditures, we can find an interesting difference.

[94] However its growth began before being listed



Graph 25, *Public companies + EC&R capex by year (€ ,000)*, Data retrieved from companies' websites, (2007-2012)

Unlike public companies that at least presented a 1-year boom in capex, EC&R capex decreased from the record level of 2007 stabilizing around €1.1 billion from 2009. In fact EC&R has almost halved its investments since 2007. However EDPR only IBR did worse: the former more than halved its capex since 2008, while the latter decreased them by 2/3 since its 2008 record level €3.5 billion.

Consequently, one consideration has to be done with regard to the effects of the financial crisis. The latter, indeed, pulled down the investments of all the companies independently on the industry they operated in, but here, we can see how it affected different companies, in a different way.

The giant Iberdrola was the most affected utility followed by EDPR and EC&R[95]; on the contrary, EEN and EGP did not suffer as their competitors did. In particular, while all the other utilities were decreasing their investments in the middle of the financial crisis, Enel Green Power increased its capex to its top level €1.6 billion. However, 2012 registered a decrease of €300 million.

So, we can say that, the financial crisis affected all the REs utilities, no matter they were public or private. However, while public companies all increased their capex within the year after their IPO independently on the momentum of the financial crisis[96], EC&R never recovered from 2009 level.

So one could argue that, being public was beneficial to REs utilities in terms of capex, at least in the short term.

[95] The ranking is made dividing the last capex available to the top year
[96] EGP did it during the explosion of EU Sovereign debt crisis

As a conclusion, one could draw the "**1-year rule**": when REs utilities go public, they increase their capex at least during the year after the IPO.

After that year, they could be affected by a series of events that were probably not considered to be relevant in the short-term, but significant in the long-term. For example, asset location, again, could be considered a very important aspect to be taken into account. In fact, since the financial crisis was born in US, the first companies to be negatively affected where those whose assets were mainly located in US: EC&R, IBR and EDPR.

However, as we stated several times, EEN was an exception given that, in 2006, 40% of its installed capacity was located in the US. However, it seems to have increased its investments in Europe rather than in US since, as of June 2012[97], only 33% of its assets were located in North America (including Canada), that is, a 7% drop from 2006. So, this is probably one of the reasons why it suffered less than its competitors.

Finally, at the launch of its IPO, only 13% of EGP capacity was located in North America, reason for which EGP probably began reducing its capex only after 2011, when the sovereign debt crisis hit Europe (major EGP asset location).

So, concluding, if we consider capex as a key driver of a firm's growth, one could argue that, going public contributed to it, since it enabled utilities to counterbalance the effects of the financial crisis, at least in the short-term[98]. Moreover, we found that being diversified in terms of asset location can be beneficial to the company in two ways: decrease regulatory risks and gain more access to new resources.

However, these findings are not definitive since they are based on a small sample. More companies should be analyzed in the same way but it is almost impossible to get access to their data, if not public.

[97] Source: EEN Corporate Profile, (2006)
[98] 1-year rule

6.2.3) Current multiple valuation

Another way to evaluate utilities' choice of listing their REs divisions is comparing current and IPO's EV/EBITDA multiples. To perform this exercise we used the current trading multiples (as of May 2013) for EGP and EDPR and the implied valuations resulting from the SOTP's of selected equity research for IBR, EEN, EC&R and RWE Innogy.

Company	EV/EBITDA FY1 IPO	EV/EBITDA 2013
EGP	8.5x	7.3x
EDPR	10.3x	7.4x
IBR	17.8x	8.5x
EEN	12.9x	11.2x
EC&R	n.a.	12.0x
RWE Innogy	n.a.	12.1x

Table 28, *EV/EBITDA multiple comparison*, selected Equity Research Reports, (2013)

The most interesting result of the analysis above is that the EV/EBITDA multiples of EC&R and RWE Innogy, that have never been listed, are significantly higher than both EGP and EDPR (that are currently listed) and IBR and EEN that, as already described, have been taken private.

7) Conclusions

The main targets of this paper were trying to understand the main trends in the REs industry, their impact in terms of corporate activity and to figure out whether utilities made a good decision when listing their REs divisions. Answers to these questions have to be sought analyzing all of the relevant findings, starting from the beginning.

Value drivers

- ✓ **Non-OECD countries will drive the growth of this industry**: in fact, as it is evident by figure 5 in the introduction, most of the future increase in REs electricity generation will come from China and the other non-OECD countries.
- ✓ **Green Premium**: at the time of the IPO of EEN and IBR, REs utilities were traded at a significant premium with respect to their "fossil fuels" competitors. This was mainly caused by the favorable economic conditions of those years which contributed to depict a prosperous future for REs industry.
- ✓ **Subsidies dependence**: there are two ways REs utilities can sell energy: at the market price or via incentives (generally higher than market price). Moreover, subsidies, can also include fiscal incentives. This is why they still are so important to REs firms. In fact, as it is stated in all of the IPO offering memoranda, a decrease or worse, the withdrawal of such incentives could be detrimental to utilities' financial performance for the reasons mentioned above. However, as green energy production costs go down, incentives will decrease as well, since there would be need for them anymore. Although this reasoning is pretty obvious, the reality is different: grid parity has not been achieved yet but subsidies are decreasing due to government budget cuts. As a result, REs companies are suffering from this.
- ✓ **Capital intensity**: capex is a key item to assess the (future) value of REs utilities. In fact, given that these firms generate their revenues through electricity sales, ceteris paribus, the higher the generation (meaning higher installed capacity or higher load factor), the higher the utility's value. So, since capex contribute to increase installed capacity and, as a consequence, electricity generation, they are fundamental to evaluate REs utilities' growth potential.
- ✓ **Debt financing dependence**: REs utilities have always relied on debt (i.e. corporate debt or project financing) to finance their capex. So, once debt is not available as it was before Lehman collapse, firms have to look for an additional source of cash that could come either from

1. Operations (operating CF)
2. Equity (financing CF)
3. Divestments (investment CF)

Operating CF can hardly be a solution due to less incentives, equity is difficult to raise when the situation is tough[99] and divestments, since considered as a "last hope", represent a sign of weakness meaning unlikely growth. This is why, a lack of debt financing could be so dangerous for an REs utility.

Corporate Activity

- ✓ **M&A activity**: global deals value has been very volatile since 2007. However the trend is the decrease of mega-deals with an increased number of acquisitions at lower prices, pulled down by the crisis.
- ✓ **IPO activity**: as it is evident by the tables presented in the IPO chapter, IPO activity has been very volatile. Moreover, it is negatively correlated with market volatility: the higher the volatility (measured by the VIX Index), the lower the IPO volumes. This probably occurs due to the fact that investors are not willing to bear a high price volatility risk. Volatility, indeed, can pull prices either up or down proportionally to its magnitude. So, if volatility is high, investors may prefer not to invest since discouraged by a large price drop risk.

Companies' related findings

- ✓ **Installed capacity growth rate slow-down**: installed capacity of all utilities began to flatten especially for bigger companies such as IBR and EDPR.
- ✓ **Being public was not beneficial in terms of installed capacity increase**: all the listed companies did not report record capacity increases when public, with the exception of EGP which became in 2012 the 2nd largest EU REs utility[100].
- ✓ **Size is a key to predict future growth rate**: EEN, EC&R and RWE Innogy showed similar sizes in terms of installed capacity both in 2007 and in 2012 (their CAGR was around 30%). EDPR began 2007 with less than 50% of IBR capacity, ending 2012 with a little more than 50% of IBR capacity (CAGR around 12%). EGP, again, was the main outlier since, from 2008 it grew at a CAGR of more than 32%, higher than the smaller group (EEN, EC&R, RWE Innogy).

[99] The cyclicality of IPOs is an explanation
[100] Although most of EGP growth occurred before its IPO

- ✓ **Asset location is a key determinant for companies' growth:** companies whose assets were located in troubled countries were more affected, in terms of installed capacity growth growth, than the others in the short term. Financial crisis, beginning in the US, pulled down IBR, EDPR and EC&R capex while did not affect substantially EGP and EEN investments. EGP started suffering from the world crisis when the latter became a sovereign debt crisis which hit Italy (and EU) at the end of 2011. Again, the effect is a lower stock price.
- ✓ **Asset location and capex correlation:** as a consequence of the last two findings, capex and asset location are strongly correlated. In particular, depending on the financial conditions of the country where utilities' assets are located, companies' capex will vary substantially. If the country shows signs of weakness or it is affected by a crisis, capex will probably be lower.
- ✓ **1-year rule:** when REs utilities went public, they increased their capex at the least in the very short-term, i.e., within the year following the IPO.
- ✓ **IPO counterbalance:** going public has enabled utilities to counterbalance, at least in the short-term, the effects of the financial crisis (on capex) mentioned above. In fact, while EC&R (private) immediately decreased its capex from 2008 onwards, public companies with similar features in terms of asset location such as IBR and EDPR, followed the same trend only two years after their IPO. EEN, again, is an exception since its capex kept growing for two years.
- ✓ **Key determinants of REs utilities stock price:** the most important factors which affect REs utilities stock prices are "Asset location" and "capex". While capex seem to be positively correlated with stock price[101], asset location can be considered as the "cause" of capex levels.
- ✓ **Debt reimbursement:** in all of the IPO offering memoranda, the most important and recurring "reason" for the IPO was the reimbursement of part of the debt at the parent level. In fact, in all the cases previously analyzed, part of the IPO proceeds were used to reimburse part of the debt REs utilities/parent companies had.
- ✓ **Private companies' multiples are higher than "public" ones':** the market seems to reward the choice of never being listed, although asset location may be a relevant variable.

So, before the conclusions, we should recall, once again, the goals of this dissertation:

- Analyzing and predicting the main trends in the REs industry and their impact in terms of corporate activity (i.e. M&A, IPO, etc)

[101] Although Capex/Sales ratio proves it wrong

- Understanding whether utilities made a good choice listing their REs divisions or not

The following, and last paragraph of the dissertation will try to answer these questions, based on the findings of this paper.

1. **REs industry future**: the years to come will probably see the consolidation of REs industry. This industry, indeed, is characterized by relatively "small" players and a very low concentration. Due to the effects of the financial crisis, most of the companies, and in particular REs utilities, have **lost** a substantial part of their **market capitalization**. However, as we have seen, private companies (those which are supposed to be smaller) have been even more affected by the crisis than public ones. The effect could be a **new wave of M&A**. Large firms (i.e. EGP, IBER, EDPR and EEN) start to buy their smaller competitors (e.g. Theolia, Friel, Alerion, Falck Renewables, etc), at much cheaper prices than a few years ago, in order to grow and strengthen their market share. So, if the world and EU in particular, finally overcome this crisis, REs industry is likely to see a prosperous future (at least until the next crisis). Positive effects will also impact IPOs. Since these are correlated with market volatility, a standard deviation decrement will probably help listings of new companies (e.g. EC&R, RWE Innogy), which could be attracted by the renovated interest of investors in the industry[102]. As for existing utilities, they could try to protect their market cap deterioration by investing in new countries (e.g. China, India and Turkey), **improving** their **geographical diversification**. In fact, for some firms, since "good" asset location acted like a shield from the effects of the crisis[103], investing in other countries, preferably characterized by a strong positive growth (e.g. China) should be seriously considered as an option to survive. In growing countries, indeed, it is also easier to ensure finance to develop long-term projects: in a few words, **growth fosters growth.** This is the reason why, countries/companies which show signs of weakness must immediately react and improve their situation: otherwise, investors could leave them minimizing their possibilities to grow. So, concluding, REs industry is not dead and it will never be. Political forces are always more and more concerned about the environment: so they cannot ignore the benefits "green energies" will bring. However, the final switch from fossil fuels to renewables will occur only when grid parity is reached, either by a price increase of fossil fuels[104], or by a production costs reduction of renewable energies[105].

[102] Resulting in the "green-premium"
[103] EEN and EGP
[104] Very likely in the medium term since resources such as coal, oil and gas will no longer be available on earth.
[105] The more investments in R&D, the more cost reduction is expected.

2. **Considerations on the listing of RE divisions:** companies who went public experienced an incredible **growth** in terms of **revenues** and **EBITDA** and exploited the **1-year rule**. In fact, their **capex** registered record levels within the first year after the IPO and permitted the companies to **increase** their **installed capacity**. However, in the medium term, installed capacity began to flatten, no matter whether the utility was public or not. So, **going public was not beneficial in terms of long-term installed capacity growth**. On the contrary, being public surely enabled such companies to obtain **more access** to sources of **finance** (rare during crisis), and to **new countries**, fundamental to maintain a positive growth and to increase their regulatory diversification which is highly appreciated by investors. However, almost all of the **companies** which went **public** experienced a **decline** in their **profit margin**, that, together with unfortunate asset locations and lower capex, caused their **stock prices** to **fall** (IBR, EDPR and EGP in a smaller extent though). On the contrary EEN, the only company which increased its profit margin without substantially decreasing its capex, being also characterized by an "average" degree of geographical diversification, enjoyed a large price increase since its IPO.

   In any case, the choice of going public has to be evaluated according to the achievement of the goals established by each company before the IPO. All of them stated that the rationale behind that choice was characterized by at least two reasons: **debt reimbursement** and **financing the development of the operations**. So, given that debts were immediately reimbursed with part of the proceeds, and that the remaining part was devoted to capex (development of operations) enjoying the 1-year rule, one could argue that going public has been a good choice in terms of goals achievement for the parent company. However, only EEN's capex kept increasing for more than one year while, as previously mentioned, all its competitors substantially reduced them two years after their IPO. As for IBE-IBR and EDF-EEN mergers, from a financial standpoint, only Iberdrola made a right choice since it bought back a company whose price (and EV/EBITDA FY1 multiple) was far lower than its IPO's. EDF, according to the words of its CEO, has probably wanted to show commitment towards green energies, but at an expensive price.

Concluding, the future of REs industry will be bright again once out of the financial crisis: IPO and M&A activity will probably increase and companies will grow bigger and bigger. On the wave of what the companies analyzed in this dissertation did, other REs utilities, probably coming from China and from other growing countries will decide to go public while others, smaller, will be acquired by larger players. They will probably float their shares when the market is ready to pay a green premium again; this could be, indeed, the moment when we may hear some rumors on EC&R

and RWE Innogy IPOs. As for EGP and EDPR, they are likely to remain listed until the next economy expansion. In fact while EDPR stock price is already sufficiently low to justify a take private, its parent company, EDP, may probably not have the financial resources to do it, due to the negative effects of the financial crisis Portugal and Spain are dealing with. On the contrary, EGP will unlikely be bought back since its stock price is very close to its IPO's and Enel current leverage is a strong barrier.

These were all hypotheses and predictions. The only sure thing is that, sooner or later, economy will recover and REs industry will strongly benefit from it.

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