SPANISH INTEGRATED UTILITIES

Technological Disruption III

Technological advances have reduced costs in onshore wind and especially in solar PV to the extent that these technologies **are now more competitive than traditional ones:** their LCoE is not only lower but is also falling quicker.

As a result of this, we expect wind and PV to capture **significant market shares in new capacity installation in developing markets and in asset replacement in developed ones.**

This technological disruption creates **a new paradigm** that, medium term, potentially **threatens the companies** with: (1) **pressure on** commodity and **electricity prices** (massive installation of renewables worldwide); and (2) **loss of market share** in generation and supply.

Although we do not expect this process to be imminent, it has very **important implications for valuations**. **Current TVs**, which represent a significant part of the value of the generation business, **are overstated** and are based on hypotheses that are wrong, i.e. that electricity output, strong FCF generation and supply contribution remain constant (pre growth) to perpetuity in spite of capacity closures in nuclear and coal.

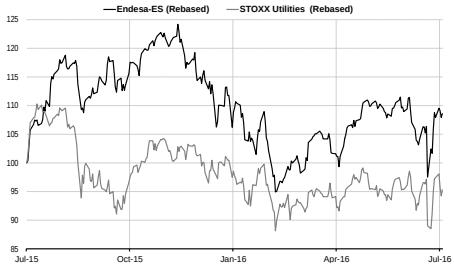
The new paradigm requires a new methodology (discounting the FCF of each year until coal and nuclear plants reach the end of their lives, and only then calculating a TV). Unfortunately, this **yields values significantly below those from a traditional valuation**. But even if we do not apply the new methodology to the calculation of our TPs, these might be negatively impacted due to **the deterioration that the new paradigm is likely to produce in expectations** for **long-term electricity prices**.

ELE (U/W; TP: €17.40). Our TP offers no upside and ELE will be the most negatively affected by the technological disruption, which, in our view, highlights its main weakness: its aging assets.

IBE (Hold, TP: €6.05): The technological disruption will also affect IBE (less than ELE but more than GAS), but this could take time to be priced in and is likely to be mitigated by IBE's strong positioning in renewables (>25% of EV). We like the stock, but more in relative than absolute terms, since our TP implies limited upside. Hold maintained.

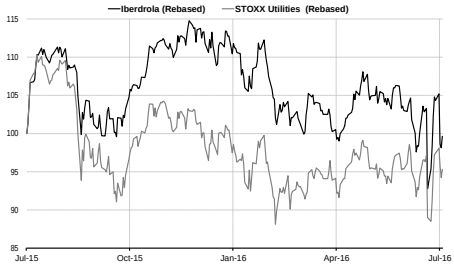
GAS (U/W; TP: €18.00). Although still negatively impacted, GAS is the stock least affected by the technological disruption. However, the strategic plan did not dispel our concerns. Only mid-term, low-visibility targets were above our estimates – and at the expense of much higher capex. The shares have reached our TP, leaving no upside to offset the risks. We downgrade the stock to U/W from Hold.

ELE – Relative Performance (12M)



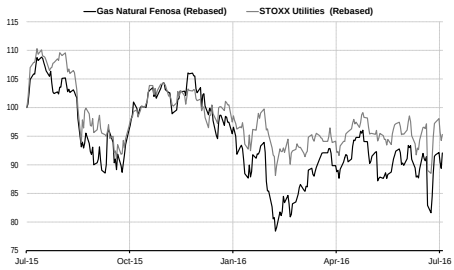
Source: FactSet.

IBE – Relative Performance (12M)



Source: FactSet.

GAS – Relative Performance (12M)



Source: FactSet.

Bosco Muguiro
(+34) 91 289 3346
bmuguiro@gruposantander.com

Key Data, July 7, 2016

	Rating	Mkt Cap (€ mn)	Current Price (€)	Target Price (€)	Up/Down-side (%)	EV/EBITDA (x) 2018E	EV/EBITDA (x) 2019E	P/E (x) 2018E	P/E (x) 2019E	2018E ND/EBITDA	2018E GDY (%)
ELE SM	U/W	19,036	17.98	17.40	-3.2	8.4	8.3	15.3	15.5	1.0	6.5
GAS SM	U/W	17,802	17.79	18.00	1.2	7.3	6.9	14.0	12.8	2.7	5.6
IBE SM	Hold	36,067	5.78	6.05	4.7	8.4	8.2	12.7	12.3	3.5	5.8

Source: FactSet, Company data and Santander Investment Bolsa estimates.

CONTENTS

EXECUTIVE SUMMARY

In the last few months, **onshore wind** and especially **solar PV** projects **have signed long-term PPAs at prices well below the total costs of conventional technologies.** In some cases, even below their marginal cost: US$58.4/MWh in Dubai, US$48 in Peru, and US$36/MWh in Mexico for solar PV; and US$30/MWh for wind in Morocco.

The fact that **wind and PV** are in many cases **more competitive from a cost perspective than traditional technologies** (lower Levelised Cost of Energy –LCoE– than nuclear, coal or CCGTs), creates a **technological disruption that may change the sector paradigm**. According to our estimates, the **LCoE in Iberia for a PV installation** is currently between €68/MWh and €58/MWh, beating that of conventional technologies. However, we expect these costs to **fall to €54/MWh-€45/MWh by 2020E and to €43/MWh-€37/MWh by 2025E,** not only **beating** the LCoE of the traditional technologies but also **the grid parity.**

We think the change in the paradigm is unstoppable, since its driving force is costs. This would imply that:

(1) In **developing markets, new capacity** will be mainly in onshore wind or solar PV; and

(2) **In developed markets**, onshore wind and solar PV will achieve very large market shares, if not a monopoly, when **assets are replaced** due to environmental reasons (mainly coal) or because they have reached the end of their regulatory/useful lives (nuclear mainly).

In our view, at least for **PV in Iberia, locations are no constraint on the number of MWs** that can be installed: more than 50% of the Iberian Peninsula enjoys a number of irradiation hours that allows load factors of c/20% for PV plants. The limit for renewable installation is, given the intermittency of wind and PV, security of supply. However, the Spanish experience tells us that if there is enough back-up capacity (and in Spain there is, since the 25GW of CCGTs have been systematically working at load factors below 10%) a system can cope with as many renewables as the policymaker wants, providing that the necessary upgrades are made to the grid. **For these reasons, in Iberia we expect renewables to fill most of the gap left by capacity going offline.** This will happen first with domestic coal plants –we expect around 5,000MW to progressively go offline before 2020E–; and then, with plants when they reach 40 years of operation –around 8,000MW progressively from 2021 to 2028–.

We do not expect the change in the paradigm to be imminent: given the excess capacity, we are not assuming that all this capacity will be replaced. However, the acceleration of this process cannot be fully ruled out if: (1) **Policymakers** impose a regulatory framework that is more friendly to renewables (auctions, environmental targets, etc.); (2) **Electricity prices increase** to levels well above the renewables' LCoE, making it worthwhile taking on the risk of installing new renewables without subsidies under merchant conditions (an option that, as of today, we do not envisage); and/or (3) **additional technological advances take place** in the cost reduction of renewables or in the development of storage (industrial battery developments look promising). Finally, a favourable regulatory treatment of the distributed generation (something that we will address in following reports) would also strengthen this phenomenon.

Although as we say, the changes are not imminent, the environment described above will have important **implications for the integrated companies in the mid to long term:**

- **Pressure on electricity prices:** the mass installation of renewables worldwide (China has plans to install 100GW in solar by 2020, India 100GW in solar and 60GW of wind by 2022, and South Arabia 9.5GW of solar by 2023, etc.) is likely to put pressure on commodity, and indirectly, on electricity wholesale prices. On the other hand, high electricity prices, in excess of the LCoE of wind and PV, would attract investment in these technologies, which in turn would end up applying additional price pressure.
- **Loss of market share by the incumbents:** in generation and to a lesser extent in supply. **In generation**, because as we said, we expect wind and PV to take up most of the capacity to be replaced, and because PV, due to the lack of entry barriers, is not a natural business for the incumbents. Wind is different, but only for IBE (world leader) and EDP (EDPR, Buy, TP €7.80/sh, is the world fourth largest player), since GAS and ELE have very modest exposure to this business.

  In supply, because a reduction in firm capacity (due to coal and nuclear capacity closures) should go hand-in-hand with a reduction in the supply books of the companies in order to keep risks under control (firm capacity is the natural hedge for supply). On the other hand, and although this may take time, we also expect new supply companies to appear thanks to the 'firm capacity' that renewables can provide (thanks to the law of large numbers, even intermittent renewables like wind and PV can provide firm capacity to hedge supply risks).

All the above have **important implications for valuations.** Usually, generation is valued through DCFs. Usually, the FCF of the generation business is projected several years (usually from 5 to 10) until the company's FCF is considered to have achieved its normalized level. Then using this "normalized NOPAT" the terminal value is calculated (applying a growth rate, a RoC and a reinvestment rate), and then it is discounted at a WACC. This terminal value represents a very large proportion of the value of the generation business (usually >60%).

However, this **traditional way of valuing assets,** which was valid before the technological disruption, **is not valid with the new paradigm.** This is mainly because the 'normalized NOPAT' used to calculate **the TV is 'contaminated' by assumptions that may prove to be wrong**: (1) that output will be maintained to perpetuity as no market share is lost to third parties; (2) that high returns and strong FCF generation produced by some plants like the nuclear ones will be perpetually constant; and (3) that the reduction in firm capacity will not affect the supply business.

We think that, if, as we believe, wind and PV replace a significant proportion of coal and nuclear generation that: (1) the above assumptions will be wrong; (2) normalized NOPAT will be distorted; and (3) **the value of conventional generation will be significantly overstated.**

In our view, the new paradigm requires a new methodology for valuing the generation business, consisting of discounting the FCF of companies' generation business each year until the coal and the nuclear plants reach the end of their lives. Only from this moment onwards, is it possible to calculate a "Normalized NOPAT", since the remaining technologies (hydro and CCGTs) have "perpetual characters", that allow the calculation of a "non-biased" TV.

As we will see, **the new valuation method yields values significantly below those of the traditional one for the generation business**. However, due to the lack of visibility of its outcomes (lack of disclosure per technology of opex, maintenance capex etc., and, so far, the impossibility of comparing the model with reality) and to the fact that we are aware that consensus may take a long time to adopt this methodology, we have decided, for the moment, to **stick to the traditional valuation method when calculating our TPs**. Our intention is more to open the debate and point to risks than incorporate low visibility outcomes to our valuation.

Nonetheless, the traditional valuation methodology would also be seriously affected by the new paradigm, as it may affect long-term electricity price expectations – especially peak price expectations. Our long-term new price of €50/MWh (vs €65/MWh in the past) reflects a significant deterioration in our perception of the cost of entry for newcomers, which is negatively affected by: (1) a more negative view of commodities (also affected by the renewables' new paradigm); and (2) a low LCoE in wind and PV, which will put pressure on newcomers' entry costs.

Regarding the various companies:

- **ELE (Underweight; TP: €17.40):** ELE will be the most negatively affected company by the technological disruption (the TP would fall from €17.40 under the traditional methodology to €15.30 under the new methodology), and, in our view, this highlights its main weaknesses, mainly consisting of aging assets: (1) a remaining life of the islands' RAB of around nine years; (2) an average life of domestic coal plants of 37 years and 33 for imported coal ones; and (3) from 2021 to 2028, some 3.5GW of nuclear capacity generating almost one-third of its output going offline.

  ELE still has a lot of room for a special dividend distribution (up to around €5/share, according to our estimates). However, this special dividend, which is already envisaged in our TP, does not seem to be imminent, as the company wants to strengthen its position in renewables (it is currently negotiating with its main shareholder Enel (Buy, TP €5.15/sh) –70% of ELE– the potential acquisition of the 60% of EGPW España that it does not own).

  Although from a strategic point of view, the acquisition of renewables would make industrial sense (they would help to partially close its long gap in supply), we do not think these potential acquisitions represent a transforming deal, which is what, in our view, ELE needs. We have trimmed our TP from €16.60 to €17.40 and maintain our Underweight recommendation on the stock.

- **IBE (Hold; TP: €6.05):** The impact of the technological disruption on IBE will be intermediate (less affected than ELE, but more than GAS). However, as we said, it may take time before the impact of the disruption starts to be priced in, and on the other hand, its strong positioning in wind (it is the world wind leader, representing around 25% of our estimated EV) should help to partially mitigate this impact (the potential positive effect is not included in our numbers). IBE probably has the best portfolio of assets in Europe: (1) 80% of EBITDA is networks and renewables; (2) it has distribution and transmission in extremely attractive markets like the US and the UK (and to a lesser extent Spain); (3) it has a strong footprint in renewables (wind world leader); and (4) excellent generation in Spain (50% of all Spanish hydro capacity). However, its high quality is already priced in, as our TP, which we have slightly cut from €6.40 to €6.05, offers little upside to current prices. We like the stock, although more in relative than in absolute terms. We therefore maintain our Hold recommendation.

- **GAS (Underweight; TP: €18.00):** we maintain our TP at €18.00 but downgrade the stock to Underweight from Hold as the recent price increases have eroded the upside. The company is, in our view, the least negatively affected by the technological disruption, although we must admit that we have not been able to assess how bad the impact of the disruption will be on the gas business. However, this should still negatively affect the stock (with the new methodology our TP would fall from €18.00 to €17.89) and on the other hand there are other issues behind this change in the rating.

  - After the recent price rises, the stock is close to our TP.
  - The 2015-2018 Strategic Plan did not help to improve visibility or dispel our concerns (especially about "Wholesale & Retail" and LNG, where we still believe that the worst is yet to be seen.
  - Only mid-term, low visibility targets (those for 2018) were above our estimates and this at the expense of much higher capex than we were estimating.
  - Targets for 2016 and 2017 were in line with our estimates, but with much higher capex, which weakens the main argument for buying the stock: its strong cash flow generation. If we were to take GAS' targets for EBITDA and capex, our FCF yield estimates would fall below 5% in 2016 and 2017.

    We therefore downgrade the stock to Underweight.

VALUATION

THE TECHNOLOGICAL DISRUPTION REQUIRES A NEW VALUATION METHODOLOGY

Our valuation of Spanish integrated utilities is based on the SOTPs of the different businesses, which are almost in all cases derived from DCFs. In these DCFs, we discount the FCF of the different businesses at the discount rate (WACC) that we think best reflects their risk profile.

In the case of the generation business in Spain, and due to the technological disruption (the reason which will be explained later in this section), we have carried out two alternative valuations:

(1) **Traditional valuation:** we have followed the traditional two-stage (initial flows + TV) DCF methodology which consists of discounting the FCF of the generation business under the assumption that this is a "going concern business" whose assets have "perpetuity character". We first estimate the initial cash flows then we calculate a terminal value (TV) based on a "normalized NOPAT level", and then we discount both the initial flows and the TV.

(2) **New valuation (disruption methodology):** this assumes that except for the hydro plants and to a lesser extent the CCGTs, the rest of the plants (coal and nuclear) do not have a "perpetuity character". This means that when these plants reach the end of their lives we do not expect them to be replaced by plants of similar characteristics. As we will see, we expect wind and especially PV (mostly installed by third parties instead of by the incumbents) to take their place.

    The implications of this are that: (1) coal and nuclear plants do not have "normalized NOPAT" and therefore no TV can be calculated; (2) that a traditional two-stage DCF cannot be applied; and (3) that in order to calculate their value, the CF generated by these plants should be discounted year by year until the end of their lives.

It is worth mentioning that this exercise only affects the generation business in Spain. The generation activity in the rest of the countries in which these companies operate is either regulated (like in Mexico –for GAS and IBE– or like in the rest of the countries in which GAS operates through GPG) or consists of technologies with "perpetual character" (after having shut down its coal plants IBE only has hydro and gas plants in the UK) that can be assimilated to a "going concern" business.

A comparison of the values obtained through the Traditional and the New valuation methods is shown in the table below. As can be seen, the New methodology yields values that are significantly below those of the Traditional one. This is particularly so in the cases of ELE and IBE whose TPs are more exposed to a potential change in the consensus valuation methodology.

Figure 1. Integrated Utilities – TPs Under the Traditional and the New Valuation Methodologies

	ELE			GAS			IBE		
(€ mn)	**Traditional**	**New**	**Diff.**	**Traditional**	**New**	**Diff.**	**Traditional**	**New**	**Diff.**
Generation (Spain)	5,750	3,513	-39%	5,411	5,304	-2%	12,162	9,229	-24%
TP (€/sh)	**17.43**	**15.32**	**-12%**	**17.99**	**17.89**	**-1%**	**6.07**	**5.60**	**-8%**
Current price (€/sh)	17.98	17.98	-	17.79	17.79	-	5.78	5.78	-
Upside	-3.1%	-14.8%	-	1%	1%	-	5%	-3%	-

Source: Santander Investment Bolsa estimates.

At this stage, and before looking at the valuations *per se*, we think it is worth answering two questions:

(1) Why do we think the New valuation (disruption methodology) is more accurate for valuing the generation business than the traditional approach? and

(2) Why, in spite of this, do we not estimate our TPs using the New valuation methodology?

1. Why do we think the New valuation method (disruption methodology) is more accurate for valuing the generation business?

In our view, there are certain businesses for which a traditional valuation yields inaccurate outputs. We think this is the case for generation in Spain if the thesis that renewables will gradually replace conventional generation as the latter's plants come offline proves correct. This is important because the traditional, two-stage DCF (initial flows + TV) is the consensual way of valuing generation in Spain (aside from many other businesses), being also the only method that we had used in the past to value this business.

In this case, the inaccuracy is the result of the "normalized NOPAT" that is used to calculate the TV being contaminated by assumptions that are untrue. In the Traditional valuation, the TV is calculated through a formula that associates a "normalised NOPAT" with a growth to perpetuity (g), an expected return on capital (RoC) and a reinvestment rate (RR = g / RoC). The problem is that if there is no "normalized NOPAT" the TV cannot be accurate. This is a serious inconvenience because the TV represents a very significant part of the value of the generation activity (easily more than 60%).

If we take the NOPAT generated by one integrated company in 5 or even 10 years, and we use this as the base for calculating its TV, this would have the following assumptions implicitly embedded:

- That the electricity output of each company is perpetually maintained and no market share is lost in favour of third parties;
- That the high returns and strong FCF generation of some plants like the nuclear ones (especially in their latter years of operation) will be maintained to perpetuity; and
- That closing firm capacity (especially in coal) has no impact on the supply business.

We think the above assumptions to be false since, due to the technological disruption:

- Companies closing nuclear and coal (and to certain extent gas) facilities will suffer a reduction in electricity output and will lose market share as this capacity, if replaced, will be replaced mainly by renewables (wind and especially PV solar), which we believe will be built mainly by third party producers and not by the incumbents;
- Even if the incumbents are able to replace part of the capacity that they are closing they will do so with different generation technologies (also wind and PV instead of nuclear or coal) at lower returns and FCF generation; and
- If companies close "firm capacity", they will have to cut their supply book accordingly otherwise risk would significantly increase as the firm capacity is the natural hedge for pool prices. In the absence of the hedge provided by the firm capacity, the supply business becomes pure trading: a pure play on the price of the pool. And we know how volatile the price of the pool can be.

In other words, the TVs are based on assumptions that are false and so they could be significantly overstated.

From the point of view of the "valuation methodology", the implication of all the above is that, as happens with other businesses like those remunerated under net RAB schemes (electricity distribution in Spain, the UK, the US or Brazil; generation in the Balearic and Canary Islands in Spain), the generation business in Spain should be valued by estimating the cash flow that it generates each year until all the coal and nuclear plants have reached the end of their lives and gone offline. Only then can a "normalized NOPAT" and an accurate TV be calculated.

2. Why Do We Not Estimate Our TPs Using the New Valuation Methodology?

There are two reasons why we have decided to continue estimating our TPs based on the Traditional valuation methodology instead of the New one. The first refers to timing and the second to visibility, which in turn, is likely to affect timing.

- **Timing:** the technological disruption is a new phenomenon (at least our perception that wind and specially PV are going to reshape the sector is new) and we have been covering the sector long enough to know that share price adjustments to new phenomena may take a long time. Keynes was right when he said that "markets can remain irrational longer than you can remain solvent", and we do not want to lose our solvency.

  In the past, we have anticipated issues which have subsequently had a large impact on share prices (like the overvaluation of renewables, the unsustainability of the tariff deficit in Spain, the impact of shale gas, etc.), but usually these impacts took much longer to be priced in than we initially thought.

  We think that analysts should try to anticipate changes and their impact on P&L valuations. However, we think portfolio managers are far more adept than analysts at anticipating when shares start to price in new factors.

- **Visibility:** the New valuation methodology requires guidance and information disclosure that for the time being the companies are not providing (opex and capex per technology, redundancy expenses, etc.). This means that the visibility of the valuations under the new methodology is poor, particularly since we have no past experience with which to validate the assumptions (the paradigm is new).

  This, in turn, is likely to affect timing, delaying the taking-on by consensus of the New valuation methodology. The traditional methodology might be wrong but it has a lot of momentum.

VALUATION: COMMON ASSUMPTIONS

The difference in valuation between the Traditional and the New methodologies only affects the generation business in Spain. The rest of the activities have been valued following the same principles in both cases. This is also the case for generation in both Mexico and the UK. In Mexico, because generation is regulated and remunerated through long-term PPAs and therefore it is immune to the technological disruption caused by the renewables. In the case of the UK, because after having shut down its two coal plants (Longannet and Cockenzie) the only remaining generation for IBE in the UK is hydro (563MW) and CCGTs (1,967MW), which we believe are technologies with "perpetuity character" (when they reach the end of their lives, they will be replaced by assets with similar characteristics).

In the case of hydro generation, its perpetuity character is obvious: changing the turbine (and fixing other minor pieces) is cheaper and more profitable than substituting the equivalent capacity even with the cheapest available technology. The case of CCGTs is less evident. However, we believe that the system will continue to need firm capacity as back-up for non-manageable renewables and therefore this will be remunerated accordingly (capacity auctions, etc.).

In addition to the generation business in Mexico and in the UK, we have also followed the same valuation methodology for the following activities:

- **Activities under net RAB schemes:** activities which are remunerated under net RAB schemes have been valued by discounting their FCFs until the ending of their RABs. From them on, we assume a zero terminal value. This is the case for electricity T&D in Spain, the UK, the US and Brazil, as well as for the regulated generation of the Balearic and Canary islands in Spain (for ELE).

- **Renewables:** also valued by discounting the cash flow generated by the renewable assets until the end of their regulatory lives. Once they have reached the end of their lives, we assume these assets continue operating for a further 5 years during which we assume that they "go merchant".

- **Natural gas distribution in Spain:** DCF to perpetuity assuming that the current regulation based on revenues updated by connection points and volumes never changes.

- **Other activities:** we have valued the remaining activities (mainly of GAS) like gas and electricity distribution abroad (excluding the UK, the US and electricity in Brazil), up-mid stream etc., for which we have no available RAB figures, via the traditional two-stage DCF.

Figure 2. ELE, GAS and IBE – Valuation Summary (Traditional & New Valuation Methods)

ELE	Traditional				EV/EBITDA (x)			New
(€ mn)	€ mn	WACC	G	% EV	2016E	2017E	2018E	€ mn
Generation	5,750	7.5%	0.5%	23%	5.8	6.0	6.3	3,513
Islands	2,766	5.1%	-	11%	7.7	7.7	7.9	2,766
Distribution	15,973	4.8%	-	65%	8.6	8.5	8.3	15,973
EV	**24,489**			**100%**	**7.6**	**7.6**	**7.7**	**22,252**
Net Debt	-4,005	–	–	–	–	–	–	-4,005
Tariff Deficit	292	–	–	–	–	–	–	292
Minorities	0	–	–	–	–	–	–	0
Peripheral assets (EGPW)	1,104	–	–	–	–	–	–	1,104
Provisions & Other	-3,425	–	–	–	–	–	–	-3,425
Equity Value (31.12.16E)	**18,455**	**–**	**–**	**–**	**–**	**–**	**–**	**16,219**
Nº of shares ('000s)	1,058.8	–	–	–	–	–	–	1,058.8
TP (€/share)	**17.43**	–	–	–	–	–	–	**15.32**
Price (€/share)	17.98	**–**	**–**	**–**	**–**	**–**	**–**	17.98
Upside	**-3.1%**	**–**	**–**	**–**	**–**	**–**	**–**	**-14.8%**
GAS	**Traditional**				**EV/EBITDA (x)**			**New**
(€ mn)	**€ mn**	**WACC**	**G**	**% EV**	**2016E**	**2017E**	**2018E**	**€ mn**
Gen. Spain	5,411	8.0%	0.5%	14%	7.2	6.8	6.9	5,304
GPG	2,037	-	-	5%	7.6	7.5	7.4	2,037
Elect. Dist. Spain	5,683	5.5%	0.5%	15%	9.7	9.3	9.0	5,683
Elect. Dist. Moldavia	249	9.4%	2.0%	1%	6.4	6.2	6.0	249
Elect. Dist. LatAm	1,761	8.4%	2.0%	5%	4.6	4.5	4.4	1,761
Gas Dist. Spain	10,124	5.3%	1.0%	27%	11.3	11.0	10.6	10,124
Gas Dist. Italy	586	5.3%	1.0%	2%	8.6	8.3	8.3	586
Gas Dist. LatAm	4,345	8.2%	2.0%	11%	7.2	6.8	6.5	4,345
Wholesale & Retail	2,366	11.0%	0.0%	6%	3.2	6.5	6.2	2,366
Up & Mid-Stream	2,199	6.5%	0.5%	6%	7.4	7.2	7.1	2,199
CGE	3,254	7.6%	2.0%	9%	7.2	7.1	7.0	3,254
EV	**38,015**	**-**	**-**	**100%**	**7.4**	**7.7**	**7.5**	**37,908**
Net debt	-15,383	–	–	–	–	–	–	-15,383
Tariff deficit	0	–	–	–	–	–	–	0
Minorities; Hybrids & Preferred	-4,575	–	–	–	–	–	–	-4,575
Peripherals (UNF-G)	1,438	–	–	–	–	–	–	1,438
Pension provisions & Other	-1,488	–	–	–	–	–	–	-1,488
Equity Value (31.12.16E)	**18,007**	**–**	**–**	**–**	**–**	**–**	**–**	**17,900**
No. of shares ('000s)	1,000.7	–	–	–	–	–	–	1,000.7
Present Value (€/share)	**17.99**	–	–	–	–	–	–	**17.89**
Price (€ per share)	17.79	**–**	**–**	**–**	**–**	**–**	**–**	17.79
Upside	**1.2%**	**–**	**–**	**–**	**–**	**–**	**–**	**0.5%**
IBE	**Traditional**				**EV/EBITDA (x)**			**New**
(€ mn)	**€ mn**	**WACC**	**G**	**% EV**	**2016E**	**2017E**	**2018E**	**€ mn**
Spain - G	12,162	8.0%	1.5%	17%	7.9	7.9	8.5	9,229
UK - G	2,873	7.2%	0.0%	4%	8.6	8.8	7.9	2,873
Mexico - G	4,503	8.4%	2.0%	6%	9.5	8.5	8.1	4,503
Spain - N	13,795	4.9%	0.5%	19%	9.4	9.2	9.1	13,795
UK - N	8,570	4.5%	0.5%	12%	9.5	10.1	9.9	8,570
US - N	12,523	4.7%	0.5%	17%	9.8	8.9	8.1	12,523
Brazil - N	1,242	13.0%	2.5%	2%	5.5	4.9	4.5	1,242
Renewables	19,060	6%-12%	0%	26%	12.3	11.0	8.8	19,060
Others	-1,728	-	-	-2%	0	0	0	-1,728
EV	**73,000**	**-**	**-**	**100%**	**9.6**	**9.2**	**8.5**	**70,067**
Net Debt (TEI & Hybrids Inc)	-30,210	–	–	–	–	–	–	-30,210
Tariff Deficit	150	–	–	–	–	–	–	150
Peripheral assets	2,882	–	–	–	–	–	–	2,882
Provisions & Other	-5,005	–	–	–	–	–	–	-5,005
Minorities	-2,945	–	–	–	–	–	–	-2,945
Equity Value (31.12.16E)	**37,872**	**–**	**–**	**–**	**–**	**–**	**–**	**34,939**
No. of shares ('000s)	6,240	–	–	–	–	–	–	6,240
Present Value (€/sh)	**6.07**	–	–	–	–	–	–	**5.60**
Price (€/sh)	5.78	**–**	**–**	**–**	**–**	**–**	**–**	5.78
Upside	**5.0%**	**–**	**–**	**–**	**–**	**–**	**–**	**-3.1%**

Source: Company data and Santander Investment Bolsa estimates.

GENERATION IN SPAIN

The difference between the Traditional and the New valuation methodologies refers to the treatment of the TVs. However, until 2020, the initial cash flows have been estimated using the same assumptions in terms of volumes, prices, etc (see Figure 3 below).

Figure 3. Main Assumptions for Commodity Prices, 2014-21E

	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	TV
Oil Price (US$ bbl)	99.5	53.7	50.0	50.0	50.0	50.0	50.0	50.0	50.0
HH (US$/mnBtu)	4.4	2.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Asian Price (US$mnBtu)	16.3	7.6	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Coal (US$/Tonne)	78.4	54.8	55.0	55.0	55.0	55.0	55.0	55.0	55.0
Natural Gas (€/MWh)*	25.7	21.0	13.9	15.2	15.2	15.2	15.2	15.2	15.2
CO_2 (€/tonne)	6.4	7.8	5.0	5.5	5.5	5.5	5.5	5.5	5.5
Pool Price (€/MWh)	**42.2**	**50.3**	**41.0**	**44.0**	**43.0**	**43.0**	**43.0**	**44.0**	**50.0**

(*) CNMC until 2015 and then Mibgas (Iberian Hub).
Source: Company data and Santander Investment Bolsa estimates.

Regarding the price of the different commodities, we have taken current prices and assumed that these will not change in the coming years. The exception is the electricity price for which we have taken the forward curve for the coming years and then increased the price to €50/MWh in order to reflect the impact that we expect the shutdown of the coal and the nuclear plants to have on the terminal values.

Traditional Valuation

In the case of our Traditional valuation for generation, we have discounted the FCF of this activity until the year 2022 and then calculated a TV based on the NOPAT of the companies in 2022 applying the following formula:

$$TV = NOPAT \times (1 + g) \times (1 - (g/RoC)) / (WACC - g)$$

However, since in the past we have been aware that the TV was overstated due to the FCF generated by the nuclear plants being too high (difference between the FCF generated by a nuclear and a CCGT, which at the time seemed to be the most credible substitutive technology) we made some adjustments to the terminal value, particularly for ELE and IBE, in order to try to adjust the value of the nuclear business.

New Methodology

We estimate the FCF generated by the generation business of each company until both the coal and the nuclear plants reach the end of their lives and the remaining excess capacity is exclusively hydro or CCGTs, technologies with perpetuity characteristics that allow us to estimate a "normalized FCF level" and, from this, a TV.

Our model assumes the following:

- **Domestic coal:** all domestic coal plants except for a few that have completed environmental investments and have been transformed to also burn imported coal (Puentes for ELE, Lada for IBE and Meirama for GAS) will be shut down by 2020, as we believe that with the current price outlook it is difficult to justify further environmental investment on plants that have not yet done so.
- **Imported coal:** plants will operate for 50 years, which is also the period for which we estimate those domestic coal plants that have made the environmental investments will operate.

The table below shows the coal plants of ELE, GAS and IBE, their capacity, type of fuel (domestic or imported coal), the year in which each of the groups entered operation, their current age (as of December 2016) as well as the date on which we estimate they will go offline (2020 for domestic and for imported when they have been in operation for 50 years). As for the type of fuel, we consider the domestic coal plants that have made environmental investments as imported coal plants. These are Puentes (ELE), Lada (IBE) and Meirama (GAS).

Figure 4. Domestic and Imported Coal Plants' Decommissioning Dates

	MW	Fuel	Start	Years of Age	Decommissioning
ELE					
Compostilla I	148	DC	1965	51	2020
Compostilla II	337	DC	1972	44	2020
Compostilla IV	359	DC	1981	35	2020
Compostilla V	356	DC	1984	32	2020
Teruel I	368	DC	1979	37	2020
Teruel II	368	DC	1979	37	2020
Teruel III	366	DC	1980	36	2020
Anllares	122	DC	1982	34	2020
Puentes I	369	IC	1976	40	2026
Puentes II	366	IC	1977	39	2027
Puentes III	366	IC	1978	38	2028
Puentes IV	367	IC	1979	37	2029
Litoral I	577	IC	1984	32	2034
Litoral II	582	IC	1997	19	2047
Domestic coal	**2,423**	**DC**	**–**	**37**	**–**
Imported coal	**2,627**	**IC**	**–**	**33**	**–**
TOTAL	**5,050**	**–**	**–**	**35**	**–**
GAS					
Anllares	243	DC	1982	34	2020
La Robla I	284	DC	1971	45	2020
La Robla II	361	DC	1984	32	2020
Narcea I	65	DC	1965	51	2020
Narcea II	166	DC	1969	47	2020
Narcea III	364	DC	1984	32	2020
Meirama	580	IC	2009	7	2059
Domestic coal	**1,483**	**DC**		**37**	
Imported coal	**580**	**IC**		**7**	
TOTAL	**2,063**			**29**	
IBE					
Guardo I	155	DC	1964	52	2020
Guardo II	361	DC	1980	36	2020
Lada IV	358	IC	1981	35	2031
Domestic coal	**516**	**DC**	**–**	**41**	**–**
Imported coal	**358**	**IC**	**–**	**35**	**–**
TOTAL	**874**	**–**	**–**	**38**	**–**

Source: REE Company data and Santander Investment Bolsa estimates.

- **Nuclear plants**: will go off line after 40 years of operation. Although some companies believe the initial licenses to operate will be extended for at least 10 years (ELE for instance depreciates its nuclear park in 50 years), we prefer to be cautious. We think that in the current social and political environment it could prove difficult to extend the life of a nuclear plant as Garoña has demonstrated. In spite of its absolute majority, the PP was reluctant to grant authorisation to Garoña to operate for a further ten years, and when it did so, the conditions imposed were so tough (additional investments in security plus energy taxes) that the operators (Garoña is 50% owned by ELE and 50% by IBE) opted to close down the plant. Moreover, the PP was the only party initially in favour of nuclear energy, meaning that in the current political panorama (difficult to see absolute majorities) extending the licences to the future plants may prove very tough.

Figure 5. Spanish Nuclear Park – Date of Plants Coming On/Going Off Line and Ownership

Plant	Installed Cap MW	Year it Came into Operation	End of Useful Life*	Years Remaining	Shareholders ELE	IBE	GAS	EDP
Garoña	466	1971	2011	-5	50%	50%	–	–
Almaráz 1	1,049	1981	2021	5	36%	53%	11%	–
Almarán 2	1,044	1983	2023	7	36%	53%	11%	–
Ascó 1	1,033	1983	2023	7	100%	–	–	–
Cofrentes	1,092	1984	2024	8	–	100%	–	–
Ascó 2	1,027	1985	2025	9	85%	15%	–	–
Vandellós	1,087	1987	2027	11	72%	28%	–	–
Trillo 1	1,067	1988	2028	12	1%	49%	34.5%	15.5%
TOTAL MW	**7,865**	**–**	**–**	**–**	**3,686**	**3,416**	**598**	**165**

(*) Assuming 40 years of operation.
Source: Company data and Santander Investment Bolsa estimates.

- **Supply business**: we have assumed a fall in the supply volumes contracted by the utilities in line with the reduction in their firm capacity due to the shutdown of plants.

- **Ancillary services and technical restrictions**: we have assumed that plant closures will not affect revenues from ancillary services or technical restrictions, since in most cases these services are provided by hydro and CCGTs plants, which we assume are perpetual assets.

- **Capex:** beyond 2020, we assume zero capex, not even maintenance for nuclear and coal. Maintenance capex will only be used for the replacement of hydro and CCGTs and has been calculating taking into account current depreciation charges (maintenance capex = depreciation charges for hydro and CCGTs).

- **Opex:** we have assumed that opex falls in line with the decline in the installed capacity of the plants going offline.

- **Dismantling and redundancy costs:** we have not included any additional costs for dismantling plants going offline or costs for workforce reductions at the plants closed.

THIS TIME IT'S DIFFERENT

The utilities team at Santander is a sceptical one. We have probably been covering utilities for too long to be otherwise. We usually find it hard to believe in changes in the paradigm. We smile when we hear "this time it's different" and become suspicious when we hear that, because this time it's different, assets should be valued in new, creative ways.

This is the reason why, in the past, we were not very enthusiastic about:

- **Generators at the beginning of liberalization:** when generation was valued by applying discount rates of regulated assets to assets that were oil proxies (as their margins fluctuated with the price of the oil). Discount rates were calculated using historical betas to calculate forward-looking costs of capital. Obviously, these betas were too low as they corresponded to assets that were regulated (pre-liberalization); and they were applied to assets whose volatility was high as their margins fluctuated with the oil price (post-liberalization).

- **Renewables when they initially came to the market**. Not only because they required generous subsidies, but also because they were valued assuming that regulations were never going to change (in spite of huge tariff deficits, in some electricity systems, like Spain's for instance), and because a disproportionate value was assigned to pipelines of scarce or zero visibility.

- **Yieldcos:** because we refused to value assets applying a theoretical dividend yield to a theoretical growth rate based on inorganic acquisitions. We still believe that a cost of equity cannot move inversely to a company's growth rate, especially if this growth is achieved through M&A. We believe that assets should be valued by discounting their cash flows until the end of their lives, and doing so at a cost of equity that reflects the risk instead of the growth.

However, we cannot deny that, from time to time, the sector paradigm does change and that this should go hand-in-hand with both a change in the perceptions of the stocks affected and sometimes by a change in the way these stocks are valued. We have seen a few changes in the sector paradigm in the last few years. For instance:

- **The liberalization of the sector:** when generation stopped being remunerated under RAB schemes and started to be remunerated through market principles.

- **Shale gas:** directly changed the dynamics of the gas sector and indirectly that of the electricity sector due to its impact on the marginal cost of generation (through the collapse that it produced in the coal price).

This time the change in the paradigm is that some renewable types of generation (onshore wind and solar PV) are more competitive than traditional ones (nuclear, coal or CCGTs) and in the long run renewables will largely replace conventional generation. We think that, as in the two examples above, "this time it's different" too. The reason is very simple: costs. PV and onshore wind costs are lower than those of other technologies and are falling more rapidly. This is a real change in the paradigm, and, in our view, this should change our perception about the sector and the way in which assets should be valued.

TECHNOLOGICAL DISRUPTION: A PARADIGM CHANGE

Thanks to technological advances, which are far from complete in many cases, wind and PV can compete and beat conventional technologies even without subsidies (their LCoE is lower and falls more rapidly than that for conventional generation). This is unlikely to have any impact in the short term, but we think it may reshape the sector in the medium and long term via: (1) Pressure on commodity and wholesale prices; (2) Renewables achieving large market shares in asset replacement; and (3) Competition in wholesale markets, etc. The process, which is unstoppable, may even accelerate, due to political, social or environmental reasons (the will to develop greener systems) or due to technological reasons (industrial batteries).

The availability of sites and backup are the two main restrictions on wind and PV growth. However, at least in Iberia, it seems that we are far from the tolerance threshold. Gains in renewable technology pose a threat to conventional generation and, in our view, the best way to be protected is through renewables and networks, which are not exposed to volumes or prices.

Advances have been spectacular in certain types of technologies, like wind and solar PV. This has resulted in a sharp fall in their cost of installation or cost per MWh generated. In PV, the cost of installation has fallen by 80% since 2008 (by 99% since 1976). In onshore wind, the cost per MWh generated has fallen by 50% since 2009. As a result, and obviously depending on the sites, these technologies can compete and eventually beat conventional technologies, even without subsidies.

The most striking example of how renewables are becoming more competitive is the Mohammed bin Rashid Al Maktoum project in Dubai. This is a 200MW PV plant that will receive a price of US$58.4/MWh (c/€53/MWh) under a 25-year PPA. This project may achieve high load factors (according to our estimates, around 21% or 1,850 hours per annum) but the load factors that can be reached in Spain and Portugal are not far behind. The table below shows the number of hours set by the Spanish Ministry of Industry which marks the limit (per zone and type of installation) above which plants will receive no premium. If we apply a performance ratio of 82% for a 1 axis installation type to the number of hours of Zone IV and Zone V, which cover more than 50% of the area of Spain and Portugal, we would obtain load factors of 1,740-1,870 hours pa.

Figure 6. Spain – Solar Irradiance Zone Areas, Limit Established by Regulations

(hours pa)	Fix	1 Axis	2 Axis
Zone I	1,232	1,602	1,664
Zone II	1,362	1,770	1,838
Zone III	1,492	1,940	2,015
Zone IV	1,632	2,122	2,204
Zone V	1,753	2,279	2,367

Source: Ministry of Industry.

Although it can be argued that €53/MWh is well above current electricity prices in Iberia (around €43/MWh), a couple of things should be added:

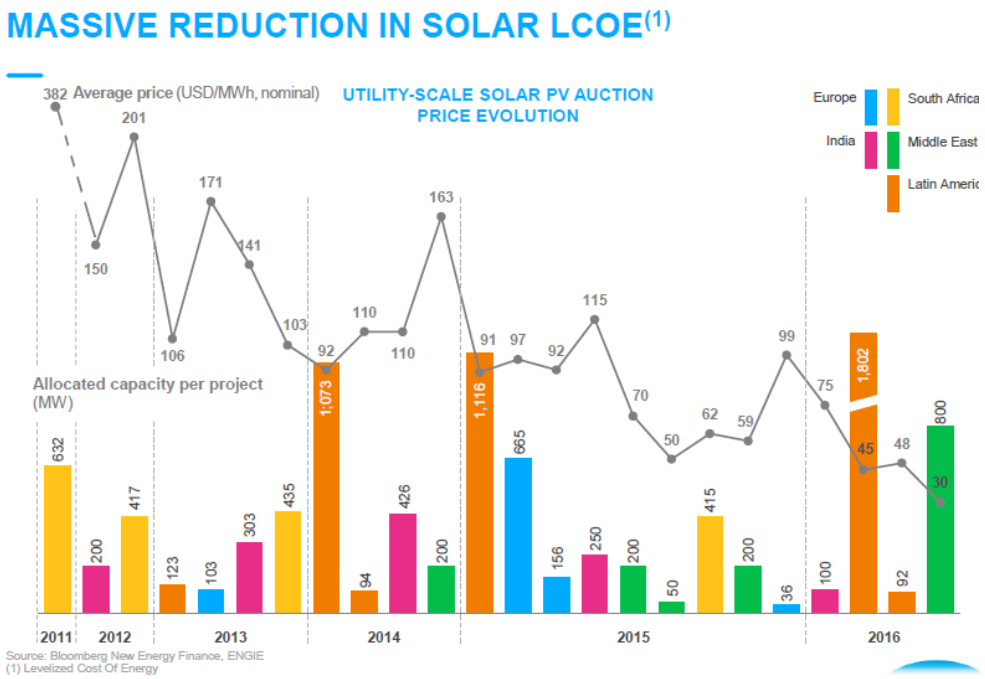
(1) **LCoE (Levelised Cost of Energy).** The €53/MWh of the PV plant reflects the total cost of the project and not the marginal cost of the plants, as is the case with pool and forward prices. Therefore it should be compared with the other technologies' total costs. This could be done through the LCoE, which attempts to reflect the average price per MWh that a plant should achieve in order to cover all its costs (capital included).

Figure 7. Estimated Levelised Cost of Energy for Europe 2014 and US 2020

Technology	CCGT	Coal	Nuclear	Hydro	Solar PV	Wind
Europe 2014 (€/MWh)*						
High range	106.0	124.0	137.0	115.0	104.0	82.0
Low range	77.0	94.0	106.0	83.0	87.0	57.0
Average EDPR	**91.5**	**109.0**	**121.5**	**99.0**	**95.5**	**69.5**
US 2020 (US$/MWh)						
High range	85.5	119	101	83.5	193.3	81.6
Low range	70.4	87.1	91.8	63.9	97.8	65.6
Average US EIA	**75.2**	**103.1**	**96.4**	**73.7**	**145.6**	**73.6**

(*) LF @ 25%-36% for wind; Brent price @ US$65/bbl in 2015; CCGT LF @ 23%-57%; PV LF @ 17%-21%.
Source: EDPR for Europe and US Energy Information Administration for the US.

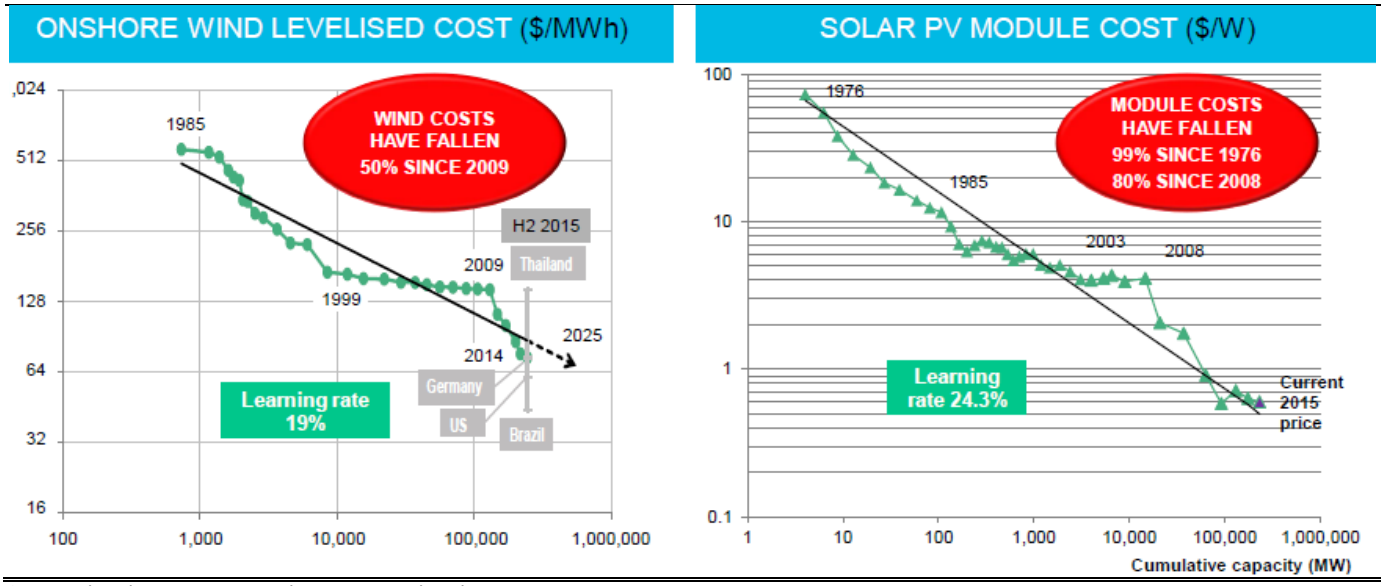
When we compare the LCoE of wind and PV with those of the other technologies, we see that wind is by far the most competitive technology and that, when new capacity is required, it makes more sense to install wind (when sites and back-up capacity are available) than any other technology. PV looks less competitive than the other technologies, however, because, as we will see, the LCoE of PV could be highly overstated due to: (1) the steep learning curve (PV installation costs are falling so rapidly that an analysis that is just a few months old could overstate these); (2) the load factors applied being often well below those achieved in Spain (this is not the case for the analysis shown in the table above, for which the load factor used is 20% although many other studies of the European LCoE use load factors of 15% and below); and (3) some studies being made by the incumbents which are not particularly interested in showing very competitive LCoE for PV and wind. In fact, as we will see, our own numbers (see next section of this report "PV LCoE: Grid Parity for 2020-2025?") are more aggressive than those shown in the table.



(2) **Rapid decline.** Due to their steep learning curves, costs for both wind and PV are still falling substantially and rapidly (see table above). This means that the LCoE of both, but especially PV, could be considerably overestimated in the different figures available (for instance those of Figure 8 below). The €53/MWh of Dubai, a plant that is scheduled to come on line by 2017, is a good example. More recently, we have also heard from other recently-awarded projects like Coahuila in Mexico (PV with a US$36/MWh PPA) or Morocco (wind with a US$30/MWh PPA).

According to BNEF, the world's leading provider of investor information on clean energy, the wind learning curve is 19% and that of PV is more than 24%. This means that each time that the industry doubles in size, it obtains a decline in costs of 19% in wind (in US$/MWh) and of 24% in PV (in US$/MW).

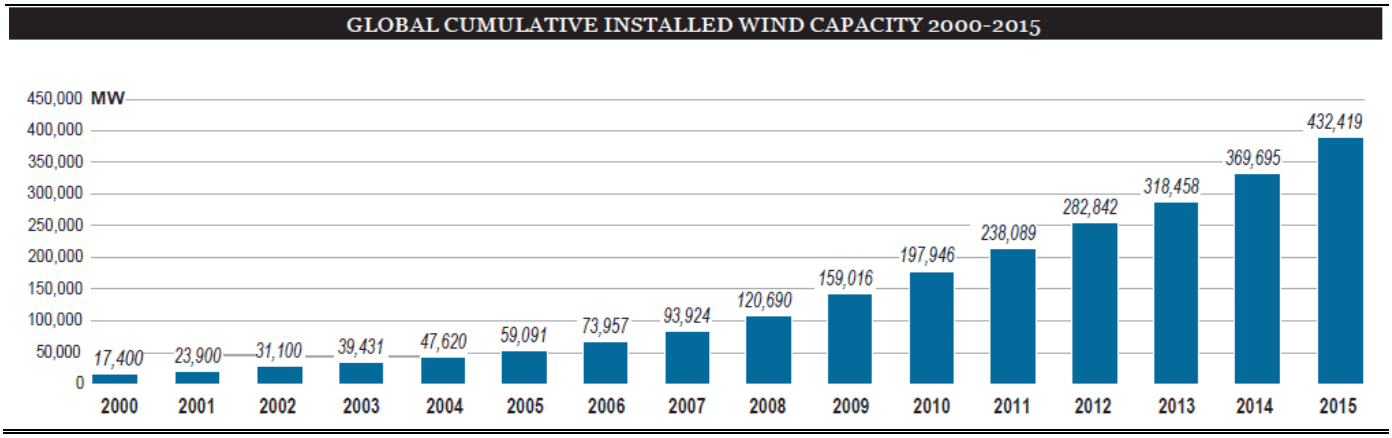
Figure 8. Wind and Solar Experience Curves



Source: Bloomberg New Energy Finance, Maycock and BNEF.

Both technologies are growing very rapidly. According to GWEC (the Global Wind Energy Council: the international trade association for the wind power industry), installed world wind capacity grew at a CAGR of 25% over 2000-15 (24% over 2000-13).

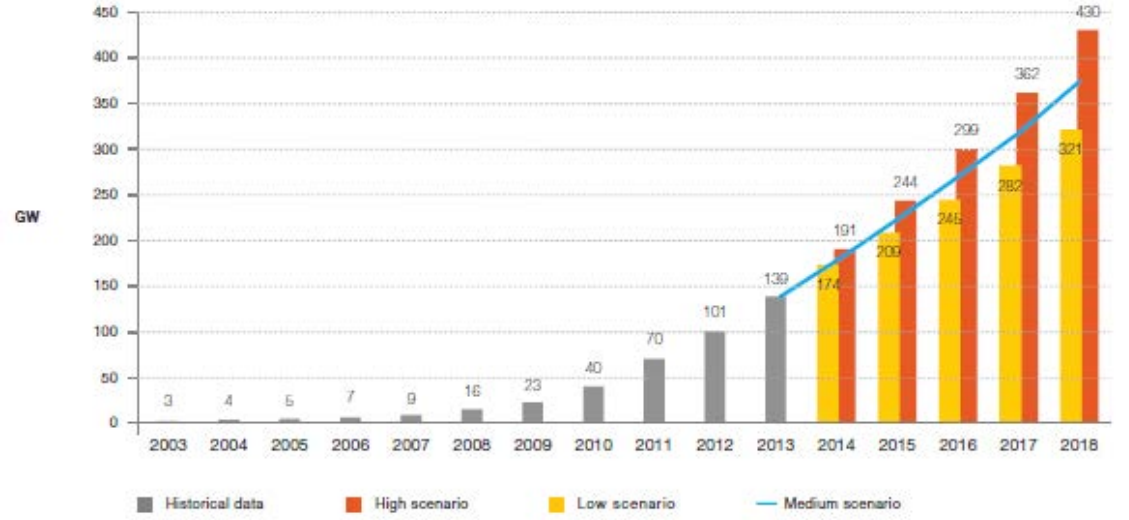
Figure 9. Global Cumulative Installed Wind Capacity, 2000-15



Source: GWEC.

In the case of PV, growth is even more impressive: CAGRs of 43% over 2000-13, according to EPIA (The European Photovoltaic Industry Association), whose forecasts do not point to a drastic slowdown. It expects CAGRs of 25% over 2013-18 in its high scenario and of more than 18% per annum in its low one.

Figure 10. PV Global Installed Capacity and GWEC Forecasts, 2003-18



Source: GWEC.

WHAT ARE THE IMPLICATIONS OF TECHNOLOGICAL DISRUPTION?

Although all the above is unlikely to have any tangible impact in the short term, we think that the technological disruption caused by improvements in the competiveness of wind and PV solar may reshape the sector in the medium to long term. We think that the consequences of this technological change might be especially intense in Iberia, from a geographic point of view, and in conventional generation, from the business segment standpoint, depending on the availability of sites and back-up capacity (something that will depend in turn on developments in industrial batteries):

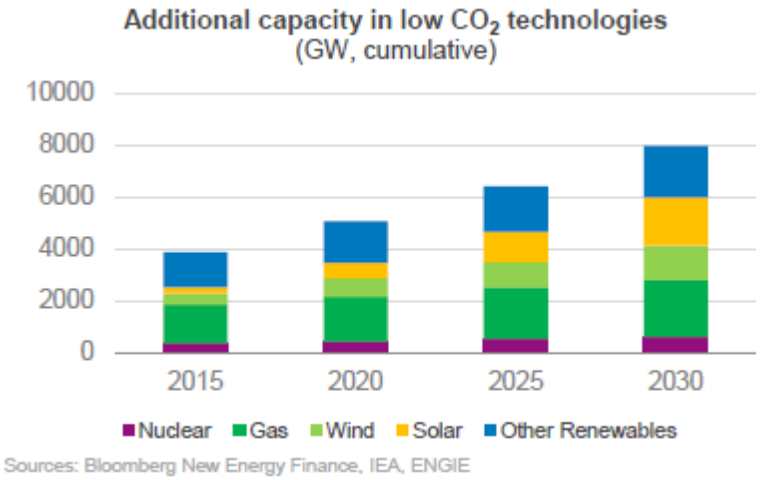
- **Renewable installation may depress commodity and wholesale prices:** the massive installation of renewables worldwide (not only in Europe) would drag down demand for commodities, which would eventually turn into weak generation prices worldwide (we have already seen the impact of shale gas on coal prices and, subsequently, on German and European generation prices).

  For instance:

  - China plans to install 100GW of solar by 2020 and by then renewables are expected to represent 15% of primary energy consumption;
  - India plans to install 100GW of solar and 60GW of wind by 2022; and
  - The US will close 20GW of coal by 2022.

  Even oil-rich countries like Saudi Arabia have big ambitions in renewables (they plan to build 9.5GWh of solar by 2023).

  Each MW installed in renewables means less fossil-fuel consumption, meaning that renewables will cannibalize demand for coal and gas. The impact of these changes is not small (see table below, presented at Engie's investor day a few days ago), and is likely to end up changing the world generation mix.



As we have already said, in the end this is likely to create price weakness directly in commodities and indirectly in electricity prices, and this would have a negative impact on all technologies, but particularly on the infra-marginal ones (hydro and nuclear, as their costs are independent of commodity prices).

- **Peak prices flattening,** particularly the PV, given that it produces more during hours of higher demand. This can produce not only flattening prices but create off-peak prices at moments of peak demand (lower prices in spite of higher demand). This is obviously pretty bad news for the companies, since the wholesale prices are usually averages or weighted averages of prices that present very different levels in different hours. This means that the impact on P&Ls of the generators could be much higher than what an average price reduction may suggest.

- **Wind and PV are likely to lead the sector's asset replacement.** A big proportion of the future capacity going offline (initially coal and subsequently nuclear) is likely to be replaced by wind and PV solar. In other words, wind and PV are likely to beat traditional technologies in the business of replacing old capacity. This would change the mix not only of the sector as a whole, but also of the individual companies, something that we think the market is ignoring when valuing independent stocks.

- **Wind and PV are likely to compete in wholesale markets.** The threat is that wind and PV may start to expel from the markets plants that are a long way from the end of their theoretical lives (not just replacing old plants as in the previous point). This could happen if the learning curves of these technologies continues in line with past progression. If this were the case, wind and PV would reach grid parity soon. This means that their total costs would not only be below the LCoEs of other technologies, but also below the marginal cost of the system (spot and forward prices). This is likely to take time because there are probably markets that are more attractive than Europe. However, the threat is there and, if it materializes, would have a negative impact not only on the expelled technologies (coal and gas) but on all of them (hydro and nuclear included). Technologies will only be expelled through lower prices and this affects the margins of the whole generation park.

- **Traditional utilities are likely to lose share in generation and supply.** We believe that the possibility of the traditional integrated companies losing significant market share in generation and, to a lesser extent, in supply, is a real one.
  - ✓ **In generation** because PV is not the natural business of the big traditional utilities. PV has no barriers to entry and newcomers have competitive advantage vs the traditional utilities:
    (a) **Agility**: Given their smaller size, newcomers tend to be more agile in taking investment decisions, something that is crucial in this business.
    (b) **Lower cost of capital:** Newcomers usually enjoy a lower cost of capital than the traditional utilities because: (a) project finance allows higher leverage than debt at the corporate level; and (b) the equity for many renewable projects and ventures comes from pension funds and other financial institutions that require low returns.
    (c) **No cannibalization:** newcomers do not have plants that would suffer from new generation being commissioned (no cannibalisation risk).

    This is also beginning to be the case for onshore wind, which has started to 'commoditise', as opposed to offshore wind, which is far more complex and demanding (technically and financially) and not an appropriate business for newcomers, in our view.
  - ✓ **In supply**, because we expect new supply companies to appear thanks to the 'firm capacity' renewables can grant (thanks to the law of large numbers, even intermittent renewables like wind and PV can provide firm capacity to hedge supply risks). This may take time though, as it would require a certain critical mass and geographic concentration of assets, which may imply complex agreements affecting several parties (JVs, M&A, etc.).
- **The renewable installation process might accelerate:** The question is not if this will happen, but when, in our view. The process cannot be stopped, but it could accelerate, depending on:
  - ✓ **Political decisions.** Social, political or environmental reasons could lead politicians to speed up the process. This would be very easy to do through subsidies or guarantees (floors for wholesale prices, etc.).

    Subsidies, incentives and other regulatory schemes obviously have a cost for the system that must be covered by access tariffs, national budgets or other mechanisms. However, the costs of accelerating the process should be in line with the learning curve and the renewables' LCoE.
  - ✓ **Battery development.** Wind and PV's biggest disadvantage is their intermittency and the fact that they are not manageable. These problems must be overcome, or at least significantly reduced, by increasing interconnection, the development of smart grids and grid chains, and bulk storage mechanisms, especially the development of batteries. Developments here, although very incipient, look promising (prices have fallen by 60% since 2010).
- **Iberia is particularly exposed to this threat** for a simple reason: PV's competitive advantage depends to a large extent on the solar resource and, as we have seen, we estimate that more than 50% of Spain and Portugal (islands included) enjoy pretty good irradiation levels. These should allow load factors of around 20% in these two countries, whereas when PV LCoEs are calculated for Europe as a whole, average load factors are usually 10% or 15%.

PV LCOE: GRID PARITY BY 2020-25?

According to our estimates, Solar PV's current LCoE is between €68/MWh and €58/MWh. However, we expect this to fall to €54/MWh-€45/MWh by 2020E and to €43/MWh-€37/MWh by 2025E.

In other word: by 2020E-2025E, PV's total costs (LCoE) will beat not only the total costs of the other conventional technologies, but also their marginal costs. And we expect this to happen in 2020E-2025E when coal (2020) and nuclear plants (over 2021-2028) start to go offline. Guess what is going to replace them.

Given the speed at which the LCoE for solar PV is declining and given that the references we find do not usually match reality (we have found studies showing a LCoE well above €80/MWh and then we see real projects with PPAs signed below €50/MWh), we have tried to calculate our own LCoE for Iberia. This would not have been possible without the assistance of project finance experts, like Mr Daniel Machuca from Banco Santander, who, in recent years, has been financing solar projects in the main European markets, including Iberia; and without input from some private and infra-investors with long track records in wind and solar PV.

The calculation of the LCoE requires assumptions for many different inputs. The three most important ones are: (1) the number of hours or load factors; (2) the Ke or discount rate at which the dividends will be updated; and (3) the installation cost.

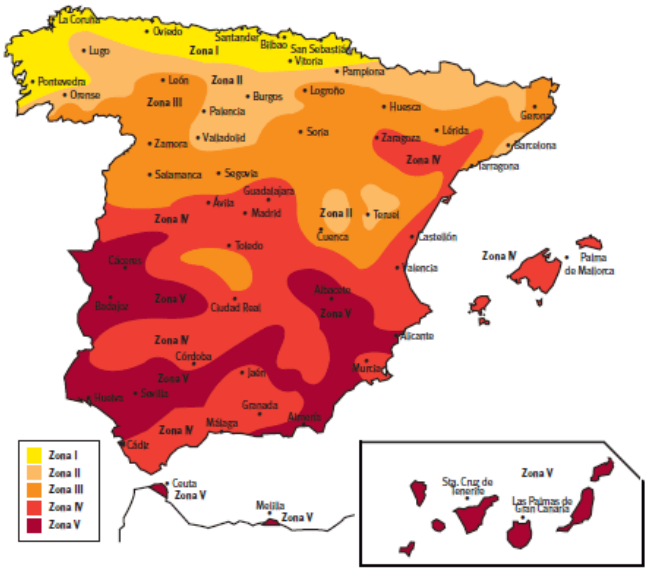
Depending on the assumptions for these inputs, the LCoE will vary, offering a wide range of results. For this reason, we have created two scenarios; the "Central Scenario" and the "Aggressive Scenario" that are only different in respect of the number of hours and the Ke. On the other hand, given that the third input, the installation cost, is expected to fall very rapidly in the future, we envisage these two scenarios developing at three different moments in time: 2016, 2020 and 2025.

IS OUR CENTRAL SCENARIO TOO CONSERVATIVE?

In the Utilities Team at Santander we tend to be conservative, and so we would not be surprised if, eventually, our "Aggressive Scenario" proves to be more realistic than the "Central Scenario". The latter's assumptions might fall well short in terms of both load factors and financial requirements.

- **Load factors.** Our 'Central Scenario' envisages 2,122 of hours of irradiation per annum (1,740 hours of net irradiation assuming a performance ratio of 82%). This implies installing the panels in Zone IV on the irradiation map prepared by the Ministry of Industry, something that might be too conservative. Zone IV plus Zone V account for more than 50% of the total Iberian surface area (Iberia has around 58.4mn ha and 1MW requires 2ha for its installation – a figure that is also falling quickly). However, the available space provided by Zone V could cover most of the initial needs for PV installation. And, logically, most of the PV parks, at least initially, will be installed in Zone V, which has 7% higher irradiations than Zone IV, and than our 'Central Scenario'.

Irradiation Map of Spain



Irradiation Zones

(hours pa)	Fix	1 Axis	2 Axis
Zone I (yellow)	1,232	1,602	1,664
Zone II (light orange)	1,362	1,770	1,838
Zone III (dark orange)	1,492	1,940	2,015
Zone IV (light red)	1,632	2,122	2,204
Zone V (dark red)	1,753	2,279	2,367

Source: Ministry of Industry

- **Financial requirements:** our two scenarios envisage debt/equity ratios of 70%-30% and a 10-year tail for debt repayment, which we believe to be pretty conservative assumptions considering current credit market conditions.

  The difference between the two scenarios is the Ke: whereas in the "Aggressive Scenario" we demand levered IRRs of 9%, in the "Central Scenario" this figure is 11%.

  In spite of the fact that in our "Central Scenario" we opt for a Ke of 11% after talks with several infra-funds about the returns they would demand for this type of project in Iberia, we would not be surprised if in the coming months we see the 11% figure significantly cut, because:

  (1) Most of the projects (at least at an initial stage) that we envisage will have no merchant risk. We believe that these projects will be the result of auctions called by the system operator, in which the regulator will grant a CfD (Contract for Difference; which economically is similar to a PPA) for the entire life of the project (or a significant part of it).

  (2) In the current environment of low interest rates and yield scarcity, we believe that double-digit returns could prove to be very attractive for investors that are "less risk-averse" than infra-funds (which usually tend to be very conservative with some risks like merchant, etc.). This would definitively increase competition in the asset class and would depress returns.

  (3) The PPAs at which projects have recently been signed (even in countries similar to Iberia), do not look consistent with IRRs of 11%, but rather with much lower ones.

  Moreover, the market seems to like and trust the sector. Therefore our Kd of 4% could also be conservative. A few weeks ago (mid-June), Vela Energy issued €404mn in bonds at 20Y to refinance Spanish parks at a 3.2% coupon (BBB rating according to S&P).

Finally, the time factor is crucial, given that as we have seen the cost of installation, which is one of the key inputs in the LCoE, has fallen very rapidly in the past (by 80% since 2008) and that, according to Swanson's Law (the PV equivalent of Moore's Law for computers), the cost of the panel falls by 22% every time the sector doubles its size (something which, assuming past rhythms of growth, happens approximately every two years). This means that, according to this law, the cost of the installation of 1MWp (1 axis) that today is around €1mn will fall to €765,000 in 2020 and to 598,000 in 2025, and this assumes that the remaining 40% of the installation costs does not fall, something that is not happening at present (this 40% is also falling, although at a slower pace).

Figure 11. Sola PV Costs of Installation – Evolution According to the Swanson Law

(€)	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025
Market Growth	-	43%	43%	43%	43%	43%	43%	43%	43%	43%
Cumulative Growth	-	43%	104%	192%	318%	498%	755%	1,123%	1,649%	2,400%
Panel Cost	600,000		468,000		365,040		284,731		222,090	197,660
Other Costs	400,000		400,000		400,000		400,000		400,000	400,000
Cost of Installation	**1,000,000**		**868,000**		**765,040**		**684,731**		**622,090**	**597,660**

Source: Company data and Santander Investment Bolsa estimates.

PV LCoE: A Real Disruption

The main hypotheses of the "Central" and the "Aggressive" scenarios for 2016, 2020 and 2025 for 1 MWp (peak) of 1 axis Solar PV are described in the following table. The conclusions are that at present the LCoE could be between €68/MWh and €57.5/MWh, but that these costs could fall to €54/MWh-€45/MWh by 2020E and to €43/MWh-€37/MWh by 2025E, years in which coal plants (2020) and nuclear plants (from 2021-2028) will start to go offline.

Moreover, it seems that even in our conservative "Central Scenario", Solar PV would reach grid parity by 2020 and 2025. This means that Solar PV would not only beat conventional technologies in LCoE terms (meaning that all-in costs for solar PV are lower than for the other technologies) but also in grid parity terms (meaning that all-in costs for solar PV would be more competitive than the marginal cost of coal and CCGTs and of the system).

Figure 12. Solar PV 1 Axis – Main Hypotheses for the "Central" and "Aggressive" Scenarios for 2016E; 202E and 2025E

	2016E		2020E		2025E	
	Central	Aggressive	Central	Aggressive	Central	Aggressive
Capex (€/MWph)	**1,000,000**	**1,000,000**	**765,040**	**765,040**	**597,660**	**597,660**
Irradiation (hours/annum)	2,122	2,279	2,122	2,279	2,122	2,279
PR	82.0%	82.0%	82.0%	82.0%	82.0%	82.0%
Nº of Hours	**1,740**	**1,869**	**1,740**	**1,869**	**1,740**	**1,869**
Useful life (years)	30	30	30	30	30	30
Depletion rate (%)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Opex /MW	6,500	6,500	6,500	6,500	6,500	6,500
Opex growth (%)	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Kd (gross) (%)	4%	4%	4%	4%	4%	4%
Leases (%)	4%	4%	4%	4%	4%	4%
Debt/EV (%)	70%	70%	70%	70%	70%	70%
Equity EV (%)	30%	30%	30%	30%	30%	30%
Tax rate (%)	25%	25%	25%	25%	25%	25%
LCoE (€/MWh)	**68.2**	**57.5**	**53.6**	**45.4**	**43.2**	**36.8**
IRR (%)	**11.0%**	**9.0%**	**11.0%**	**9.00%**	**11.0%**	**9.0%**

Source: Santander Investment Bolsa estimates.

Additionally, we have carried out a sensitivity analysis of the LCoE to changes in the cost of installation, load factors and the Ke. The conclusions can be found in the table below. This analysis is based on the "Conservative Scenario" for 2016E.

Figure 13. Solar PV – Sensitivity of the LCoE to Changes in the Cost of Installation, Load Factors and Ke

Cost of Installation (20% change)					
Cost of Installation (€ mn)	**1,400,000**	**1,200,000**	**1,000,000**	**800,000**	**600,000**
Load Factor (hours)	1,740	1,740	1,740	1,740	1,740
Ke	11%	11%	11%	11%	11%
LCoE (€/MWh)	**93.0**	**80.5**	**68.2**	**55.8**	**43.5**
% Chg	36%	18%	0%	-18%	-36%
Load Factor (10% change)					
Capex (€ mn)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Load Factor (hours)	**1,392**	**1,566**	**1,740**	**1,914**	**2,088**
Ke	11%	11%	11%	11%	11%
LCoE (€/MWh)	**85.2**	**75.7**	**68.2**	**62.0**	**56.8**
% Chg	25%	11%	0%	-9%	-17%
Ke (1% point change)					
Capex (€ mn)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Load Factor (hours)	1,740	1,740	1,740	1,740	1,740
Ke	**13%**	**12%**	**11%**	**10%**	**9%**
LCoE (€/MWh)	**74.5**	**71.5**	**68.2**	**65.0**	**61.8**
% Chg	9%	5%	0%	-5%	-9%

Source: Santander Investment Bolsa estimates.

OUR CENTRAL SCENARIO FOR 2016

As we have mentioned our Central Scenario several times, we think it makes sense to briefly describe the model. However, before that we would like to clarify a few things:

- **Cost of installation:** For a €1mn per MWp cost of installation we estimate that 60% corresponds to the cost of the panel and the remaining 40% to the rest of the installation costs. We make this distinction because everything points to the fact that the cost of the panel will fall quicker that the other costs of installation.

- **Load factor:** our Central Scenario, which envisages an irradiation of 2,122 hours per annum, corresponds to Zone IV of the Spanish Ministry of Industry's irradiation map, whereas the Aggressive Scenario corresponds to Zone V (2,279 hours). In order to calculate the net hours of irradiation, we have multiplied these irradiations by a PR (Performance Ratio) of 82%.

- **Operating factors:** in both cases we have assumed: (1) a useful life of 30 years; (2) a depletion rate of 0.5% (except the first year: 1%); (3) an Opex/MW of 6,500 in the first year of operation; and (4) an opex growth rate of 0.5% per annum until the end of the life of the plant.

Based on the above mentioned hypotheses, we obtain a LCoE of between €68.2/MWh for the Conservative Scenario and €57.5/MWh for the Aggressive one, costs which are substantially below those the other technologies (except perhaps onshore wind) can achieve in Iberia.

The tables below show the main items of the P&L, Cash Flow Statement and Balance Sheet of one MWp for the "Central Scenario" for the first 10 years.

Figure 14. Solar PV – "Central Scenario" P&L

(€)	1	2	3	4	5	6	7	8	9	10
Output	1,723	1,714	1,705	1,697	1,688	1,680	1,672	1,663	1,655	1,647
Price	68	68	68	68	68	68	68	68	68	68
Revenue	**117,450**	**116,862**	**116,278**	**115,697**	**115,118**	**114,543**	**113,970**	**113,400**	**112,833**	**112,269**
O&M	-6,500	-6,533	-6,565	-6,598	-6,631	-6,664	-6,697	-6,731	-6,765	-6,798
Insurance & Surveillance	-2,500	-2,500	-2,500	-2,500	-2,500	-2,500	-2,500	-2,500	-2,500	-2,500
Rentals	-4,698	-4,674	-4,651	-4,628	-4,605	-4,582	-4,559	-4,536	-4,513	-4,491
Special Taxes	-8,221	-8,180	-8,139	-8,099	-8,058	-8,018	-7,978	-7,938	-7,898	-7,859
EBITDA	**95,530**	**94,975**	**94,422**	**93,872**	**93,324**	**92,779**	**92,236**	**91,695**	**91,157**	**90,621**
EBITDA Margin	**81%**	**81%**	**81%**	**81%**	**81%**	**81%**	**81%**	**81%**	**81%**	**81%**
Depreciation	-33,333	-33,333	-33,333	-33,333	-33,333	-33,333	-33,333	-33,333	-33,333	-33,333
EBIT	**62,197**	**61,642**	**61,089**	**60,539**	**59,991**	**59,445**	**58,902**	**58,362**	**57,823**	**57,287**
Financial Expenses	-27,300	-25,900	-24,500	-23,100	-21,700	-20,300	-18,900	-17,500	-16,100	-14,700
PTP	**34,897**	**35,742**	**36,589**	**37,439**	**38,291**	**39,145**	**40,002**	**40,862**	**41,723**	**42,587**
Taxes	-8,724	-8,935	-9,147	-9,360	-9,573	-9,786	-10,001	-10,215	-10,431	-10,647
Net Profit	**26,173**	**26,806**	**27,442**	**28,079**	**28,718**	**29,359**	**30,002**	**30,646**	**31,293**	**31,941**

Source: Santander Investment Bolsa estimates.

Figure 15. Solar PV – "Central Scenario" Cash Flow Statement

(€)	1	2	3	4	5	6	7	8	9	10
EBITDA	**95,530**	**94,975**	**94,422**	**93,872**	**93,324**	**92,779**	**92,236**	**91,695**	**91,157**	**90,621**
Taxes	-8,724	-8,935	-9,147	-9,360	-9,573	-9,786	-10,001	-10,215	-10,431	-10,647
DSCR	86,806	86,040	85,275	84,512	83,751	82,992	82,235	81,480	80,726	79,974
Interests	-27,300	-25,900	-24,500	-23,100	-21,700	-20,300	-18,900	-17,500	-16,100	-14,700
Debt Repayment	-35,000	-35,000	-35,000	-35,000	-35,000	-35,000	-35,000	-35,000	-35,000	-35,000
FCF	**24,506**	**25,140**	**25,775**	**26,412**	**27,051**	**27,692**	**28,335**	**28,980**	**29,626**	**30,274**
Pay-Out	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Dividends	**24,506**	**25,140**	**25,775**	**26,412**	**27,051**	**27,692**	**28,335**	**28,980**	**29,626**	**30,274**

Source: Santander Investment Bolsa estimates.

Figure 16. Solar PV – "Central Scenario" Balance Sheet

(€)	0	1	2	3	4	5	6	7	8	9	10
Assets	**1,000,000**	**966,667**	**933,333**	**900,000**	**866,667**	**833,333**	**800,000**	**766,667**	**733,333**	**700,000**	**666,667**
Debt	700,000	665,000	630,000	595,000	560,000	525,000	490,000	455,000	420,000	385,000	350,000
Equity	300,000	301,667	303,333	305,000	306,667	308,333	310,000	311,667	313,333	315,000	316,667
Liabilities	**1,000,000**	**966,667**	**933,333**	**900,000**	**866,667**	**833,333**	**800,000**	**766,667**	**733,333**	**700,000**	**666,667**

Source: Company data and Santander Investment Bolsa estimates.

Figure 17. Endesa – Financial Statements, 2014-20E

Profit & Loss (€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Generation	861	1,131	994	966	908	905	902
Islands	538	339	358	358	352	347	333
Distribution	1,691	1,569	1,863	1,888	1,929	1,922	1,858
EBITDA	**3,090**	**3,039**	**3,215**	**3,212**	**3,190**	**3,174**	**3,093**
% change	**-3.9%**	**-1.7%**	**5.8%**	**-0.1%**	**-0.7%**	**-0.5%**	**-2.6%**
Depreciation	-1,618	-1,441	-1,383	-1,403	-1,428	-1,450	-1,464
EBIT	**1,472**	**1,598**	**1,832**	**1,809**	**1,761**	**1,725**	**1,629**
% change	-	8.6%	14.7%	-1.3%	-2.7%	-2.1%	-5.5%
Net financials	-233	-207	-110	-171	-104	-85	-57
Recurrent profit	**1,239**	**1,391**	**1,722**	**1,638**	**1,657**	**1,639**	**1,572**
% change	-	12.3%	23.8%	-4.9%	1.2%	-1.1%	-4.1%
Non- recurrent	3,045	0	0	0	0	0	0
Pre-tax	4,284	1,391	1,722	1,638	1,657	1,639	1,572
Taxes	-296	-301	-431	-409	-414	-410	-393
Tax rate (%)	**7%**	**22%**	**25%**	**25%**	**25%**	**25%**	**25%**
Minorities	-651	-4	0	0	0	0	0
Net profit	**3,337**	**1,086**	**1,292**	**1,228**	**1,243**	**1,230**	**1,179**
% change	-	-67.5%	19.0%	-4.9%	1.2%	-1.1%	-4.1%
Cash flow statement (€ mn)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
EBIT	1,472	1,598	1,832	1,809	1,761	1,725	1,629
Depreciation	1,618	1,441	1,383	1,403	1,428	1,450	1,464
Capitalization	-113	-212	-213	-214	-215	-216	-217
Other	0	-100	-100	-100	-100	-100	-100
Operating Cash Flow	**2,977**	**2,727**	**2,903**	**2,898**	**2,875**	**2,858**	**2,776**
Interest	-166	-186	-190	-174	-160	-144	-120
Taxes	-296	-301	-431	-409	-414	-410	-393
WC	1,987	360	0	0	0	0	0
Other	354	56	0	0	0	0	0
Net Operating CF	**4,856**	**2,656**	**2,282**	**2,314**	**2,301**	**2,304**	**2,263**
Capex	-919	-881	-875	-600	-798	-600	-325
Generation	-869	-478	-475	-300	-399	-300	-300
Distribution	-50	-403	-400	-300	-399	-300	-25
Financial inv/divest	8,198	0	0	0	0	0	0
Other	-50	21	0	0	0	0	0
Free cash flow (€ mn)	**12,085**	**1,796**	**1,407**	**1,714**	**1,503**	**1,704**	**1,938**
Dividends	0	-805	-1,086	-1,292	-1,228	-1,243	-1,230
Rights issue	-15,392	0	0	0	0	0	0
Other	2,840	708	0	0	0	0	0
Debt	1,887	-1,397	-321	-422	-274	-461	-709
Cash	-1,420	-302	0	0	0	0	0
Balance sheet (€ mn)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Tangible assets	21,104	20,815	20,307	19,505	18,874	18,025	16,886
Intangible assets	649	449	449	449	449	449	449
Long-term financials	1,104	1,716	1,816	1,919	2,025	2,134	2,247
Other	1,894	1,286	1,286	1,286	1,286	1,286	1,286
Assets for sale	8	41	41	41	41	41	41
Working assets	5,289	4,592	4,692	4,792	4,892	4,992	5,092
Cash	648	346	346	346	346	346	346
Assets	**30,696**	**29,245**	**28,937**	**28,338**	**27,913**	**27,273**	**26,347**
Equity	8,576	9,036	9,242	9,179	9,193	9,180	9,129
Minorities	-1	3	3	3	3	3	3
Provisions	3,591	3,405	3,425	3,525	3,575	3,625	3,675
Other	6,041	6,250	6,037	5,823	5,609	5,393	5,176
Gross debt	6,084	4,680	4,366	3,943	3,669	3,208	2,499
Working liabilities	6,405	5,871	5,864	5,864	5,864	5,864	5,864
Liabilities for sale	0	0	0	0	0	0	0
Liabilities	**30,696**	**29,245**	**28,937**	**28,337**	**27,913**	**27,273**	**26,346**

Source: Company data and Santander Investment Bolsa estimates.

Figure 18. Endesa – Key Data, 2014-20E

Financial Ratios (€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Net debt	5,420	4,326	4,005	3,582	3,308	2,847	2,138
Debt-to-equity	63%	48%	43%	39%	36%	31%	23%
Debt-to-EBITDA (x)	1.8	1.4	1.2	1.1	1.0	0.9	0.7
Interest coverage (%)	13.3	14.7	29.2	18.7	30.7	37.3	54.0
Payout ratio	485%	100%	100%	100%	100%	100%	100%
Tariff deficit (*)	1,173	292	292	292	292	292	292
Adjusted debt (*)	4,247	4,034	3,713	3,290	3,016	2,555	1,846
Adj debt (*) to equity	50%	45%	40%	36%	33%	28%	20%
Adj debt (*) to EBITDA (x)	1.4	1.3	1.2	1.0	0.9	0.8	0.6
Average equity	8,576	8,806	9,139	9,210	9,186	9,186	9,154
Invested capital	12,907	11,657	11,448	10,860	10,494	9,910	9,039
Avg invested capital, adjusted	19,300	12,207	11,478	11,154	10,677	10,202	9,475
ROE (%) (average equity)	22.9%	12.3%	14.1%	13.3%	13.5%	13.4%	12.9%
ROCE (%)	6.1%	10.6%	12.2%	12.6%	12.6%	12.9%	13.0%
Per share data (€)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
No. of shares ('000s)	1,059	1,059	1,059	1,059	1,059	1,059	1,059
Average no. of shares ('000s)	1,059	1,059	1,059	1,059	1,059	1,059	1,059
EPS (€)	3.15	1.03	1.22	1.16	1.17	1.16	1.11
% change	-	-67.5%	19.0%	-4.9%	1.2%	-1.1%	-4.1%
Normalised EPS	0.28	1.03	1.22	1.16	1.17	1.16	1.11
% change	-	271.9%	19.0%	-4.9%	1.2%	-1.1%	-4.1%
CFPS	5.25	2.41	2.45	2.48	2.47	2.47	2.44
% change	-	-54.1%	1.7%	1.3%	-0.5%	0.2%	-1.5%
DPS	0.76	1.03	1.22	1.16	1.17	1.16	1.11
% change	-	35.0%	19.0%	-4.9%	1.2%	-1.1%	-4.1%
Special DPS	14.5	0.0	0.0	0.0	0.0	0.0	0.0
BVPS	8.10	8.53	8.73	8.67	8.68	8.67	8.62
Share price (€)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Latest*	17.98	17.45	17.980	-	-	-	-
High	16.19	19.4	17.790	-	-	-	-
Low	10.88	14.3	15.150	-	-	-	-
Average	13.97	17.0	16.780	-	-	-	-
	2014	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Market cap	19,036	19,036	19,036	19,036	19,036	19,036	19,036
Net debt	5,420	4,326	4,005	3,582	3,308	2,847	2,138
Provisions	3,591	3,405	3,425	3,525	3,575	3,625	3,675
Financial investments	-1,104	-1,104	-1,104	-1,104	-1,104	-1,104	-1,104
Adjustments (tariff deficit)	-1,173	-292	-292	-292	-292	-292	-292
EV	**25,770**	**25,371**	**25,070**	**24,747**	**24,523**	**24,113**	**23,454**
EV/EBITDA (x)	**8.3**	**8.3**	**7.8**	**7.7**	**7.7**	**7.6**	**7.6**
EV/EBIT (x)	17.5	15.9	13.7	13.7	13.9	14.0	14.4
EV/invested capital (x)	1.3	2.1	2.2	2.2	2.3	2.4	2.5
P/E (x)	**5.7**	**17.5**	**14.7**	**15.5**	**15.3**	**15.5**	**16.1**
Normalised P/E (x)	5.7	17.5	14.7	15.5	15.3	15.5	16.1
P/CF (x)	3.4	7.5	7.3	7.2	7.3	7.3	7.4
P/BV (x)	2.2	2.1	2.1	2.1	2.1	2.1	2.1
FCF yield	63.5%	10.0%	7.4%	9.0%	7.9%	9.0%	10.2%
Yield	**85.1%**	**5.7%**	**6.8%**	**6.5%**	**6.5%**	**6.5%**	**6.2%**

(*) Price at close on July 7, 2015.
Source: Company data and Santander Investment Bolsa estimates.

Figure 19. Gas Natural – Financial Statements, 2014-20E

Profit & Loss (€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Gas Distribution Spain & Italy	937	938	962	994	1,026	1,058	1,090
Gas Distribution LatAm	605	637	601	635	668	702	736
Elect Distribution Spain	585	607	583	608	633	658	683
Elect Distribution LatAm	385	416	418	431	438	445	452
Generation Spain	782	741	756	798	782	784	787
Generation International	221	261	268	272	276	281	285
Wholesale & Retail	902	788	747	363	379	425	409
Up& Mid-Stream	288	291	298	304	310	315	321
CGE	28	499	450	459	468	477	485
Synergies & other	112	84	50	53	55	58	61
EBITDA	**4,845**	**5,262**	**5,133**	**4,917**	**5,036**	**5,202**	**5,308**
% change	**-5%**	**9%**	**-2%**	**-4%**	**2%**	**3%**	**2%**
Depreciation	-1,619	-1,750	-1,811	-1,858	-1,904	-1,950	-1,977
Provisions	-44	-253	-246	-226	-228	-232	-232
EBIT	**3,182**	**3,259**	**3,076**	**2,832**	**2,904**	**3,021**	**3,100**
% change	**7%**	**2%**	**-6%**	**-8%**	**3%**	**4%**	**3%**
Net financials	-1,275	-898	-807	-779	-748	-709	-664
Pre-tax	1,907	2,361	2,269	2,053	2,156	2,313	2,436
Taxes	-257	-573	-567	-513	-539	-578	-609
Tax rate %	13%	24%	25%	25%	25%	25%	25%
Minorities	-196	-322	-328	-335	-342	-349	-356
Net profit	**1,454**	**1,466**	**1,373**	**1,205**	**1,275**	**1,386**	**1,471**
% change	1%	1%	-6%	-12%	6%	9%	6%
Cash flow statement	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Operating CF	**4,430**	**5,040**	**4,887**	**4,690**	**4,808**	**4,971**	**5,077**
Interest	-686	-894	-807	-779	-748	-709	-664
Taxes	-715	-573	-567	-513	-539	-578	-609
WC	-229	-75	0	0	0	0	0
Net operating CF	**2,800**	**3,498**	**3,513**	**3,398**	**3,521**	**3,684**	**3,804**
Capex	-1,592	-1,610	-2,179	-1,631	-1,571	-1,587	-1,591
Gas Distribution Spain & Italy	-360	-460	-650	-375	-375	-375	-381
Gas Distribution LatAm	-348	-275	-275	-275	-275	-275	-275
Elec Distribution Spain	-218	-249	-260	-260	-260	-260	-260
Elect Distribution LatAm	-138	-153	-161	-161	-92	-95	-88
Generation Spain	-95	-100	-100	-100	-100	-100	-100
Generation International	-166	-58	-141	-146	-151	-162	-162
Wholesale & Retail	-36	-38	-40	-40	-40	-40	-40
Up & Mid-Stream	-192	-12	-387	-109	-112	-116	-119
CGE	-39	-265	-165	-165	-165	-165	-165
Other	-160	-153	210	-160	-160	-160	-160
Financial inv./divest.	-1,267	-33	0	0	0	0	0
Free cash flow	**-219**	**1,703**	**1,544**	**1,607**	**1,790**	**1,937**	**2,053**
Dividends	-1,125	-909	-909	-1,001	-1,001	-1,001	-1,001
Other	-969	0	0	0	0	0	0
Debt	1,633	-2,476	-635	-606	-789	-936	-1,052
Cash	680	1,182	0	0	0	0	0
Balance Sheet	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Tangible assets	35,050	34,218	34,375	34,308	34,136	33,933	33,707
Long-term financials	3,323	3,117	3,117	3,117	3,117	3,117	3,117
Other	1,134	2,025	2,025	2,025	2,025	2,025	2,025
Working assets	7,249	6,382	6,382	6,382	6,382	6,382	6,382
Cash	3,572	2,390	2,390	2,390	2,390	2,390	2,390
Assets	**50,328**	**48,132**	**48,289**	**48,222**	**48,050**	**47,847**	**47,621**
Equity	14,141	14,367	14,831	15,035	15,310	15,695	16,166
Minorities	3,879	4,151	4,479	4,814	5,156	5,505	5,860
Provisions	1,560	1,488	1,488	1,488	1,488	1,488	1,488
Other	4,585	4,340	4,340	4,340	4,340	4,340	4,340
Gross debt	20,544	18,248	17,613	17,006	16,217	15,281	14,229
Working liabilities	5,619	5,538	5,538	5,538	5,538	5,538	5,538
Liabilities	**50,328**	**48,132**	**48,289**	**48,222**	**48,050**	**47,847**	**47,621**

Source: Company data and Santander Investment Bolsa estimates.

Figure 20. Gas Natural – Key Data, 2014-20E

Financial Ratios (€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Net debt	16,942	15,648	15,383	14,776	13,987	13,051	11,999
Debt-to-equity	94%	85%	80%	74%	68%	62%	54%
Debt-to-EBITDA (x)	3.5	3.0	3.0	3.0	2.8	2.5	2.3
Interest coverage (%)	6.0	5.9	6.4	6.3	6.7	7.3	8.0
Payout ratio	62.5%	60.6%	72.9%	83.1%	78.5%	72.2%	70.0%
Tariff deficit (*)	183	0	0	0	0	0	0
Adjusted debt (*)	16,942	15,648	15,383	14,776	13,987	13,051	11,999
Adj debt (*) to equity	94%	85%	80%	74%	68%	62%	54%
Adj debt (*) to EBITDA (x)	3.5	3.0	3.0	3.0	2.8	2.5	2.3
Average equity	13,793	14,254	14,599	14,933	15,173	15,503	15,931
Invested capital	34,992	34,376	34,533	34,466	34,294	34,091	33,865
Averaged invested capital adj.	32,331	34,684	34,455	34,500	34,380	34,192	33,978
ROE (%) (average equity)	10.5%	10.5%	9.4%	8.1%	8.4%	8.9%	9.2%
ROCE (%)	6.9%	7.0%	6.7%	6.2%	6.3%	6.6%	6.8%
Per share data (€)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
No. of shares (`000)	1,001	1,001	1,001	1,001	1,001	1,001	1,001
Average no. of shares (`000)	1,001	1,001	1,001	1,001	1,001	1,001	1,001
EPS	1.45	1.50	1.37	1.20	1.27	1.38	1.47
% change	0.6%	3.2%	-8.5%	-12.3%	5.9%	8.7%	6.2%
Normalised EPS	1.45	1.47	1.37	1.20	1.27	1.38	1.47
% change	0.6%	0.9%	-6.4%	-12.3%	5.9%	8.7%	6.2%
CFPS	3.07	3.25	3.18	3.06	3.18	3.33	3.45
% change	-8.3%	5.8%	-2.0%	-3.8%	3.8%	4.9%	3.4%
DPS	0.91	0.91	1.00	1.00	1.00	1.00	1.03
% change	1.3%	0.0%	10.1%	0.0%	0.0%	0.0%	2.9%
BVPS	14.13	14.36	14.82	15.03	15.30	15.68	16.15
Share price (€)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Latest*	20.81	18.82	**17.79**	-	-	-	-
High	23.9	22.8	17.9	-	-	-	-
Low	17.1	17.1	14.6	-	-	-	-
Average	20.6	20.3	16.6	-	-	-	-
	2014	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Market cap	17,802	17,802	17,802	17,802	17,802	17,802	17,802
Net debt	16,942	15,648	15,383	14,776	13,987	13,051	11,999
Minorities	4,702	4,254	4,575	4,865	5,157	5,452	5,750
Provisions	1,560	1,488	1,488	1,488	1,488	1,488	1,488
Financial investments	-1,438	-1,438	-1,438	-1,438	-1,438	-1,438	-1,438
Adjustments (tariff deficit)	-183	0	0	0	0	0	0
EV	**39,385**	**37,754**	**37,810**	**37,494**	**36,997**	**36,355**	**35,601**
EV/EBITDA (x)	**8.1**	**7.2**	**7.4**	**7.6**	**7.3**	**7.0**	**6.7**
EV/EBIT (x)	12.4	11.6	12.3	13.2	12.7	12.0	11.5
EV/invested capital (x)	1.2	1.1	1.1	1.1	1.1	1.1	1.0
P/E (x)	**12.2**	**11.9**	**13.0**	**14.8**	**14.0**	**12.8**	**12.1**
Normalised P/E (x)	12.2	12.1	13.0	14.8	14.0	12.8	12.1
P/CF (x)	5.8	5.5	5.6	5.8	5.6	5.3	5.2
P/BV (x)	1.3	1.2	1.2	1.2	1.2	1.1	1.1
FCF yield	-1.2%	9.6%	8.7%	9.0%	10.1%	10.9%	11.5%
Yield	**5.1%**	**5.1%**	**5.6%**	**5.6%**	**5.6%**	**5.6%**	**5.8%**

(*) Price at close on July 7, 2015.
Source: Company data and Santander Investment Bolsa estimates.

Figure 21. Iberdrola – Financial Statements, 2014-20E

Profit & Loss (€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Spain	1,518	1,503	1,543	1,531	1,431	1,433	1,436
UK	457	421	333	328	362	385	409
Mexico	350	456	477	530	553	691	787
Liberalised	**2,324**	**2,379**	**2,353**	**2,390**	**2,346**	**2,510**	**2,632**
Spain	1,439	1,450	1,472	1,500	1,521	1,542	1,563
UK	1,025	1,138	903	848	864	886	914
US	772	775	1,275	1,413	1,548	1,680	1,809
Brazil	300	240	227	256	276	297	315
Networks	**3,535**	**3,602**	**3,878**	**4,017**	**4,210**	**4,406**	**4,601**
Renewables	1,326	1,572	1,553	1,734	2,175	2,098	2,222
Non-energy	-220	-247	-180	-180	-180	-180	-180
EBITDA	**6,965**	**7,306**	**7,604**	**7,961**	**8,550**	**8,834**	**9,275**
% Change	**3.1%**	**4.9%**	**4.1%**	**4.7%**	**7.4%**	**3.3%**	**5.0%**
Depreciation	-3,024	-3,477	-3,308	-3,468	-3,551	-3,721	-3,802
Provisions & other							
EBIT	**3,941**	**3,830**	**4,296**	**4,493**	**5,000**	**5,113**	**5,473**
% change	77.6%	-2.8%	12.2%	4.6%	11.3%	2.3%	7.0%
Net financials	-987	-968	-977	-981	-955	-923	-914
Non-recurrent	248	125	0	0	0	0	0
Pre-tax	3,202	2,987	3,319	3,512	4,045	4,190	4,559
Taxes	-837	-527	-830	-913	-1,052	-1,089	-1,185
Tax rate %	26%	18%	25%	26%	26%	26%	26%
Minorities	-38	-38	-125	-138	-151	-166	-183
Net profit	**2,327**	**2,422**	**2,364**	**2,462**	**2,842**	**2,934**	**3,191**
% change	-9.5%	4.1%	-2.4%	4.1%	15.4%	3.3%	8.7%
Cash flow statement	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Operating CF	**6,393**	**6,688**	**6,709**	**7,198**	**7,848**	**8,036**	**8,608**
Interest	-1,122	-1,023	-1,035	-1,040	-1,015	-985	-977
Taxes	-837	-527	-830	-913	-1,052	-1,089	-1,185
WC & other	1,460	-272	0	0	0	0	0
Net operating CF	**5,893**	**4,866**	**4,844**	**5,245**	**5,781**	**5,962**	**6,446**
Capex	-2,848	-3,223	-4,668	-3,979	-3,660	-4,158	-3,476
Networks Spain	-304	-347	-300	-300	-300	-300	-300
Networks UK	-729	-847	-782	-633	-578	-561	-574
Networks US	-432	-429	-1,182	-1,182	-1,182	-1,182	-1,182
Liberalised Spain	-180	-211	-200	-200	-200	-200	-200
liberalised UK	-97	-94	-79	-80	-80	-80	-80
Mexico	-170	-370	-401	-67	-529	-623	-540
Renewables	-758	-735	-1,537	-1,330	-603	-1,026	-479
Brazil	-75	-71	-66	-66	-66	-66	0
Non-energy	-102	-121	-121	-121	-121	-121	-121
Financial inv/divest	257	-571	0	0	0	0	0
Other	30	-541	0	0	0	0	0
Free cash flow	**3,332**	**531**	**175**	**1,266**	**2,121**	**1,804**	**2,970**
Dividends	-1,048	-302	-1,802	-1,892	-1,986	-2,086	-2,190
Rights issue	0	0	0	0	0	0	0
Other	-1,035	-2,645	0	0	0	0	0
Debt	1,218	-2,448	-1,626	-626	135	-282	780
Balance sheet	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Tangible & intangible assets	71,969	82,549	84,805	86,079	86,890	88,126	88,466
Long-term financials & other	10,484	11,479	11,537	11,596	11,657	11,718	11,781
Working assets	9,512	9,483	9,483	9,483	9,483	9,483	9,483
Cash	1,806	1,153	1,153	1,153	1,153	1,153	1,153
Assets	**93,771**	**104,664**	**106,978**	**108,311**	**109,183**	**110,480**	**110,883**
Equity	35,591	37,710	38,273	38,842	39,698	40,546	41,547
Minorities	200	3,246	3,371	3,509	3,660	3,826	4,009
Provisions	4,852	5,005	5,005	5,005	5,005	5,005	5,005
Other	16,101	19,097	19,097	19,097	19,097	19,097	19,097
Gross debt	28,631	30,777	32,403	33,029	32,894	33,176	32,396
Working liabilities	8,396	8,829	8,829	8,829	8,829	8,829	8,829
Liabilities	**93,771**	**104,664**	**106,978**	**108,311**	**109,183**	**110,480**	**110,883**

Source: Company data and Santander Investment Bolsa estimates.

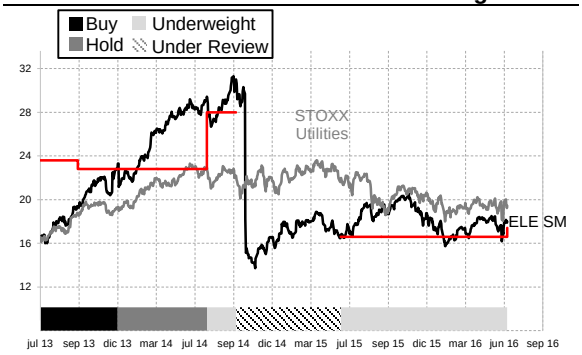
Figure 22. Iberdrola – Key Data, 2014-20E

(€ mn)	2014	2015	2016E	2017E	2018E	2019E	2020E
Net debt	25,619	28,067	29,693	30,319	30,184	30,466	29,686
Debt-to-equity	72%	69%	71%	72%	70%	69%	65%
Debt-to-EBITDA (x)	3.7	3.8	3.9	3.8	3.5	3.4	3.2
Interest coverage (%)	6.2	7.1	7.3	7.7	8.4	9.0	9.5
Payout ratio	73.8%	74.4%	80.0%	80.7%	73.4%	74.6%	72.1%
Tariff deficit (*)	386	0	0	0	0	0	0
Adjusted debt (*)	25,750	28,584	30,210	30,836	30,701	30,983	30,203
Adj debt (*) to equity	72%	70%	73%	73%	71%	70%	66%
Adj debt (*) to EBITDA (x)	3.7	3.9	4.0	3.9	3.6	3.5	3.3
Average equity	35,591	37,710	38,273	38,842	39,698	40,546	41,547
Invested capital	58,836	66,869	69,125	70,399	71,210	72,446	72,786
Average adjusted invested cap.	58,114	61,913	66,861	68,328	69,838	71,013	71,864
ROE (%) (average equity)	6.6%	6.6%	6.2%	6.4%	7.2%	7.3%	7.8%
ROCE (%)	4.7%	4.5%	4.8%	4.9%	5.4%	5.4%	5.7%
Per share data (€)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
No. of shares (`000)	6,240	6,240	6,240	6,240	6,240	6,240	6,240
Average no. of shares (`000)	6,240	6,240	6,240	6,240	6,240	6,240	6,240
EPS	0.37	0.39	0.38	0.39	0.46	0.47	0.51
% change	-9.5%	4.1%	-2.4%	4.1%	15.4%	3.3%	8.7%
Normalised EPS	0.33	0.37	0.38	0.39	0.46	0.47	0.51
% change	-19.5%	10.5%	2.9%	4.1%	15.4%	3.3%	8.7%
CFPS	0.86	0.95	0.91	0.95	1.02	1.07	1.12
% change	-24.7%	10.3%	-3.8%	4.5%	7.8%	4.1%	5.1%
DPS	0.28	0.29	0.30	0.32	0.33	0.35	0.37
% change	0.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
BVPS	5.70	6.04	6.13	6.22	6.36	6.50	6.66
Share price (€/share)	**2014**	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Latest*	5.60	6.55	5.78	-	-	-	-
High	5.95	6.67	6.52	-	-	-	-
Low	4.47	5.47	5.39	-	-	-	-
Average	5.26	6.15	6.05	-	-	-	-
	2014	**2015**	**2016E**	**2017E**	**2018E**	**2019E**	**2020E**
Market cap	36,067	36,067	36,067	36,067	36,067	36,067	36,067
Net debt	25,619	28,067	29,693	30,319	30,184	30,466	29,686
Minorities	200	3,246	3,371	3,509	3,660	3,826	4,009
Provisions	4,852	5,005	5,005	5,005	5,005	5,005	5,005
Financial investments	-2,882	-2,882	-2,882	-2,882	-2,882	-2,882	-2,882
Adjustments (tariff deficit)	-386	0	0	0	0	0	0
EV	**63,470**	**69,503**	**71,254**	**72,018**	**72,034**	**72,483**	**71,885**
EV/EBITDA (x)	**9.1**	**9.5**	**9.4**	**9.0**	**8.4**	**8.2**	**7.8**
EV/EBIT (x)	16.1	18.1	16.6	16.0	14.4	14.2	13.1
EV/invested capital (x)	1.1	1.0	1.0	1.0	1.0	1.0	1.0
P/E (x)	**15.5**	**14.9**	**15.3**	**14.7**	**12.7**	**12.3**	**11.3**
Normalised P/E (x)	17.4	15.7	15.3	14.7	12.7	12.3	11.3
P/CF (x)	6.7	6.1	6.4	6.1	5.6	5.4	5.2
P/BV (x)	1.0	1.0	0.9	0.9	0.9	0.9	0.9
FCF yield	9.2%	1.5%	0.5%	3.5%	5.9%	5.0%	8.2%
Yield	**4.8%**	**5.0%**	**5.2%**	**5.5%**	**5.8%**	**6.1%**	**6.4%**

(*) Price at close on July 7, 2015.
Source: Company data and Santander Investment Bolsa estimates.

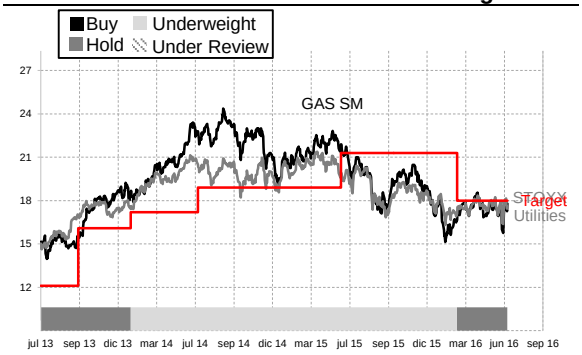
IMPORTANT DISCLOSURES

ELE SM – 3Y Stock Performance vs Rating



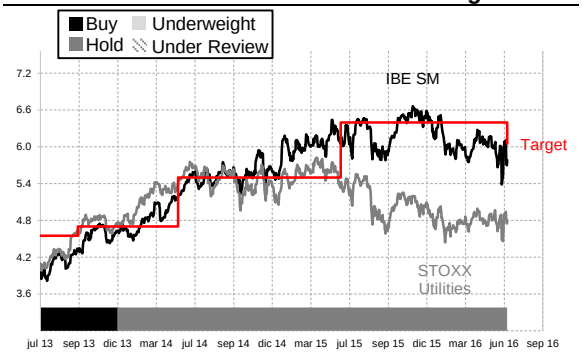
Source: FactSet and Santander Investment Bolsa.

GAS SM – 3Y Stock Performance vs Rating



Source: FactSet and Santander Investment Bolsa.

IBE SM – 3Y Stock Performance vs Rating



Source: FactSet and Santander Investment Bolsa.

IMPORTANT DISCLOSURES

The views expressed in this report accurately reflect the personal views of the undersigned analyst(s). In addition, the undersigned analyst(s) has not and will not receive any compensation for providing a specific recommendation or view in this report: Bosco Muguiro.

The analysts referenced in connection with the section for which he or she is responsible may have received or will receive compensation based upon, among other factors, the overall profitability of Grupo Santander, including profits derived from investment banking activities.

Banco Santander, S.A. and/or a company in the Santander group (together "Grupo Santander") owned more than 0.5% of the total issued share capital of Iberdrola as of the end of the second most recent month preceding the publication date of this report.
Grupo Santander may have a financial interest in the issuers/companies mentioned in this report, including a long or short position in their securities and/or options, futures or other derivative instruments based thereon or vice versa. Information relating to this is available upon request.
Grupo Santander is a market maker or a liquidity provider for the financial instruments of Iberdrola.
Grupo Santander may, in the last twelve months, have solicited or performed investment banking and/or underwriting activities and/or other services (including acting as adviser, manager, or lender) for any issuer/company referred to in this report which may have given rise to a payment or promise of a payment in relation to these services. Information relating to this is available upon request.

Key to Investment Codes*

		% of Companies	
Rating	**Definition**	**Covered with This Rating**	**Provided with Investment Banking Services in the Past 12 Months**
Buy	Upside of more than 15%.	53.42	20.55
Hold	Upside of 10%-15%.	31.51	11.64
Underweight	Upside of less than 10%.	15.07	5.48
Under Review		0	0

NOTE: Given the recent volatility seen in the financial markets, the recommendation definitions are only indicative until further notice.
(*) Target prices set from January to June are for December 31 of the current year. Target prices set from July to December are for December 31 of the following year.

Comprehensive disclosures for all stocks covered by Santander Investment Bolsa can be found on our *website*.

This report has been prepared by Santander Investment Bolsa, S.V., S.A. and is provided for information purposes only. Santander Investment Bolsa, S.V., S.A. is registered in Spain and is authorised and regulated by the CNMV.

This report is issued in the United States by Santander Investment Securities Inc. ("SIS"), in Spain by Santander Investment Bolsa, S.V., S.A. ("SIB") under the supervision of the CNMV and in the United Kingdom by Banco Santander, S.A., London Branch ("Santander London"). SIS is registered in the United States and is a member of FINRA. Santander London is registered in the United Kingdom and subject to limited regulation by the Financial Conduct Authority, UK ("FCA"). SIS, SIB and Santander London are members of Grupo Santander. A list of authorised legal entities within Grupo Santander is available upon request.

This material constitutes "investment research" for the purposes of the Markets in Financial Instruments Directive and as such contains an objective or independent explanation of the matters contained in the material. Any recommendations contained in this document must not be relied upon as investment advice based on the recipient's personal circumstances. The information and opinions contained in this report have been obtained from, or are based on, public sources believed to be reliable, but no representation or warranty, express or implied, is made that such information is accurate, complete or up to date and it should not be relied upon as such. Furthermore, this report does not constitute a prospectus or other offering document or an offer or solicitation to buy or sell any securities or other investment. Information and opinions contained in the report are published for the assistance of recipients, but are not to be relied upon as authoritative or taken in substitution for the exercise of judgement by any recipient, are subject to change without notice and not intended to provide the sole basis of any evaluation of the instruments discussed herein.

Any reference to past performance should not be taken as an indication of future performance. This report is for the use of intended recipients only and may not be reproduced (in whole or in part) or delivered or transmitted to any other person without the prior written consent of SIB.

Investors should seek financial advice regarding the appropriateness of investing in financial instruments and implementing investment strategies discussed or recommended in this report and should understand that statements regarding future prospects may not be realised. Any decision to purchase or subscribe for securities in any offering must be based solely on existing public information on such security or the information in the prospectus or other offering document issued in connection with such offering, and not on this report.

The material in this research report is general information intended for recipients who understand the risks associated with investment. It does not take into account whether an investment, course of action, or associated risks are suitable for the recipient. Furthermore, this document is intended to be used by market professionals (eligible counterparties and professional clients but not retail clients). Retail clients must not rely on this document.

To the fullest extent permitted by law, no Grupo Santander company accepts any liability whatsoever (including in negligence) for any direct or consequential loss arising from any use of or reliance on material contained in this report. All estimates and opinions included in this report are made as of the date of this report. Unless otherwise indicated in this report, there is no intention to update this report.

SIB may make a market in, or may, as principal or agent, buy or sell securities of the issuers mentioned in this report or derivatives thereon. SIB may have a financial interest in the issuers mentioned in this report, including a long or short position in their securities and/or options, futures or other derivative instruments based thereon, or vice versa.

IMPORTANT DISCLOSURES (CONTINUED FROM PREVIOUS PAGE)

SIB may receive or intend to seek compensation for investment banking services in the next three months from or in relation to an issuer mentioned in this report. Any issuer mentioned in this report may have been provided with sections of this report prior to its publication in order to verify its factual accuracy.

ADDITIONAL INFORMATION

SIB or any of its salespeople, traders and other professionals may provide oral or written market commentary or trading strategies to its clients that reflect opinions that are contrary to the opinions expressed herein. Also, in certain cases, a security may be covered by more than one analyst within Grupo Santander. Each of these analysts may use different methodologies to value the security and, as a result, the recommendations may differ and the price targets and estimates of each may vary widely. Furthermore, SIB's trading and investment businesses may make investment decisions that are inconsistent with the recommendations expressed herein.

No part of this report may be copied, conveyed, distributed or furnished to any person or entity in any country (or persons or entities in the same) in which its distribution is prohibited by law. Failure to comply with these restrictions may breach the laws of the relevant jurisdiction.

Investment research issued by SIB is prepared in accordance with Grupo Santander policies for managing conflicts of interest. In relation to the production of investment research, Grupo Santander has internal rules of conduct that contain, among other things, procedures to prevent conflicts of interest including Chinese Walls and, where appropriate, establishing specific restrictions on research activity. Information concerning the management of conflicts of interest and the internal rules of conduct are available on request.

COUNTRY AND REGION SPECIFIC DISCLOSURES

United Kingdom (UK): Unless specified to the contrary, this report has been distributed in the UK by Banco Santander, S.A. London Branch and has been prepared in accordance with Grupo Santander's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. This report has been issued in the UK only to market professionals (professional or eligible counterparties but not retail clients) or persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as "relevant persons"). The content must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this communication relates is only available to relevant persons and will be engaged in only with relevant persons. **European Economic Area (EEA):** Unless specified to the contrary, this report has been approved for distribution in the EEA by SIB. Investment research issued by SIB has been prepared in accordance with Grupo Santander's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. Many European regulators require that a firm establish, implement and maintain such a policy. Any investment or investment activity to which this document relates is only regarded as being provided to professional investors (or equivalent) in their home jurisdiction. **United States of America (US):** This report is being distributed to US persons by Santander Investment Securities Inc ("SIS") or by a subsidiary or affiliate of SIS that is not registered as a US broker dealer, to US major institutional investors only. Any US recipient of this report (other than a registered broker-dealer or a bank acting in a broker-dealer capacity) that would like to effect any transaction in any security or issuer discussed herein should contact and place orders in the US with the company distributing the research, SIS at (212) 692-2550, which, without in any way limiting the foregoing, accepts responsibility (solely for purposes of and within the meaning of Rule 15a-6 under the US Securities Exchange Act of 1934) under this report and its dissemination in the US. US recipients of this report should be advised that this research has been produced by a non-member affiliate of SIS and, therefore, by rule, not all disclosures required under FINRA Rule 2241 apply. **Hong Kong (HK):** This report is being distributed in Hong Kong by a subsidiary or affiliate of Banco Santander, S.A. Hong Kong Branch, a branch of Banco Santander, S.A. whose head office is in Spain. The 1% ownership disclosure satisfies the requirements under Paragraph 16.5(a) of the Hong Kong Code of Conduct for persons licensed by or registered with the Securities and Futures Commission, HK. Banco Santander, S.A. Hong Kong Branch is regulated as a Registered Institution by the Hong Kong Monetary Authority for the conduct of Advising and Dealing in Securities (Regulated Activity Type 4 and 1 respectively) under the Securities and Futures Ordinance. The recipient of this material must not distribute it to any third party without the prior written consent of Banco Santander, S.A. **Japan (JP):** This report has been considered and distributed in Japan to Japanese-based investors by a subsidiary or affiliate of Banco Santander, S.A. - Tokyo Representative Office, not registered as a financial instruments firm in Japan, and to certain financial institutions defined by article 17-3, item 1 of the Financial Instruments and Exchange Law Enforcement Order. Some of the foreign securities stated in this report are not disclosed according to the Financial Instruments and Exchange Law of Japan. There is a risk that a loss may occur due to a change in the price of the shares in the case of share trading and that a loss may occur due to the exchange rate in the case of foreign share trading. **China (CH):** This report is being distributed in China by a subsidiary or affiliate of Banco Santander, S.A. Shanghai Branch ("Santander Shanghai"). Santander Shanghai or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is greater than 1%, the specific holding is disclosed in the Important Disclosures section above. **Singapore (SI):** This report is issued and distributed in Singapore by Banco Santander, S.A. (Representative Office), authorised by the Monetary Authority of Singapore. It is not intended for distribution to any persons other than accredited investors, as defined in the Securities and Futures Act (Chapter 289 of Singapore), and persons whose business involves the acquisition or disposal of, or the holding of capital markets products (as defined in the Securities and Futures Act (Chapter 289 of Singapore)).
For further country and region specific disclosures please refer to Santander Investment Bolsa, S.V., S.A.

Local Offices

Madrid
Tel: 34-91-257-2309
Fax: 34-91-257-1811

London
Tel: 44-207-756-6605
Fax: 44-207-756-5033

Frankfurt
Tel: 49 6959 67-6403
Fax: 49 6959 67-6407

Milan
Tel: 39-02-8542-09810
Fax: 39-02-8606-71648

Lisbon
Tel: 351-21-381-6580
Fax: 351-21-389-3680

Brussels
Tel: 32 2 286 5447
Fax: 32 2 230 6724

Paris
Tel: 33 15353 7000
Fax: 33 15353 7060

New York
Tel: 212-692-2550
Fax: 212-407-4540

Hong Kong
Tel: 852 3921-3091
Fax: (852) 2101-2000

Tokyo
Tel: 813-3211-0356
Fax: 813-3211-0362

Bogotá
Tel: 571-644-8006
Fax: 571-592-0638

Buenos Aires
Tel: 54114-341-1052
Fax: 54114-341-1226

Caracas
Tel: 582-401-4306
Fax: 582-401-4219

Lima
Tel: 511-215-8100
Fax: 511-215-8185

Mexico City
Tel: 5255-5629-5040
Fax: 5255-5629-5846

Santiago
Tel: 562-336-3300
Fax: 562-697-3869

São Paulo
Tel: 5511-5538-8226
Fax: 5511-5538-8407