

## ENDESA, S.A.

UTILITIES

STUDENT: RODRIGO ALMEIDA DA SILVA

## COMPANY REPORT

3 JANUARY 2018

22230@novasbe.pt

## Regulatory risk ahead

*Competitive growth environment, awaiting regulatory reform*

- **Coverage is initiated on Endesa, with a BUY recommendation, a price target of €20.39 and an expected shareholder return of 29.4%.**
- **Overexposure.** Following the sale of the Latin American business to Enel, Endesa has focused c.100% in Spain, with a footprint in Portugal and other adjacent countries. Therefore, Endesa is very sensitive to the Iberian pool prices, with a PT cut of almost €5/share on a 10% increase in the variable.
- **Growth.** Endesa has recently lowered the expectations for the period 2018-2020 in the Strategic Update, to levels in line with the market consensus. Notwithstanding, forecasts are still positive and anticipating stable growth rates, with a slow decline in conventional Generation and Supply, a competitive increase in Renewables and a stabilization of Distribution.
- **Debt.** Endesa has been on a position of under leverage, which propelled, among other factors, the acquisition of the remaining stake on EGPE in 2016, further active investment on the Renewables division and more than €2bn in Distribution CAPEX, on a €5bn total CAPEX until 2020.
- **Regulatory Review.** Analyst estimates are, on the EBITDA and Net Profit level, slight below than market consensus and guidance, justified by the uncertainty on both Portuguese and Spanish regulatory reviews. Expectations are that, by end of 2019, the CNMC should cut the allowed remuneration for regulated activities on 50bps, given the low yield on the 10-year Spanish Bond.

<b>Recommendation:</b>	<b>BUY</b>
------------------------	------------

<i>Vs Previous Recommendation</i>	-
-----------------------------------	---

<b>Price Target FY18:</b>	<b>20.39 €</b>
---------------------------	----------------

<i>Vs Previous Price Target</i>	-
---------------------------------	---

<b>Price (as of 2-Jan-2018)</b>	<b>17.77 €</b>
---------------------------------	----------------

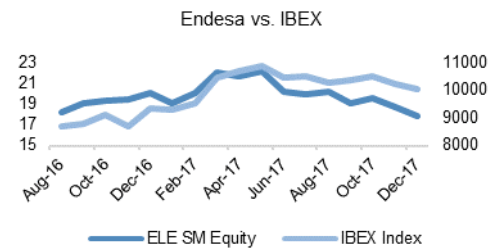
Reuters: ELE.MC, Bloomberg: ELE SM

52-week range (€)	17,68-22,89
-------------------	-------------

Market Cap (€M)	18.756
-----------------	--------

Outstanding Shares (M)	1.059
------------------------	-------

Source: Bloomberg



Source: Bloomberg

(€ millions)	2016	2017E	2018E	2019E
Revenues	18,979	19,767	19,544	19,761
EBITDA	3,432	3,395	3,423	3,435
Net Profit	1,412	1,373	1,379	1,399
EPS	1.33	1.30	1.30	1.32

Source: Bloomberg

## Company description

Endesa is a Spanish utility company, operating in the Iberian Peninsula. Its business is on the generation, distribution and sale of electricity, also operating in the natural gas sector and other related-services.

# Table of Contents

<b>EXECUTIVE SUMMARY .....</b>	<b>3</b>
<b>COMPANY OVERVIEW .....</b>	<b>4</b>
COMPETITION .....	5
DEBT .....	6
DIVIDEND POLICY .....	6
<b>BUSINESS AREAS .....</b>	<b>7</b>
ELECTRICITY GENERATION .....	7
ELECTRICITY DISTRIBUTION .....	8
ELECTRICITY SUPPLY .....	9
NATURAL GAS .....	10
PORTUGAL .....	10
<b>IBERIAN MARKET .....</b>	<b>11</b>
MARKET STRUCTURE - MIBEL .....	11
REGULATORY FRAMEWORK .....	12
GENERATION .....	13
DISTRIBUTION .....	14
NATURAL GAS .....	14
NEXT REGULATORY PERIOD .....	14
DIGITALIZATION AND SMART GRIDS .....	15
<b>MACROECONOMIC ENVIRONMENT .....</b>	<b>16</b>
SPAIN .....	16
DEMAND FOR ELECTRICITY .....	18
SUPPLY FOR ELECTRICITY .....	19
EUROPEAN UNION DECARBONISATION .....	20
SPANISH CAPACITY CLOSURES .....	21
<b>ENEL GREEN POWER ESPAÑA .....</b>	<b>22</b>
<b>METHODOLOGY AND VALUATION .....</b>	<b>23</b>
IMPLIED ASSUMPTIONS .....	24
BUSINESS OUTLOOK .....	26
SENSITIVITY ANALYSIS .....	27
MULTIPLE VALUATION .....	29
<b>APPENDIX .....</b>	<b>30</b>
FINANCIAL STATEMENTS .....	30
<b>DISCLOSURES AND DISCLAIMERS .....</b>	<b>31</b>

## Executive Summary

### ENDESA

**Endesa has currently close to 100% exposure to the Spanish electricity market**

The largest integrated utility in Spain and part of one of the biggest players in the world utility market – Enel -, Endesa operates on the Electricity and Natural Gas value chain. Running an installed capacity of 22,744 MW, the company has currently close to 100% exposure to the Spanish market, with relative small footprint in Portugal and some other European countries, which justifies the discount at which the utility trades, when compared to its peers. Regarding stock performance, Endesa had a TSR of negative 5% YTD.

**About 70% of total EBITDA 2018 comes from regulated activities**

### REGULATORY FRAMEWORK

Endesa operates on a tight regulatory environment, as about 70% of total EBITDA 2018 comes from regulated activities. The company expects a cut in allowed remuneration of c.50bps for the next regulatory period, agreed by the market which is also assumed in the present valuation. This should imply a cut of around 50-60 million in Distribution EBITDA, partially offset by the investment and expected development of Renewables and Digitalization, on the Supply business.

**Post-2020 cut of 50bps assumed for regulated activities**

### RENEWABLES AND CAPACITY CLOSURES

Endesa is currently betting on the Renewable sources, with a total expected CAPEX until 2020 of €900 million for this segment. However, the Iberian environment is becoming increasingly more competitive, with recent new capacity auctions achieving new price floors, which indicates lower return on these assets. Nonetheless, EBITDA for this segment is predicted to have a CAGR 2016-2020 of 45%.

**Coal-intensive and nuclear plants are to be shut down by 2050**

In what regards the post 2020 period, it is estimated that closures of both nuclear and coal-intensive sources in Spain, and thus in Endesa, are to happen to its entirety by the limit of 2050, with a reduction of at least 50% by 2030, when it is assumed the end of these assets lifecycle.

**BUY recommendation, with a Price Target of 20.39 per share**

### VALUATION

The company was valued under a sum-of-the-parts approach, using DCF analysis for all segments, with exception for Structure, Consolidation Adjustments and Eliminations, which due to its unpredictability is valued under a multiple EV/EBITDA of the other segments. This approach retrieves a price target of €20.39 per share, which justifies the BUY recommendation, with a 29.4% expected shareholder return.

## Company Overview

**Endesa is one of the main players in the Iberian Utilities – c.35% market share in electricity**

Endesa, S.A. is one of the main players in the Iberian Utilities’ sector – c.35% market share in electricity output generation in the Iberian Peninsula -, with core operations in the integrated markets of electricity and gas and several energy-related services associated.

In a broad view, Endesa operates in the businesses of generation, distribution and supply of electricity, which entails both regulated and liberalized activities in the Iberian Peninsula region, besides being a growing player in the gas market – 2.4% growth in market share from 2015 to 2016. The company is currently exporting both electricity and gas to other European countries, as well as providing value-added products and services (VAPS), in accordance to the desired integration with the European Union’s strategy of uniformization of the utilities’ market across all member-states. In 2016, revenue from outside the Iberian Peninsula (Iberia) stood at 4.4% of total revenue in the year.

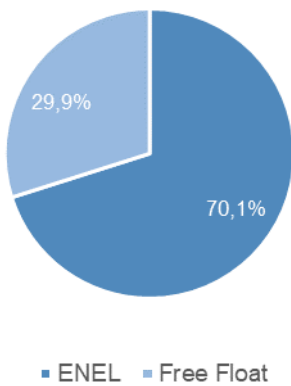
Since 2009, Endesa S.A. has been owned in a majority position by Enel Iberoamérica S.R.L., a company wholly-owned by Enel SPA, the multinational energy company, the biggest private network and renewable operator, with a total installed capacity of 46.6 GW, worldwide. In 2015, Enel decreased its position from 92.063% to 70.101% (Figure 1).

During the year of 2014, Endesa has sold its Latin American (Latam) business to Enel Iberoamérica, S.L.U., for €8,253M. This significant shift in strategy was justified by the company with an urge to focus on the Iberian markets, which goes in line with the parent company’s strategy in the multinational level. This major event is worth noticing, since the financial outlook for Endesa has significantly changed since the divestiture, as this part of the business accounted for almost half of the market value the company had, in the period.

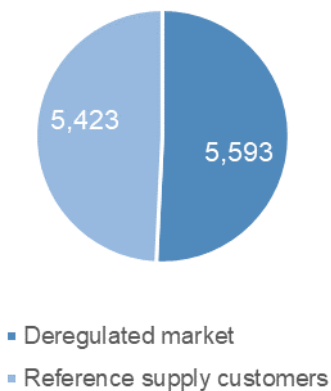
In terms of employability, Endesa had reportedly 10,000 employees in 2015, a number that has decreased 3% in 2016. However, as reported in the 9M17 results, the number has increased to 9,777, in total of all segments. These values are assumed to be maintained through the following periods.

Regarding number of customers, the company declared, as of the end of 2016, reaching over 11 million customers, in a relatively balanced distribution between reference supply customers and supply on the deregulated market (Figure 2). More detailed information on sales is provided further ahead in the description of each segment.

**Figure 1 - Ownership Structure**  
Source: Company



**Figure 2 - Supply points**  
Source: Company (thousands)

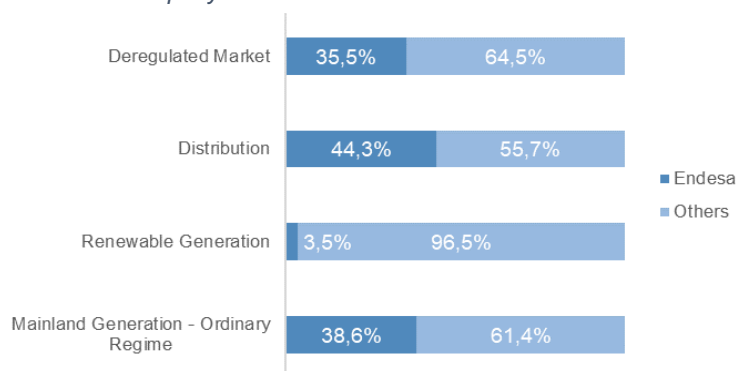


For the upcoming periods, Endesa has restated in the most recent Strategic Update (November 23<sup>rd</sup>) that the main pillars of growth are the digitalization of the grid and the generation mix, with a strong bet on renewables, following the trend in the Iberian and European markets, and a parallel decrease in CO<sub>2</sub>-intensive sources and nuclear, maintaining the security of supply.

## COMPETITION

**Figure 3 - Market Share**

Source: Company



As for peers and major competition, Endesa faces players like Iberdrola, Gas Natural, EDP and Viesgo (non-listed). Iberdrola stands as being the bigger player against Endesa on practically all the segments. In what concerns market shares, Endesa's stands well positioned in the mainland generation in the ordinary regime, with 38.6% of total market. As for the renewable generation, this value is not as high, with only 3.5% reported. However, when it comes to distribution, the number stands also high, in 44.3%. And as for the

deregulated market, the value is on the 35.5%, which shows how Endesa ranks in the Iberian market, leading in the Spanish and running up in the Portuguese one. To mention that these values of market shares are as reported by the company in the 9M17 (Figure 3).

The next table refers to the most important factors in the industry for peer comparison:

**Table 1 - Peer Comparison**

Source: Bloomberg

2016	ENDESA	IBERDROLA	EDP	GAS NATURAL	ENEL
Market Cap (€B)	20.07	41.18	10.49	19.25	53.73
Net Installed Capacity - Global (MW)	22,744	43,980	25,170	15,170	82,740
Electricity Generation Iberia (MWh)	69,831	62,784	13,984	-	-
Dividend Yield (%)	6.62%	4.59%	6.57%	7.43%	4.30%
ROE (%)	17.69%	6.73%	10.74%	8.21%	14.78%
ROA (%)	5.28%	2.41%	2.24%	2.55%	3.13%
FCF Yield (%)	8.15%	2.79%	10.78%	6.85%	4.60%
Net Debt/EBITDA	1.25	3.70	4.38	3.15	2.33
EBITDA Margin (%)	18.08%	27.10%	26.22%	20.51%	22.27%

Endesa is the integrated utility that generates the most output in the Iberian Peninsula, followed closely by Iberdrola. However, in terms of number of customers in the same region, Iberdrola outstands Endesa.

***The best dividend yield, ROE and ROA of the Iberian electricity group***

As it can be seen above, Endesa stands out as having the best 2016 Dividend Yield, ROE and ROA of the Iberian electricity group, as per *Bloomberg's* calculations. However, it is possible to denote the consequences of the almost 100% exposure the company has to Spain, with a lower value for EBITDA margin, which is a sign of how exposed to commodity and pool pricing the company is. In fact, Endesa has been suffering from discount in the market (see *Multiple Valuation* ahead) in relation to peers, mostly justified by the fact that the company does not possess any other source of income other than the activities carried out in this country, which entails the higher volatility it shows with the market, reflected on its betas for all businesses areas.

***Discount only justified by the near 100% exposure to the Spanish market***

#### DEBT

***Endesa stands on a position of underleverage in what compares to the sector***

As also seen in the above table, Endesa is in a position of underleverage, in what compares to the sector, which allied with the fact that the company should be able to finance itself through its parent company – ENEL –, gives the management the freedom to endure into one of the most attractive dividend yields on the sector, while at the same time increasing CAPEX. Lately, S&P upgraded its rating to a BBB+, which is in line with Fitch's rating. Indeed, according to the economic-financial strategy set up by Endesa's Board of Directors, the activities the company carries out are to generate what should be considered to be sufficient to maintain the company's debt and maximise shareholders' remuneration. However, it is regarded in the present report that debt should increase, accompanying the investments on the grid and the high CAPEX employed in Renewables. Net Debt/EBITDA should be below 1.8x as far as 2020 is regarded.

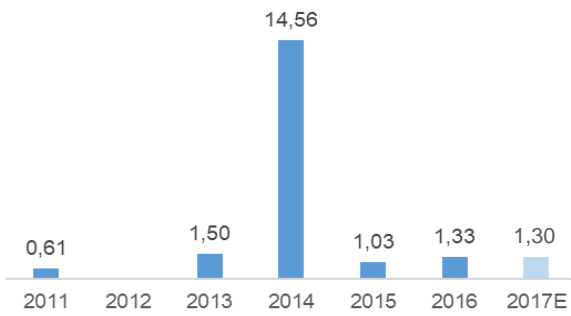
More on the forecasts for debt in the *Methodology and Valuation* chapter.

#### DIVIDEND POLICY

***The 100% payout policy awards the company the best dividend yield on the sector***

Endesa's dividend policy stands on distributing 100% of the Net Income of the year for the Parent company through all shareholders, provided that the resulting amount is higher than 105% of the previous year paid dividend. That was the case of 2014, with the sale of the Latam business, which triggered the two extraordinary dividends paid in the year (Figure 4).

**Figure 4 - Dividend Policy (€)**  
Source - Company



Even though the management has stated lately the intention to pursue inorganic growth, through M&A, there are not, to date, any indications of possible negotiations happening. What is known, and expected, is that Endesa should leverage itself to proceed with such growth. This justifies the high payout ratio the company affords to pay steadily to its shareholders. It is of the analyst opinion that the company could maintain the payout, provided that expectations for Net Income are met and the company is on the way to the optimal leverage point.

## Business Areas

### ELECTRICITY GENERATION

**Total of 174 power plants, to a total of 22,744 MW of installed capacity in 2016**

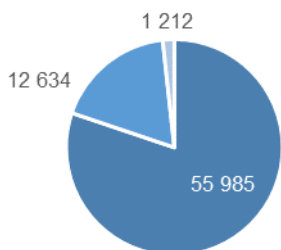
In essence, this segment represents the activity of converting fuel or renewable sources into electricity, to be injected into the grids (or stored, when possible).

This segment of the value chain is, as developed further ahead, not regulated in the most part (exception for non-mainland and renewable sources), which compels high exposure from commodities for the players.

Endesa’s generation activities are carried out in Spain, Portugal and Morocco, in a total of 174 power plants. The activity carried out in Morocco is the product of a 32% interest in *Energie Eletrique de Tahaddar*, which production was 797 GWh (Endesa’s stake on the total) in 2016.

The total electricity generation came to total of 69,831 GWh in 2016, in which the great part is the result of Mainland production (55,985 GWh, or 80%), 18% (or 12,634 GWh) comes from Non-Peninsular Territories, and the remaining 1,212 GWh are part of Renewables and cogeneration (Figure 5).

**Figure 5 - Electricity Output Territory**  
Source: Company (GWh)



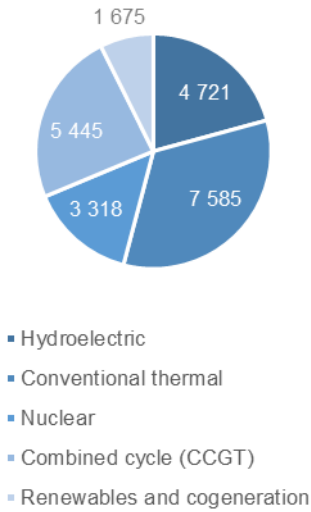
- Peninsular
- Non-Peninsular Territories
- Renewables and cogeneration

In what regards the installed capacity of generation, in net terms – deducting the usage that each plant has for its own running of operations – Endesa has reported a total of 22,744 MW as of the end of 2016, with more than 7,500 MW being correspondent to conventional thermal source, followed by the combined cycle (CCGT) and hydroelectric ones (Figure 6).

These values are comparable to the ones reported recently in the 9M17 management report, which entails a total of 22,724 MW, with the same distribution of MW per source as mentioned before.



**Figure 6 - Net installed capacity**  
Source: Company (MW)



Renewable sources are very strongly supported in Endesa’s strategy for the long term. Indeed, that is the main reason for the acquisition of the remaining stake in Enel’s Green Power España (EGPE) in 2016. Currently, and being fully owned by Endesa, this subsidiary carries the entire activity of generation of electricity in what regards renewable sources, except for the hydroelectric one.

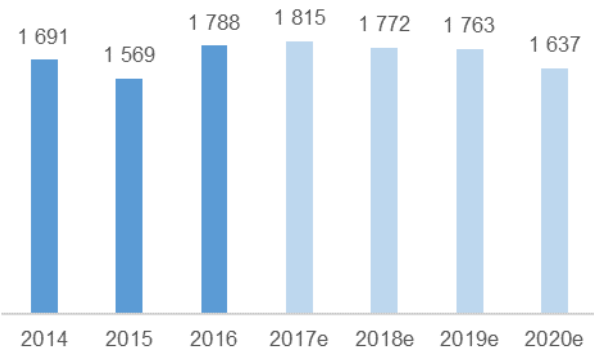
As far as 2017 is regarded, up until so far, with data available for the first nine months of the year, EGPE has already generated 2,533 GWh. Since the values for 2016 are only accounting for the time at which the takeover took place - in July – they are in fact not comparable. Also, the net installed capacity for this division is of 1,675 MW, as of reported in the 9M17 results.

**ELECTRICITY DISTRIBUTION**

This segment regards the facilities that directly supply the consumers from the power grid, or transmission segment – operated by specific regulated players. In essence, electricity is transmitted by REE (in Spain) and REN (in Portugal) in high-voltage, and distributors, like Endesa, downgrade the voltage into medium and low voltage, to be transmitted in the local power line, on to the end users. Endesa carries out the activities of this segment in Spain, where it is subject to specific regulation.

As reported by the company, electricity is distributed “in 27 Spanish provinces and in 10 autonomous communities”, which results in a coverage of 317,476 km of distribution and transmission grids (value of 9M17), and a total of 115,602 GWh of energy distributed, in 2016. This value represents 46% of total demand in Spain in the same period (249,328 GWh), as reported by the MIBEL.

**Figure 7 - Distribution EBITDA**  
Source: Company, Analyst estimates



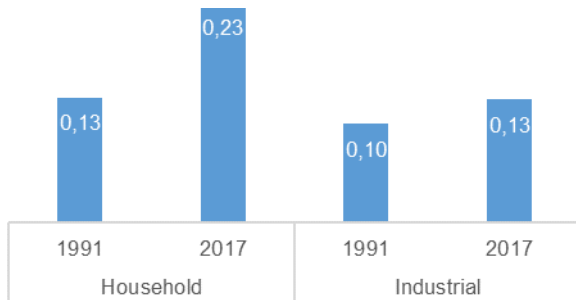
In terms of EBITDA, since this is a regulated segment, it is natural to understand how stable the values should be from period to period. However, given the structural regulatory changes that the sector has been suffering in the most recent years, this stability is not as obvious to denote in the consolidated statements as one would firstly deduct. As of 2016, the figure of EBITDA for this segment stood in €1,788M (Figure 7).



**ELECTRICITY SUPPLY**

In this area of activity, Endesa carries out the function of selling energy to customers. This sale is allied with the provision of value-added products and services (VAPS), as mentioned before.

**Figure 8 - Electricity Price Spain (€/kWh)**  
Source: OMIE



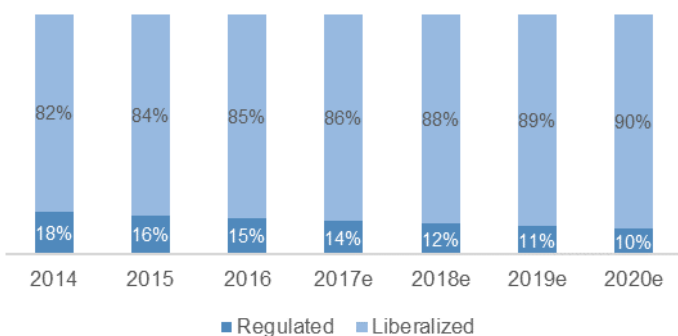
As this is currently a liberalized activity in both Portuguese and Spanish markets, Endesa faces more competition, as more players are allowed to enter and offer competitive products to the same customers. Indeed, notwithstanding other various factors affecting the price of electricity, it can be seen that competition contributed to a great increase in electricity price from 1991 to 2017 (Figure 8).

Also, as it deals with final consumers of electricity and these are free to choose any provider existent, the quality of the service provided is a key driver of revenues.

However, and as the transition from regulated towards liberalized markets has been gradual in both regions, there is the possibility for customers to be supplied with energy at regulated tariffs. As such, it is important to denote the change from one period to another in what regards the number of customers and correspondent value of sales for both these markets. In the regulated market, the Authorised Distributor is Endesa Energía XXI, an Endesa’s wholly-owned company.

As reported in 2016, the number of customers in the regulated market was, in total of mainland and non-mainland, of 5.59M, a drop in 7.2% from 2015. On the other hand, the supply on the deregulated market was, in million customers, a total of 5.42, accounting for all regions to which Endesa is able to supply (mainland, non-mainland and outside of Spain). This value represents an increase of 6.7% from the year of 2015.

**Figure 9 - Electricity Sales**  
Source: Company, Analyst estimates



Naturally, it is possible to denote the transition from the regulated towards the liberalized market, as defined and designed by European Union’s guidelines (Figure 9).

In terms of amount of electricity effectively supplied, a drop of 7.5% is denoted from 2015 to 2016 regarding the regulated market, towards a final value of 13,815 GWh. As for the deregulated one, the increase was of 2.2%, which results in a 2016 value of 79,675 GWh.

The combination of these two factors, number of customers and amount of electricity supplied, results in revenues for this area of business in a total of €2,412M in the regulated market (less 16.4% YoY) and €8,213M (also less, 2.5%) in the liberalized one.

NATURAL GAS

The market for natural gas has shown, as of 2016, a significant increase, after a period of decreasing demand. In fact, after a 4% increase from 2014 to 2015, a more than 2% increase from 2015 to 2016 was the result of the increase in 6.5% of domestic and commercial demand and a 2.7% increase in industrial demand. On the other hand, there has been registered a decrease in 3.9% in demand for electrical generation.

In the market of natural gas, Endesa carries out its activities through its wholly-owned companies Endesa Gas and Endesa Generación, for regulated activities, and Endesa Energía, for the deregulated ones. All of these amount to a total of 78,129 GWh sale of gas, in 2016, within a total of 1.54 million supply points.

On the deregulated market, it is to note the increase of 9.1% registered in 2016 regarding the supply of natural gas, which amounted to 78,129 GWh, mostly due to a significant (30%) increase in the supply of markets outside of Spain, in which Endesa Energía has been investing on most recently. All of this results in revenues of €2,079M (Figure 10).

Regarding the regulated activities on the gas market, Endesa is holding interest in companies on the transportation and distribution of gas, which have in total registered sales in the regulated market of 1,464 GWh.

As for the market share in the deregulated market for natural gas, Endesa has increased in 0.2% its stake, from 16.9% to 17.1%, as of the 9M17 report. As compared to the market, Endesa stands in advantage in a competitive environment, only surpassed by Gas Natural Fenosa (44%) and followed by UFG (8%) and others, like Iberdrola (7.5%) and EDP (2.3%). Endesa is expected to maintain this position in the market, with expected minor increases in order to face the rising competition in the segment (Figure 11).

PORTUGAL

In Portugal, Endesa is reportedly the second major player in the electricity market, having activities in the generation and supply of electricity, since 1993.

Figure 10 - Gas Sales (GWh)  
Source: Company

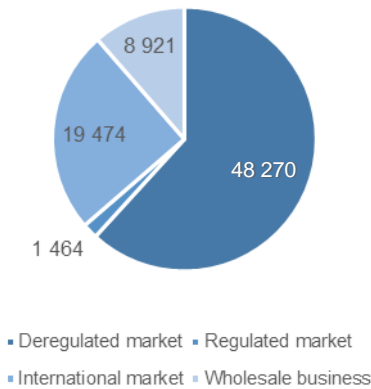
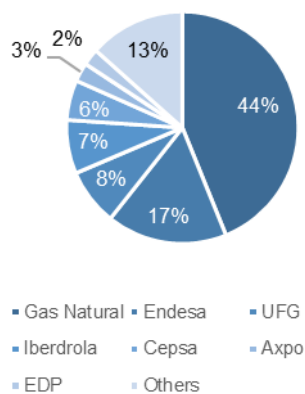
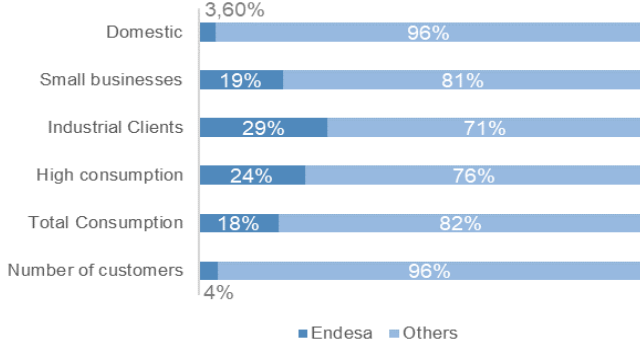


Figure 11 - Gas Market Shares  
Source: CNMC



As such, Endesa has participated actively in the transition towards the liberalized market.

**Figure 12 - Portugal Market Shares**  
Source: ERSE



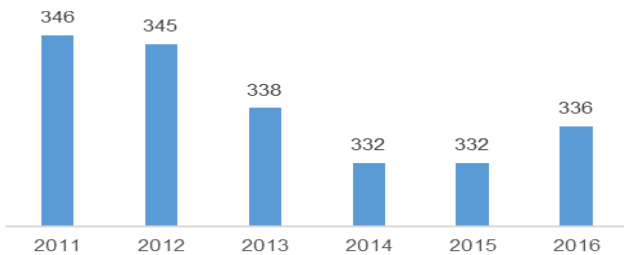
Regarding market shares, according to ERSE - the Portuguese energy regulator - as of October 2017, Endesa ranked 3<sup>rd</sup> in number of customers (4.1%) and 2<sup>nd</sup> in consumption (18%). By analysing the same criteria by segment, it is possible to see that Endesa ranks 3<sup>rd</sup> in the high consumption customers (24%) but achieves the 1<sup>st</sup> place in what regards industrial clients (29%), the most competitive segment. In the small businesses segment, the company ranks 2<sup>nd</sup> (19%), and lastly on the domestic segment, it gets the 4<sup>th</sup> place (3.6%) (Figure 12).

## Iberian Market

### MARKET STRUCTURE - MIBEL

As of the end of the last century, global warming is one of the most internationally debated issues in place. As such, it has become severely important for crucial sectors to act and manage to make a difference. That is the case of the Energy Sector, more specifically the Iberian Energy Sector, which accounts for 9% (336 TWh) of total European energy generation, as of 2016 (Figure 13).

**Figure 13 - Iberian Total Generation (TWh)**  
Source: Enerdata

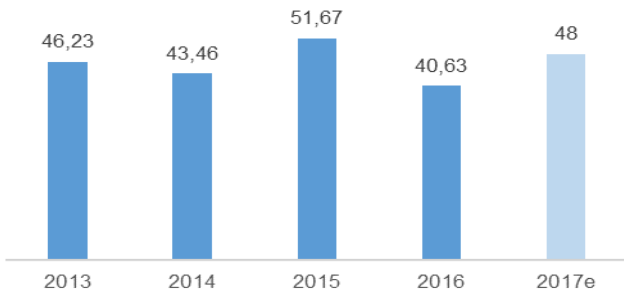


Being one of the regions that most coped, up until so far, with the transition towards more sustainable energy systems – though started with a slight delay, in relation to neighbouring European countries –, the Iberian energy sector has shown some effort into implementing policies and reforms to boost the European Union’s strategy of decarbonizing the economy until 2050.

One of these policies was to introduce the **MIBEL** (*Mercado Ibérico de la Electricidad*), which started running in full in July 2007, integrating both Portugal and Spain operators in the same marketplace.

As it is part of the system’s functioning, and as it has been operating in several other regional markets across Europe, the organism that sets the price stands on a supply-demand mechanism, in which the marginal costs of all energy sources are submitted and the intersection between curves is achieved, on a daily basis.

**Figure 14 - Average Pool Price Evolution**  
Source: OMIE



In general, the price setting source stands between hydro and coal plants. In the year of 2017, the drought has been so severe in the Iberian region that hydro resources are too scarce. As such, the prices from this source has been going high, matching the demand sooner than previous periods – as the case of the abundantly humid year of 2016 – which has sky rocketed prices for 2017 (Figure 14).

In this mechanism, the most important drivers of the price, and that naturally shift supply, are: the commodities (coal, gas), which affect the generators variable costs, and therefore their ability to bid for the pool; the CO2 price, which is an additional cost on for generators; and taxes, that are generally applied to certain sources.

***Recent Spanish renewable auction bids entail new price floors achievable when auctioned capacity come online***

With the increasing penetration of renewables into the system, prices are expected to decrease, since these should have a lower marginal cost that other more intensive sources on CO2 (which are more heavily taxed). Also, as long as these more intensive sources are not shut down, in the short-term, prices should remain as low as renewables increase their share into the pool.

In fact, as of recent auctions in Spain, bids had come down to even lower than the current power prices, which entails new floors achievable when the installed capacity auctioned come online.

Data from Morgan Stanley shows that, in Spain, wind power sources should have, on average, load factors of 35% during January and February, while lower ones, as 20%, during summer. On the other hand, solar power sources should have, on this same region, load factors of 35% during Summer, and as low as 10% on the winter period.

**REGULATORY FRAMEWORK**

Faced with the debating issue of the Tariff Deficit – the difference between the amount paid by end customers based on their consumption (variable) and the regulated remuneration that distributors and transmission companies receive from the Government (fixed, based on the Regulated Asset Base - RAB) -, the Spanish Government decided, in 2013, to reform the electricity sector. To do so, the Parliament issued an Electricity Law, which was followed by several regulations, implemented in 2014 - Law 24/2013 of 26 December, published in the Official State Gazette (“BOE”). The main objectives were to reduce regulated

**Endesa’s businesses entail a mix of regulated and liberalized activities, identical for both Spain and Portugal**

costs allocated to the system and increase revenue, as both effects would help reduce the so-called Tariff Deficit.

In fact, the CNMC – *Comisión Nacional de los Mercados y la Competencia* – has issued reports for 2014 and 2015 saying that the electricity system had actually generated a tariff surplus of almost half a billion Euros, only in 2015, and around €550M in 2014, which shows the much healthier state of the system. Forecasts are that 2016 (results yet to be known in early 2018) should carry an amount close to 2015.

**Endesa is subject to regulation on circa 70% of total EBITDA 2018**

As mentioned before, Endesa’s businesses entails a mix of regulated and liberalized activities, which are identical for both Spain and Portugal: in the Generation segment, there is regulation for non-mainland output and renewable sources, while the mainland remaining sources are liberalized on its remuneration. For gas, there are also two parts on the supply, one regulated and the other liberalized; in the Distribution segment, the whole activity is subject to specific regulation; for the Supply segment, the whole activity is liberalized.

Endesa is then subject to regulation on approximately 70% of the total EBITDA expected in 2018:

**Table 2 - Applicable Regulated Rate of Return**

Source: CNMC

Business Area		Regulated rate of return
Generation and Supply	Non-mainland generation	200bps + 4.5% average Spanish yield = <b>6.5%</b>
	Natural Gas	<b>5.09%</b>
Renewables		300bps + 4.4% average Spanish yield = <b>7.4%</b>
Distribution		200bps + 4.5% average Spanish yield = <b>6.5%</b>

**GENERATION**

In the Spanish Law currently in place, it is stipulated that “*remuneration for generation in non-mainland systems and generation from renewable energy sources, high-efficiency cogeneration and waste will take into account the costs of an efficient and well-managed company*”.

As such, for the first regulatory period, which is to end on 31 December 2019, the remuneration of assets considered in the RAB is taken as the average yield on 10-year Spanish Government Bond on the secondary market of previous period of 2013, plus appropriate basis points:

- 200 basis points for **generation in non-mainland systems** – a 6.5% nominal pre-tax return, assuming 4.5% as an average Spanish yield;

- 300 basis points for **generation from renewable energy sources, high-efficiency cogeneration and waste** – a 7.4% nominal pre-tax return, assuming a 4.4% average Spanish yield.

A mention for the current debate and lobby of the integrated utility companies for the fact that the regulation in place does not take inflation into account, regarding these returns as fixed throughout each regulatory period. However, this has, to date, shown to be fruitless near the Government.

## DISTRIBUTION

In this segment, the regulation in place assumes full control of the activities, since the Government is to repay the players the fair cost for the construction of distribution facilities and normal running of operations, as well as incentivizing new investments both in maintenance and grid expansions. Naturally, the remuneration resulting from this activity is obtained from the regulated tariffs that the players are obliged to practice. However, the way this remuneration is calculated is varied across countries. In both countries in the Iberia, the model used is the Regulated Asset-Based one (RAB).

As mentioned above, the Law 24/2013 applies this new framework, which entails the RAB model with the abovementioned remuneration equal to Spanish 10-year Government bond yield plus 200 basis points – a total of **6.5% nominal pre-tax** (assuming a 4.5% Spanish yield at the time).

## NATURAL GAS

Although not as impactful for Endesa's results, this segment is also subject to regulation, on the distribution networks side, though with different returns than the electricity ones. In this case, the side that is subject to regulation is composed of two factors: 25% linked to the demand of gas and 75% measured in a RAB basis, with a set return of 5.09%, again nominal and pre-tax.

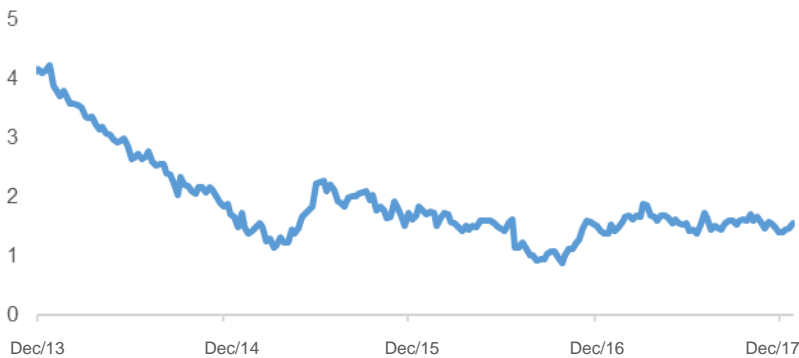
## NEXT REGULATORY PERIOD

One should notice the period of very low yields on the 10-year Spanish Government bonds, which definitely contrasts and coincides with the period in which all Spanish integrated utilities started to perform better.



However, even if this behaviour of the Government bond does not bring any harm in the short term, it may do so by the end of 2019, when the regulator may update the regulatory framework, adapting to the circumstances of the bond yield in the previous periods. All of this leads to the point that, if the bond yield stays in the same values as of the current period for the next 24 months, it may be very probable that the regulator cuts the remuneration abruptly, since it is not this

**Figure 15 - Spanish 10yr Gov. Bond Yield**  
 Source: Bloomberg



entity's purpose for utilities to be awarded with such high premiums, considering the current remuneration returns in place (Figure 15).

It is the assumption of the present valuation report that remuneration for regulated activities is likely to suffer a cut of 50bps. More on this assumption in further sections, namely *Macroeconomic Environment* and *Methodology and Valuation*.

DIGITALIZATION AND SMART GRIDS

One of the main trends on the electricity market, and more specifically in the European one, is the digitalization and electrification of the market. As such, Endesa is having a lot of investment - €1.2bn as per by the new plan recently showed in the 2018-2020 Strategic Update – in order to adhere to this major trend. Part of this strategy includes the deployment of smart grids, which in total requires €0.3bn, plus €0.8bn for grid updates. Summing all up, this should affect the distribution unit costs down from €45/customer in 2017 (expected by the company) to €41.4/customer in 2019.

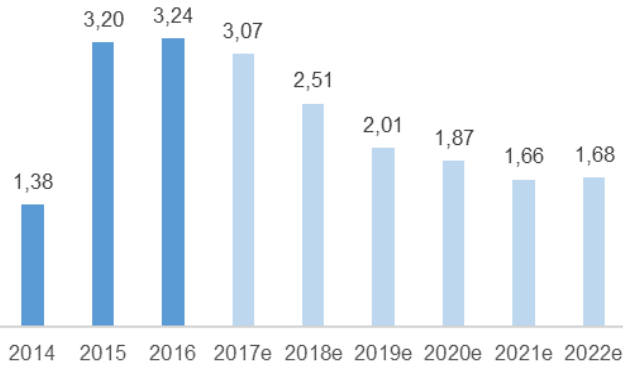
**Endesa is deploying €1.2bn until 2020 for Digitalization and Smart Grids**

In essence, Smart Grids involve the substitution of the normal meters that final consumers use, for what is called a Smart Meter, which measures the consumption of each household electronically, sends it to the grid automatically and expands the possibility of new services, such as the possibility of adapting the consumptions (and therefore final payment value) to the consumers' needs. All this contributes to the aforementioned decrease in distribution cost and a higher efficiency in the supply of electricity. This reduction of losses is valued in approximately €130M until 2020, which contributes to an increase in EBITDA. In the end of November, Endesa has released a report claiming to have 95% of all meters substituted by the end of 2017, which embodies the cost savings already in the EBITDA of 2018.

**Higher efficiency in the distribution and supply of electricity – loss reduction in €130M until 2020**

# Macroeconomic Environment

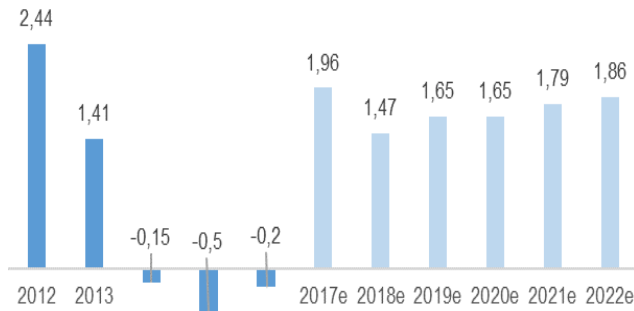
**Figure 16 - Spain's GDP Growth (%)**  
Source: IMF



## SPAIN

Endesa’s main country of operations is still recovering from the main shock it suffered from the financial and sovereign crisis that hit mostly the southern European countries. However, Spain has shown strong signs of developments from 2013, with GDP growing at more than 3.2% since 2015. In fact, it is predicted that these values continue in 2017, since all quarters have been showing more than 3% YoY. Spain’s values for GDP growth has shown to be higher than the eurozone average, which demonstrates the country’s resilience and effort for development. However, and according to data from the IMF, forecasts are that growth rates for this economic measure will gradually decrease until around 1.7% in 2022 (Figure 16).

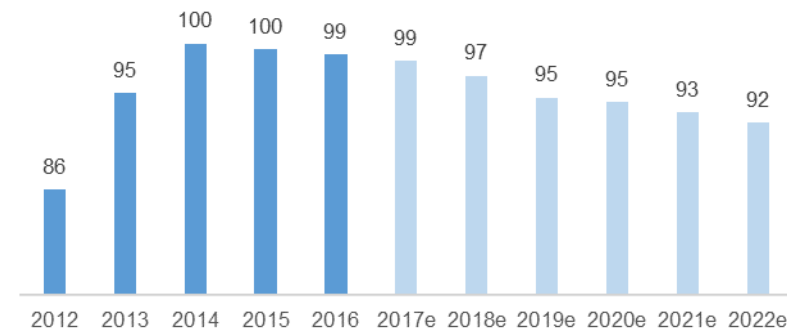
**Figure 17 - Spain's Inflation Rate (to previous year)**  
Source: IMF



As far as inflation is regarded, values have been higher than the average eurozone, in 1.7% as of July 2017, and forecasts from the IMF (Figure 17) indicate the average until 2021 will be of around this value, which goes in line with what is predicted in Endesa’s outlook for this region.

Concerning unemployment rate, the situation appears to be controlled, with the 2016 value ascending to 19.64% and IMF forecasts predicting a gradual decrease until a stabilization in around 14% by 2022, which is remarkable for a country that has seen values of 26% in 2013.

**Figure 18 - National Debt to GDP (%)**  
Source: IMF



On the more financial side, it is important to highlight the evolution of national debt. This measure shows that, in relation to GDP, the percentage of national debt stood in more than 100% in 2014, but it has been decreasing slightly every year, with IMF forecasts around 92% in 2022 (Figure 18). As for the budget balance, the 2016 figure stood at around -4.5%, but it is forecasted to achieve -2.13% in 2022.

Regarding sovereign credit ratings, Spain is currently evaluated with Baa2 by Moody’s and BBB+ by both S&P and Fitch, in the long-term perspective, which

shows a stable outlook for the country, with no major threats, other than some political instability associated with late events in Catalonia.

***The Catalan political situation is a theme for close attention, though not estimated to have a great impact on Endesa, as of recent developments***

In fact, the current political situation is marked by the Catalan vs. Central Spanish Government debate, in which, as of recent developments, elections gave the majority to separatist groups together, but the victory to the single party Ciudadanos, a uniting party. The result of the elections should prevent the formation of a new Regional Government, in practice, but the Law foresees that by February the 8<sup>th</sup>, there should be an elected President in charge. For the purpose of Endesa's valuation, this political instability should not be, as of the most recent information available, of extreme alert, but caution should be taken for the impact that each resolution should have on the overall Spanish economy, especially in a more conflicting scenario. Definitely a theme to look for in the following periods.

***A faster fade of the QE entails a possible increase in sovereign yields, which effect on the utilities sector is negative – higher cost of capital and lower dividend yields***

Another important factor is the possibility for the ECB to end the Quantitative Easing (QE) programme. As reported by the institution, the programme has been successful, but some of the northern countries are on the side that the pace at which QE is fading should be faster. As of the most recent updates, the ECB has met in the 26<sup>th</sup> of October and decided to cut in half the asset purchase stimulus programme, to €30b per month, for another nine months.

For Spain, a faster fade of the programme means perhaps an increase in sovereign yields, which effects on the utilities sector is negative, as the likelihood is that remuneration for the regulated assets should be lower, implying a higher cost of capital and lower dividend yields.

*Brexit* is another factor to have into consideration, due to the connection that Spain and the United Kingdom have for such a long time. In fact, the United Kingdom ranks 4<sup>th</sup> in Spain's exports destinations and 5<sup>th</sup> in imports destinations, which makes it very sensitive for Spain to understand how *Brexit* is going to affect the free movement of goods to European countries.

***Brexit could impact Endesa through the exposure the company has to the Spanish market***

Also, to mention that the British constitute the highest figure in the Spain's tourism sector – representing almost 24% of all tourism entries -, which in total represented a 5.1% of total Spain's GDP in 2016.

However, in the end, *Brexit* could impact Endesa only through the exposure the company has to the Spanish market, which entails a higher fluctuation of the company to the volatility of the Spanish market.

Turning attention now to Portugal, it is of the analyst's opinion that, given the smaller exposure that Endesa has on the country, it is not likely that it is majorly affected by upcoming eventualities. However, it is to note that, on the other way

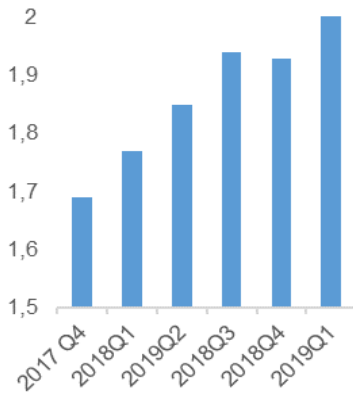
around, Endesa already represents a high share of the Portuguese electricity market, which embodies the responsibility and the attention from the Portuguese regulator, ERSE. As such, the company is to be cautious on the regulation that is applicable in that region.

Endesa Portugal is involved, alongside with EDP, in the controversy regarding the illegal imputation of the social tariff in the consumers' prices since 2015. The case is still currently in court, and more developments should derive from there. However, this does not represent, as mentioned before, a material high risk for the company, given the much higher exposure to the Spanish market in the consolidated statements.

All of these events and potential shocks make it important to analyse and make some forecasts on the 10Y Spanish sovereign bond yield, which has been in lower lever as around 1.6% ever since 2016. The assumption given for the purpose of the valuation is that the values of the 10Y bond yield should stay at these level, with perhaps minor increases up until 2%, given the abovementioned factors that may eventually destabilize the price of the bond. All of these are predicted to have, as mentioned, an impact on the next regulatory period of 50bps cut (Figure 19).

**Figure 19 - Spanish 10yr Gov. Bond Forecast**

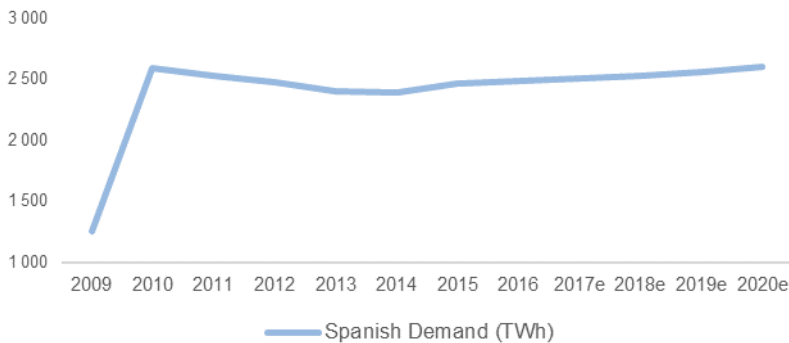
Source: Bloomberg Consensus, Analyst estimates



DEMAND FOR ELECTRICITY

**Figure 20 - Spanish Electricity Demand (TWh)**

Source: REE, Analyst estimates



According to reports from both REE and OMIE, the Spanish operator on the MIBEL, demand for electricity in the Spanish wholesale market has evolved in a somewhat stable manner (Figure 20) after the peak in 2010. From then on until 2014 the trend was of gradual and slight decrease. However, after 2014, the values have shown positive growth rates, with the 2016 total Spanish demand reaching 249,328 GWh.

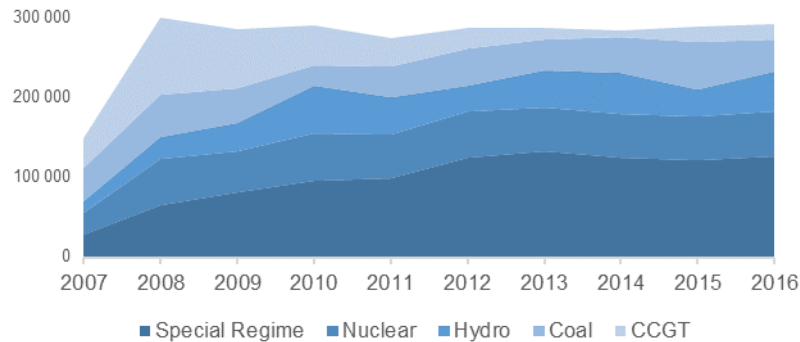
However, it is important to analyse even further this behaviour in the year of 2017. Aside from the year-maximum reached in January, with 23,954 GWh, electricity demand reached a year-minimum in April, on 18,910 GWh, with the hype being between May and September (with maximum in July, of 22,378 GWh), as it has been usual in past years. The last month registered, which is October as of the most recent information available from the operators, showed a stable value in relation to September, standing on 20,039 GWh.

For the purpose of this research valuation, demand for electricity is assumed as per by the company expectations until 2020, and an increase of 1.37% is expected for 2021 and onwards.

SUPPLY FOR ELECTRICITY

Figure 21 - Annual Power by Technology (GWh)

Source: MIBEL

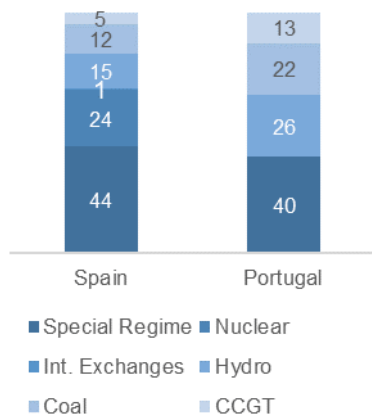


In what regards the supply of electricity - composed of the various companies generating electricity to the pool, of which Endesa is naturally part of - it can be said that the aggregated supply has evolved in a somewhat smooth manner since the MIBEL system was created, in 2007. After the great spike of 2008, mostly carried by the CCGT source, the total value for supply has gradually

decreased, towards levels of around 290,000 GWh, with a distribution of around 40% for the special regime to market, 20% for nuclear, 15% for coal, 6% for CCGT, and the remaining being mostly driven by hydro (Figure 21). However, the hydro electrical source has been the main issue, with a higher volatility than other sources. In fact, and as mentioned before, hydro had one of the best years in 2016, with a major drop already expected and partially confirmed in 2017. In fact, when the year of 2017 is analysed, it can be observed that hydro does not even account for 8% of total supply in most months, which already shows the lack of the resource in the region. For 2018, results from this source are expected to be

Figure 22 - Power by Technology (%) normalized.

Source: MIBEL (2016)



When it comes to separate Portugal and Spain (Figure 22), Spain has roughly the same distribution as the MIBEL as a whole – in line with the fact that Spain accounts for much more than Portugal to the total -, whereas Portugal, for 2016, presents 40% for the special regime, 26% for hydro, 22% for coal and 12% for CCGTs. It is important to note that there is no nuclear source in Portugal, being Spain the sole nuclear generator.

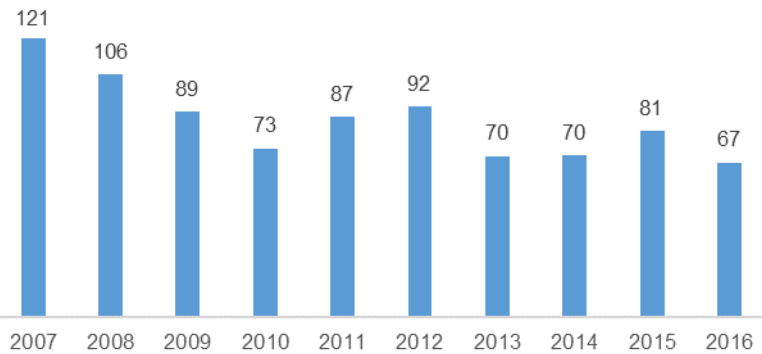
As of the present valuation, it is to note that, up until the forecasted period, the mix of sources used to form the supply curve is assumed to be stable. However, it is assumed the event of Spain dropping all nuclear activity by 2030, as per guidelines from the European Union, due to its risks regarding radioactivity.

EUROPEAN UNION DECARBONISATION

As per agreed in the Kyoto Protocol to the UN Framework Convention for Climate Change (UNFCCC), the EU countries should see their targets met (20% less, compared to 1990, in joint terms with Iceland) in the second commitment period of 2013-2020. As such, the EU Emissions Trading System (EU ETS) was created, which is now in the third phase (2013-2020).

Figure 23 - CO2 Emissions Energy Sector (tCO2)

Source: Factor

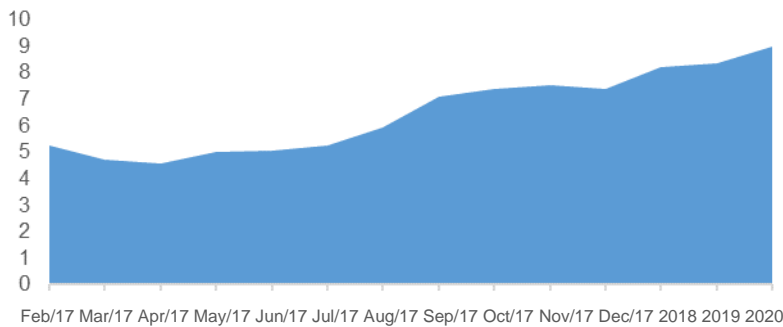


In essence, the EU ETS is a “cap and trade” system, which makes a ceiling for the total volume of GHG emissions from the major industry and aircraft operators. Then, auctions happen per default in order to allocate each operator with a specific allowance, which can then be traded among operators, in order to meet each operator’s need in terms of CO2 emissions. What matters is that, in the end of the period, the total of CO2 emissions allowed is not surpassed, whichever the distribution of

allowances may be. Companies submit their data regarding the previous year and then, according to their emissions and allowances, may or may not have to pay heavy fines, which by the European Directive, should be of €100 per tCO2, plus a “name-and-same” publication, for extra compliance incentive.

Figure 24 - European Carbon Emissions Price and Forecasts

Source: Bloomberg Consensus, Company



As of data until 2016, the European Union has walked a very stable path into the decarbonisation of the region, with Spain being a strong contributor to that same objective. As it can be seen in figure 23, CO2 emissions (measured in tons per capita) have reduced tremendously ever since the beginning of the ETS creation, up until 2010, in which from then onwards there has been some volatility in the energy sector. 2016 has shown to be very

beneficial for the electricity sector, which registered a decrease in emission of 17%. However, 2017 already threatens to invert the sign of this growth. This volatility affects the whole country’s CO2 emissions, which the European Union estimated to have increased 1.6% from 2015 to 2016. As for the price of CO2, after the great crash in January 2016 to under €5, the price has been lately around €7 (Figure 24). It is expected that the price for CO2 should keep increasing, to around €9 in 2020, as the futures for this commodity are on the same level, and aligned with company and analyst’s expectations. This should



not have a significant impact in Endesa's EBITDA, provided the company is able to maintain its emissions on the levels of recent past periods, as normalization of weather conditions is expected for future short-term periods, in order to allow for renewable sources to step up into the generation mix.

Endesa, as of 2017, may possibly have to purchase more CO2 allowances, as the weather conditions force the generation mix to recur to the most CO2 intensive sources, such as coal-fired and combined-cycle plants, rather than the more environmentally sustainable ones, such as hydro. The same has reportedly happened to Iberdrola, who has registered in 1H17 a decrease in the CO2-free of 6% of total output.

In fact, many utility companies in Europe have shown discontent towards the ETS, since the point of creating such system should be to keep increasing the price of allowances, providing the greater motivation for the most CO2-intensive companies to decrease their emissions. However, this 'price signal' has failed to be clear in the most recent periods, since decarbonization activities that happen out of the scope of the ETS are considered for the mechanism to be shocks, and therefore affect the price in the opposite manner.

#### SPANISH CAPACITY CLOSURES

***Coal-intensive and nuclear power plants are assumed to be shut down to its entirety by the limit of 2050, with a reduction of at least 50% by 2030***

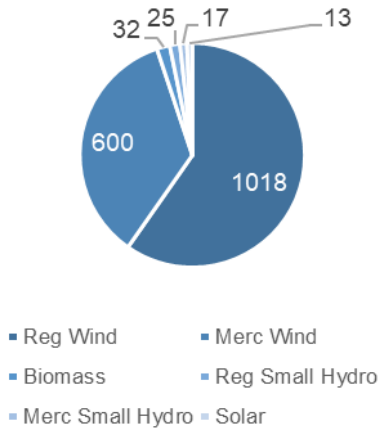
A very debated topic, with several different views. In fact, the Ministry of Industry in Spain has started this debate in 2017, asking the operators what should be the foundation of a following Law. As for the case of Endesa, the Government has been firm in the conviction that nuclear plants are to be decommissioned in a slow pace, for security of supply reasons.

However, on the question of closing down the Compostilla and Andorra's coal plants (total of 2.4GWh), the management has shown in the recent Strategic Update willingness to close down the plants, due to economic reasons, while not commenting on expectations from legislation on the matter. It is predicted that the Government should only allow for these closures when at least the same amount of electricity should be provided in a secure and guaranteed manner by renewable sources, which should only come online by 2020 in full force.

In what regards the post 2020 period, it is estimated that closures of both nuclear and coal-intensive sources in Spain, and thus to Endesa, are to be shut down to its entirety by the limit of 2050, with a reduction of at least 50% by 2030, when it is assumed the end of these assets lifecycle.

## Enel Green Power España

**Figure 25 - EGPE Capacity Breakdown**  
Source: Company (MW)



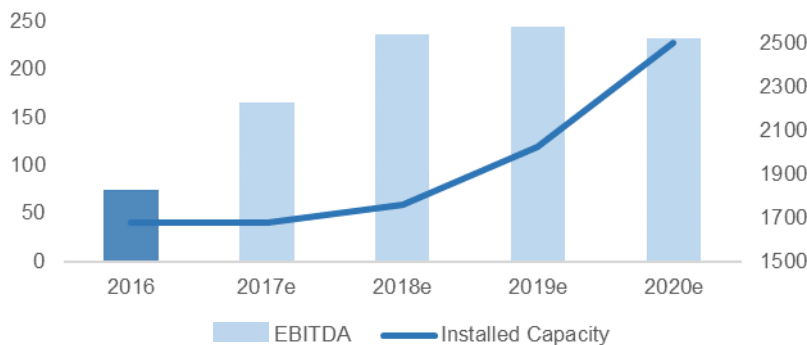
Endesa completed in July 2016 the acquisition of the 60% stake left on Enel Green Power España (EGPE), for a reported value of €1,207M, which implies, for the company, an enterprise value of around €2,012M.

At the time, EGPE had the following figures, as of 2016 reported data: 1,705 MW of total installed capacity, dispersed through 93 power plants across Spain; a total generation output of around 3.9 TWh; a very strong wind presence in the generation mix (almost 95% of total installed capacity is result of the wind sources, either regulated or merchant), but also presence of biomass, small hydro and solar sources; a reported load factor of 27.5%; and revenues of €290M, with EBITDA of €175M and Net Income of €20M - implied EV/EBITDA of 11.5x (Figure 25).

More than a very strategic move, which pretended to diversify Endesa's generation portfolio – back then very dependent on coal and nuclear, an issue that is still in place -, this acquisition was reportedly a very natural way of re-leveraging the company's capital structure, which is still considered to be sub-optimal, increasing EV/EBITDA from 1.4x in 2015 to 1.7x at the time of acquisition. However, as of the end of 2016, this ratio backed down towards near 1.4x. Nonetheless, the company has indeed diversified the portfolio, increasing the portion of renewables in the generation mix to 7% of installed capacity and 5% of total output. These numbers are, however, much below the direct peers Iberdrola and EDP, which entail values in the order of 30% for these criteria. Endesa does need to step up the investments and continue to increase the generation mix in order to reach out to the competition in this segment.

Also, to mention that this acquisition implies a valuation of around €1.18M/MW. This value seems a bit high for what consensus stands for the direct peers' renewable divisions, in a way justified by the higher than sector load factor.

**Figure 26 - EGPE EBITDA (€ million) and Net Installed Capacity (MW)**  
Source: Company, Analyst estimates



The high price paid by Endesa had positive effects on both seller and buyer, eliminating the possible rise of conflict of interest: for ENEL, naturally the high price embodies a higher remuneration for the parent company shareholders; on the other hand, Endesa is knowingly operating under the optimal point of leverage, a situation that smoothed out with this acquisition, while at the same time positioning the

company in the run for the renewables market in Spain, which is becoming increasingly more competitive, given the imminent need for CO<sub>2</sub>-intensive capacity closures. In fact, this acquisition is much in line with the strategy defined both by Enel in a multinational group perspective and Endesa on a more country-concerned one.

As of data from the 9M results, EGPE assets have performed on a 23% load factor, which retrieves an expected 2017 EBITDA of €165M. All this added to the expected growth and a value of €0.9b for CAPEX until 2020 leads to the conclusion that the company ended up paying somehow a fair price for its competitiveness. To mention that Endesa is expected to have 2,500 MW of installed capacity by 2020, from renewable sources (Figure 26). This is, however, a small value when in comparison to Iberdrola's 15,821 MW of renewable sources installed capacity.

A question that seems to be increasingly important to analyse is the risk Endesa takes in the close to 100% exposure to the Spanish market. A point to be discussed further in the *Methodology and Valuation* segment of this report.

## Methodology and Valuation

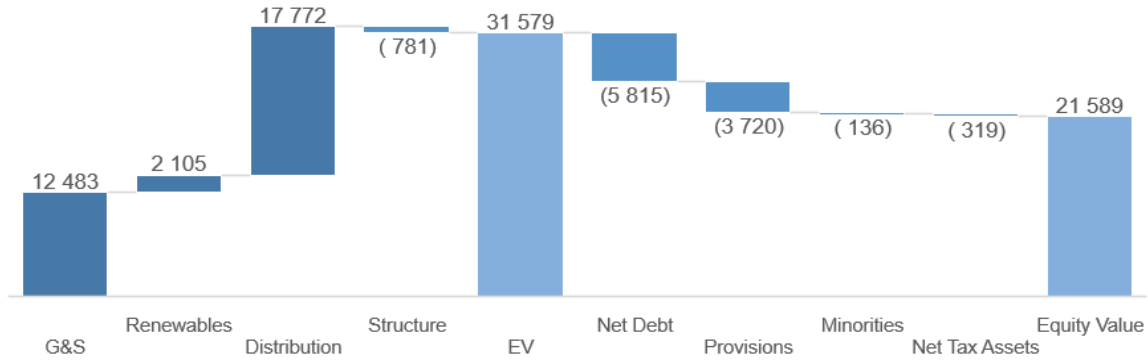
***A SoTP approach was used, segmenting the company into conventional G&S, Renewables, Distribution and Structure***

The methodology applied for Endesa's valuation is a Sum of the Parts approach (SoTP), which entails the segmentation of the company businesses into four different parts: conventional Generation & Supply, Renewables, Distribution and Structure, Consolidation Adjustments and Eliminations. This is in line with the segmentation suggested and reported by the company. For all the segments a DCF analysis was carried out. However, for the last one, hereby called Structure, the valuation is carried out through a EV/EBITDA multiple, due to its correlation to the other segments and its volatility and lack of predictability. As a matter of fact, it is not possible to predict how adjustments and consolidations will be in the following periods, which is why a multiple of the whole company is used, so as to englobe the whole operations and the segments interconnections. As the multiple EV/EBITDA for G&S in 2016 stood in 6.2 and the EBITDA expected in 2018 for Structure is of negative €126M, the valuation for this segment is of negative €781M. For the remaining three segments, the DCF valuation is carried out in full, with a distinct WACC analysis for each of the segments. Also, there is a separate multiple valuation, through the analysis of the peers' multiples. All in all, a final value of €20.39 per share is reached, where a clear emphasis on the value of Distribution, followed by conventional G&S (Figure 27).

***Final value of €20.39 per share is reached, with clear emphasis on the value of Distribution***

The forecast period ends in 2021, being 2021 the considered year for terminal value, on the basis of the upcoming regulatory review in the end of 2019. Both 2020 and 2021 are already affected by the possible cut in financial remuneration, which is discussed ahead.

**Figure 27 - Endesa SoTP approach**  
 Source: Analyst estimates



**IMPLIED ASSUMPTIONS**

Next follows the main drivers for the valuation model, as well as the given assumptions that support it:

**Table 3 - Endesa Value Drivers**  
 Source: Morgan Stanley, Analyst estimates

Value Drivers			Main Assumptions
<b>Generation and Supply</b>	Revenues	Load Factors Installed Capacity	Stable at 35% Assumed stable for the entire period
	Costs	<b>Average Pool Price</b> Average TTF Price	In line with Strategic Update Slight above management expectations
<b>Distribution</b>	Revenue	<b>Regulatory Reform</b>	50 bps cut in remuneration rate in 2020 and forward
<b>Renewables</b>	Revenue	Load factors	Stable at 23%
		Installed Capacity	Increasing until 2 500 MW in 2020 and 5% thereafter per year

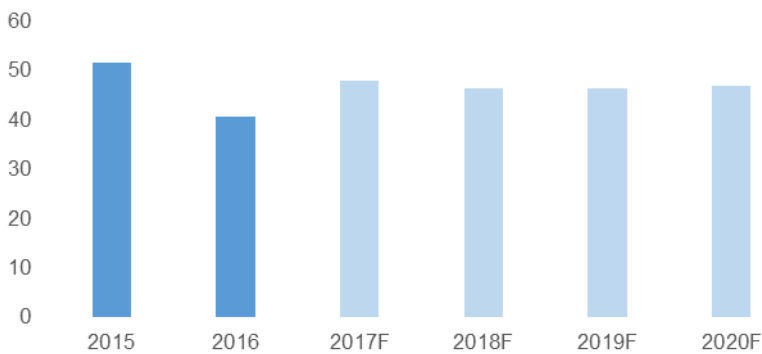
**RAB.** A very important concept, which is not explicitly computed into the model, with the main assumption that its value will remain stable in c.€11bn, with the already mentioned return of 6.5% and 7.5% for regulated activities on Distribution and Non-mainland generation and Renewables, respectively.

**Average Prices of Pool.** A strong driver of Endesa’s operations, these values are assumed in the model as the ones reported as estimates by the company in the recent Strategic Update (Figure 28). As it can be seen on the figure, the average pool price is expected to rise on 2017, mostly due to the severe drought

mentioned before. However, this is supposed to be normalized and prices should come down to more average values, relative to historical data. Also, important to mention that the values in average prices of the pool take into account and embed the volatility of commodities' prices, such as coal, Brent and CO<sub>2</sub>.

**Figure 28 - Average Pool Prices (€/MWh)**

Source: OMIE, Company, Analyst estimates



**Regulatory Reform.** Another strong driver for the regulated activities. As mentioned before, the regulatory period will end by December 31, 2019. The present report and respective valuation model assume a cut in financial remuneration for these regulated activities of around 50bps, which is in line with the worst-case scenario that Endesa has also estimated and expects. This cut is due to the very low yield registered recently

in the Spanish 10-year Government Bond, which is likely to make pressure on the CNMC to cut on the return that utilities are gaining on the regulated activities. For all segments, this cut is embedded in the lower revenues estimated for 2020 and 2021, as far as regulated activities are regarded.

**Growth Rates.** In the case of G&S, the implied growth rate is of negative 0.75%, which is in line with the assumed foreclosure of capacity, which should be more than offset by Renewables, a segment that should see 5% growth rate, in line with the growth assumptions of installed capacity. Finally, assumption is given for Distribution to have 0% growth in perpetuity, given the assumed cut in regulated remuneration, only offset by the investments in the grid, which should see higher income flowing by 2020.

**Dividend Policy.** It is assumed, as indicated by the company, that the payout ratio should remain constant at the 100%.

**Marginal Tax Rate.** The value of marginal tax rate is assumed to be the same for the whole forecast period and beyond, at 25%.

**Cost of Capital.** One of the most important assumptions, since it has a strong impact on the terminal value of all segments, except for Structure. The main reason for the segmentation and consequent sum of the parts approach decision stands on the basis that each business area has a different risk profile, thus affected by different WACCs. However, the valuation model assumes some of the WACC components to be the same across segments:

- **Cost of Debt:** for this component, the implied cost of debt was used, with 2016 as a base case - 2.34% after tax - and maintained thereafter;

- **Risk-free Rate:** the Spanish 10-year Government Bond *Bloomberg* forecasts for 2018 was used for this component - 2% -, assuming it already embodies the country risk premium necessary to take into account, given the current political environment;
- **Market Risk Premium:** this value - 6.5% - is the assumption made by ERSE – the Portuguese energy regulator – for the valuation of EDP and REN. Given the reported 6.2% reported in 2016 by *Statista* for Spain, the assumption could be naturally extrapolated for the country.

**Table 4 - G&S D/E Peers**Source: *Bloomberg*

Benchmark	Debt/Equity
IBERDROLA	0,89
E.ON	0,69
EDP	1,48
ENGIE	1,1
GAS	
NATURAL	0,96
ENEL	0,98
<b>AVERAGE</b>	<b>1,02</b>

As for unlevered betas and target capital structure, the situation depends on each business area:

- For conventional G&S, the unlevered betas of EDF, ENGIE and EDP were used as benchmarks - average of 0.57 - and a target capital structure of 50% percent for either debt and equity, which is the result of the average of the generation peers' capital structure (Table 4).
- For Renewables, the beta of EDPR was used as benchmark - 0.65 - and the same capital structure as G&S was taken, given that both areas are within the same legal entities, and therefore subject to the same capital structure decisions.
- Finally, for Distribution, the average of Nat Grid and Gas Natural's unlevered betas was used as benchmark - 0.39 -, and a capital structure of 0.86.

The overall WACC for Endesa is of 4.88%, with a respective overall Beta of 0.81.

The WACCs for each business area are as follows:

**Table 5 - Endesa WACC summary**Source: *Analyst estimates*

	G&S	Renewables	Distribution
Cost of Debt	2.34%	2.34%	2.34%
Cost of Equity	8.52%	9.39%	6.11%
D/E	1	1	0.86
Rf	2%	2%	2%
Unlevered Beta	0.57	0.65	0.39
MRP	6.5%	6.5%	6.5%
Relevered Beta	1	1.14	0.63
<b>WACC</b>	<b>5.43%</b>	<b>5.87%</b>	<b>4.37%</b>

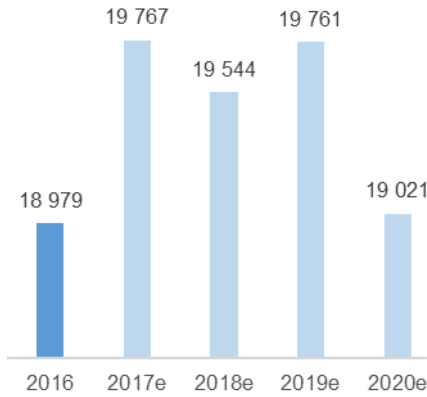
## BUSINESS OUTLOOK

**Revenues.** For the case of G&S, the value of revenues - in the sum of mainland, non-mainland, natural gas and supply – should see an overall increase, due to the contribution from revenue of traditional sources, only partially offset by the competitive natural gas environment, given the TTF prices. There is also, for the post 2020 period, the uncertainty related to the increase in prosumers into the



**Figure 29 - Endesa Total Revenue**

Source: Analyst estimates

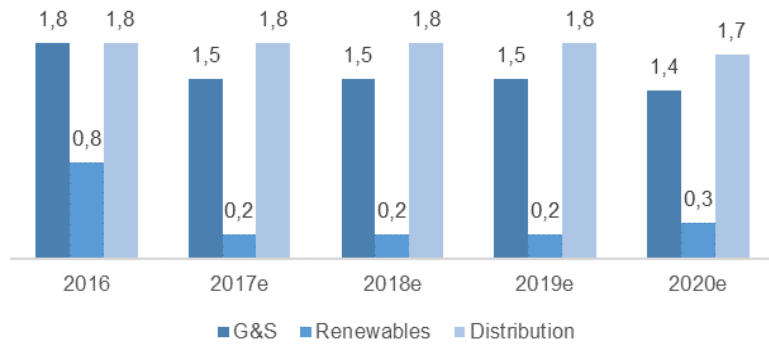


grid, which should, in theory, come as a downside for the Generation companies. This is, however, not covered in the present report, since there is the possibility of these companies to develop their own business of installation and maintenance of the equipment, which should offset the downside potential.

For the case of Renewables, it is regarded that, in the short term, revenues should increase, and even more in the post 2020 period, when the whole 2017/18 investment should become online and in full force. However, there should be regarded that, even though revenues are predicted to increase in the following periods, EBITDAs should not be as generous, since the Iberian competition for these sources is increasing drastically, and new auctions are already reaching new floors, in fact below the most recent average pool prices.

**Figure 30 - EBITDA breakdown**

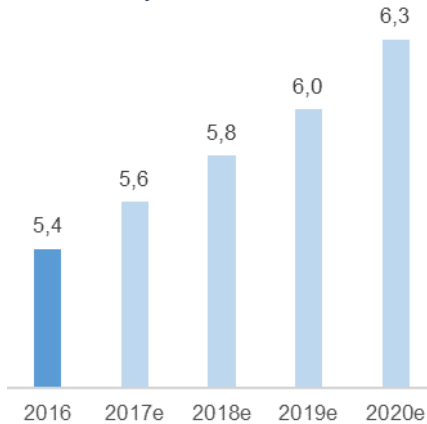
Source: Analyst estimates



As for Distribution, the most regulated business area, regulated revenues are predicted to remain stable, as the RAB is also assumed to be maintained at €11bn. However, there is the assumption for an increase in EBITDA, as this activity does entail assets which are not contemplated into the RAB, associated with services that are now being developed by Endesa, in the scope of the Smart Grids project. In 2020, the development and implementation of this investment should offset the cut in remuneration (Figure 29).

**Figure 31 - Debt Evolution (€bn.)**

Source: Analyst estimates



**EBITDA.** As it can be seen in figure 30, the impact on revenues is crucial in all business areas, allied with the expected normalization of commodities costs in the period 2018-2019. However, as it is denoted, an expected drop in 2020 is accounted, embodying the cut in regulated remuneration from the Government.

**Debt.** As discussed, Endesa stands on the point of underleverage, which justifies the high investment, mostly in Renewables and Digitalization, as seen by the EGPE acquisition and most recently the bet on Smart Grids and project on electrification and electrical vehicles. This is also provisioned in the valuation model, which encompasses an increase in overall debt (Figure 31).

**SENSITIVITY ANALYSIS**

As mentioned before, and in accordance with both Endesa and the market, it is consensual the high importance and impact that some variables have on the fair valuation of the company. These are risks that the company should take into

account and the market should foresee, as well as each risk's probability. As part of the list, there are three most important variables, namely the **average pool price, regulatory framework and marginal tax rate**:

**Table 6 - Sensitivity Analysis**

Source: Analyst estimates

<b>Average Pool Price</b>	-10%	0%	10%	
Price Target	26.36	20.39	14.45	
<b>Regulatory Reform</b>	No Cut	25bps	50bps	100bps
Price Target	25.67	23.04	20.39	15.02
<b>Corporate Tax Rate</b>	23%	25%	30%	
Price Target	20.99	20.39	18.56	

**Average Pool Price.** As one of the most important risks on the company's operations, this variable was altered in the valuation model on a 10% basis above and below the expected pool prices for each year of the forecast period. As a result, it can be seen that an increase in 10% in all prices of all years would result in a price target of €14.45, while a decrease of 10% in expected prices would mean a price target of €26.36, showing the company's exposure to this variable, and thus its exposure to the Spanish market.

**Regulatory Framework.** This variable is related to the cut in allowed return for regulated activities already mentioned in the present report – non-mainland generation, some renewable sources and distribution. Although it is expected a cut of around 50bps, the price target for a cut of only 25bps would mean a price target of €23.04, and a no cut for the next regulatory period would mean a price target of €25.67. However, if the regulator decides to be harsher on the utilities, with a 100bps cut, the price target on Endesa would decrease towards €15.02.

**Tax Rate.** The company is almost 100% exposed to Spain and its legislation, which entails the marginal tax rate, which can vary according to the economy situation, political and social pressures and external decisions. If the corporate tax rate is to change from 25% to 30% from 2018 onwards, the price target should decrease to €18.56, while a decrease in 2%, to 23%, should result in a price target of €20.99.

## MULTIPLE VALUATION

After an analysis of the sector and Endesa's peers, it should be remarked the discount at which Endesa is trading, which is not justified by any other motive than the overexposure (roughly 100%) to the Spanish market, that most other peers do not suffer from.

For this analysis, the multiples for EV/EBITDA, P/E and EV/Revenues were used, and the following peers were considered, as per the next table:

**Table 7 - Multiple Valuation**

Source: Bloomberg

Peers	EV/EBITDA	P/E	EV/Revenues
Median	8.1	16.3	2.1
<b>ENDESA SA</b>	7.0	13.4	1.2
IBERDROLA SA	9.0	13.9	2.3
EDP-ENERGIAS DE PORTUGAL SA	8.5	12.5	2.1
GAS NATURAL SDG SA	8.1	14.4	1.6
ENEL SPA	7.0	12.7	1.5
EDF	4.4	16.5	1.0
E.ON SE	5.7	14.2	0.7
ENGIE	6.5	13.9	1.0
REDES ENERGETICAS NACIONAIS	8.4	13.3	5.4
RED ELECTRICA CORPORACION SA	10.1	14.3	7.8
VERBUND AG	13.1	26.5	3.6
FORTUM OYJ	10.3	19.2	3.2
EDP RENOVAVEIS SA	7.9	29.6	5.6
NATIONAL GRID PLC	10.2	14.4	3.5
ACCIONA SA	7.7	15.0	1.5
<b>Average All Included</b>	<b>8.26</b>	<b>16.25</b>	<b>2.80</b>
Premium to Sector All Included	-15%	-18%	-57%
<b>Average Direct Peers</b>	<b>7.73</b>	<b>13.96</b>	<b>2.50</b>
Premium to Sector Direct Peers	-9%	-4%	-52%

For the Direct Peers analysis, the considered peers were, besides Endesa itself, Iberdrola, EDP, Gas Natural, Enel, EDF and Red Electrica.

All in all, this multiple valuation, allied with the already dissected DCF valuation, form the basis to which it is fair to state that the company is undervalued, and therefore its recommendation is to **BUY**, with a total shareholder return of 29.4%.

# Appendix

## FINANCIAL STATEMENTS

### CONSOLIDATED BALANCE SHEET

<i>As of December 31<sup>st</sup> of all years</i> <i>Millions of Euros</i>	2014	2015	2016	2017F	2018F	2019F	2020F	2021F
Property, plant and equipment	21 104	20 815	21 891	21 938	21 988	22 038	22 084	22 005
Investment property	22	21	20	21	21	21	21	21
Intangible assets	388	428	1 172	1 197	1 193	1 195	1 188	1 190
Goodwill	0	0	300	300	300	300	300	300
Investments accounted for using the equity method	1 104	1 087	208	211	214	216	219	222
Non-current financial assets	619	629	714	1 002	1 017	1 011	1 039	1 034
Deferred tax assets	1 275	1 286	1 224	1 311	1 308	1 330	1 299	1 312
<b>Total Non-Current Assets</b>	<b>24 512</b>	<b>24 266</b>	<b>25 529</b>	<b>25 979</b>	<b>26 041</b>	<b>26 111</b>	<b>26 151</b>	<b>26 084</b>
Inventories	1 247	1 262	1 202	1 244	1 242	1 266	1 240	1 256
Trade and other receivables	3 071	2 977	3 452	3 292	3 269	3 321	3 229	3 263
Current financial assets	1 210	353	363	392	389	395	385	388
Cash and cash equivalents	648	346	418	476	489	507	509	519
Non-current assets held for sale and discontinued operations	8	41	0	0	0	0	0	0
<b>Total Current Assets</b>	<b>6 184</b>	<b>4 979</b>	<b>5 435</b>	<b>5 404</b>	<b>5 390</b>	<b>5 490</b>	<b>5 364</b>	<b>5 426</b>
<b>TOTAL ASSETS</b>	<b>30 696</b>	<b>29 245</b>	<b>30 964</b>	<b>31 383</b>	<b>31 431</b>	<b>31 601</b>	<b>31 515</b>	<b>31 510</b>
Parent	8 576	9 036	8 952	8 952	8 952	8 952	8 952	8 952
Non-controlling interests	(1)	3	136	136	136	136	136	136
<b>TOTAL EQUITY</b>	<b>8 575</b>	<b>9 039</b>	<b>9 088</b>	<b>9 088</b>	<b>9 088</b>	<b>9 088</b>	<b>9 088</b>	<b>9 088</b>
Deferred income	4 612	4 679	4 712	4 712	4 614	4 602	4 364	4 352
Non-current provisions	3 591	3 405	3 718	3 617	3 521	3 430	3 344	3 262
Non-current financial debt	6 083	4 680	4 223	5 127	5 334	5 449	5 780	5 730
Other non-current liabilities	556	632	601	595	586	590	567	569
Deferred tax liabilities	873	939	1 101	1 513	1 627	1 700	1 811	1 880
<b>Total Non-Current Liabilities</b>	<b>15 715</b>	<b>14 335</b>	<b>14 355</b>	<b>15 565</b>	<b>15 683</b>	<b>15 771</b>	<b>15 866</b>	<b>15 793</b>
Current financial debt	1	0	1 144	463	481	517	535	577
Current provisions	544	638	567	548	526	509	494	479
Trade payables and other current liabilities	5 861	5 233	5 810	5 719	5 652	5 717	5 532	5 574
Liabilities directly associated with non-current assets classified as held for sale and discontinued operations	0	0	0	0	0	0	0	0
<b>Total Current Liabilities</b>	<b>6 406</b>	<b>5 871</b>	<b>7 521</b>	<b>6 730</b>	<b>6 660</b>	<b>6 742</b>	<b>6 561</b>	<b>6 630</b>
<b>TOTAL EQUITY AND LIABILITIES</b>	<b>30 696</b>	<b>29 245</b>	<b>30 964</b>	<b>31 383</b>	<b>31 431</b>	<b>31 601</b>	<b>31 515</b>	<b>31 510</b>

### CONSOLIDATED INCOME STATEMENT

<i>As of December 31<sup>st</sup> of all years</i> <i>Millions of Euros</i>	2014	2015	2016	2017F	2018F	2019F	2020F	2021F
<b>INCOME</b>	<b>21 512</b>	<b>20 299</b>	<b>18 979</b>	<b>19 767</b>	<b>19 544</b>	<b>19 761</b>	<b>19 021</b>	<b>19 201</b>
Revenue	20 473	19 281	18 313	19 269	18 950	19 164	18 452	18 629
Other operating revenues	1 039	1 018	666	498	594	597	569	572
<b>PROCUREMENT AND SERVICES</b>	<b>(15 974)</b>	<b>(14 818)</b>	<b>(13 327)</b>	<b>(14 242)</b>	<b>(13 938)</b>	<b>(14 102)</b>	<b>(13 623)</b>	<b>(13 761)</b>
<b>CONTRIBUTION MARGIN</b>	<b>5 538</b>	<b>5 481</b>	<b>5 652</b>	<b>5 525</b>	<b>5 606</b>	<b>5 659</b>	<b>5 398</b>	<b>5 440</b>
Self-constructed assets	113	102	117	148	148	148	148	148
Personnel expenses	(1 245)	(1 332)	(1 128)	(967)	(1 046)	(1 046)	(1 046)	(1 046)
Other fixed operating expenses	(1 316)	(1 212)	(1 209)	(1 311)	(1 285)	(1 326)	(1 302)	(1 307)
<b>EBITDA</b>	<b>3 090</b>	<b>3 039</b>	<b>3 432</b>	<b>3 395</b>	<b>3 423</b>	<b>3 435</b>	<b>3 198</b>	<b>3 236</b>
Depreciation and amortization, and impairment losses	(1 618)	(1 441)	(1 467)	(1 515)	(1 514)	(1 512)	(1 509)	(1 506)
<b>EBIT</b>	<b>1 472</b>	<b>1 598</b>	<b>1 965</b>	<b>1 880</b>	<b>1 909</b>	<b>1 923</b>	<b>1 689</b>	<b>1 730</b>
<b>PROFIT/(LOSS) BEFORE TAX</b>	<b>1 239</b>	<b>1 391</b>	<b>1 710</b>	<b>1 723</b>	<b>1 717</b>	<b>1 729</b>	<b>1 489</b>	<b>1 523</b>
Income tax expense	(296)	(301)	(298)	(350)	(338)	(330)	(281)	(286)
<b>NET PROFIT</b>	<b>943</b>	<b>1 090</b>	<b>1 412</b>	<b>1 373</b>	<b>1 379</b>	<b>1 399</b>	<b>1 208</b>	<b>1 237</b>

## Disclosures and Disclaimers

### Report Recommendations

<b>Buy</b>	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
<b>Hold</b>	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
<b>Sell</b>	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

This report was prepared by Rodrigo Almeida da Silva, a Master in Finance student of Nova School of Business & Economics (“Nova SBE”), within the context of the Field Lab – Equity Research.

This report is issued and published exclusively for academic purposes, namely for academic evaluation and masters graduation purposes, within the context of said Field Lab – Equity Research. It is not to be construed as an offer or a solicitation of an offer to buy or sell any security or financial instrument.

This report was supervised by a Nova SBE faculty member, acting merely in an academic capacity, who revised the valuation methodology and the financial model.

Given the exclusive academic purpose of the reports produced by Nova SBE students, it is Nova SBE understanding that Nova SBE, the author, the present report and its publishing, are excluded from the persons and activities requiring previous registration from local regulatory authorities. As such, Nova SBE, its faculty and the author of this report have not sought or obtained registration with or certification as financial analyst by any local regulator, in any jurisdiction. In Portugal, the author of this report is not registered with or qualified under COMISSÃO DO MERCADO DE VALORES MOBILIÁRIOS (“CMVM”, the Portuguese Securities Market Authority) as a financial analyst. No approval for publication or distribution of this report was required and/or obtained from any local authority, given the exclusive academic nature of the report.

The additional disclaimers also apply:

USA: Pursuant to Section 202 (a) (11) of the Investment Advisers Act of 1940, neither Nova SBE nor the author of this report are to be qualified as an investment adviser and, thus, registration with the Securities and Exchange Commission (“SEC”, United States of America’s securities market authority) is not necessary. Neither the author nor Nova SBE receive any compensation of any kind for the preparation of the reports.

Germany: Pursuant to §34c of the WpHG (Wertpapierhandelsgesetz, i.e., the German Securities Trading Act), this entity is not required to register with or otherwise notify the Bundesanstalt für Finanzdienstleistungsaufsicht (“BaFin”, the German Federal Financial Supervisory Authority). It should be noted that Nova SBE is a fully-owned state university and there is no relation between the student’s equity reports and any fund raising programme.

UK: Pursuant to section 22 of the Financial Services and Markets Act 2000 (the “FSMA”), for an activity to be a regulated activity, it must be carried on “by way of business”. All regulated activities are subject to prior authorization by the Financial Conduct Authority (“FCA”). However, this report serves an exclusively academic purpose and, as such, was not prepared by way of business. The author - a Masters’ student - is the sole and exclusive responsible for the information, estimates and forecasts contained herein, and for the opinions expressed, which exclusively reflect his/her own judgment at the date of the report. Nova SBE and its faculty have no single and formal position in relation to the most appropriate valuation method, estimates or projections used in the report and may not be held liable by the author’s choice of the latter.

The information contained in this report was compiled by students from public sources believed to be reliable, but Nova SBE, its faculty, or the students make no representation that it is accurate or complete, and accept no liability whatsoever for any direct or indirect loss resulting from the use of this report or of its content.

Students are free to choose the target companies of the reports. Therefore, Nova SBE may start covering and/or suspend the coverage of any listed company, at any time, without prior notice. The students or Nova SBE are not responsible for updating this report, and the opinions and recommendations expressed herein may change without further notice.

The target company or security of this report may be simultaneously covered by more than one student. Because each student is free to choose the valuation method, and make his/her own assumptions and estimates, the resulting projections, price target and recommendations may differ widely, even when referring to the same security. Moreover, changing market conditions and/or changing subjective opinions may lead to significantly different valuation results. Other students' opinions, estimates and recommendations, as well as the advisor and other faculty members' opinions may be inconsistent with the views expressed in this report. Any recipient of this report should understand that statements regarding future prospects and performance are, by nature, subjective, and may be fallible.

This report does not necessarily mention and/or analyze all possible risks arising from the investment in the target company and/or security, namely the possible exchange rate risk resulting from the security being denominated in a currency either than the investor's currency, among many other risks.

The purpose of publishing this report is merely academic and it is not intended for distribution among private investors. The information and opinions expressed in this report are not intended to be available to any person other than Portuguese natural or legal persons or persons domiciled in Portugal. While preparing this report, students did not have in consideration the specific investment objectives, financial situation or particular needs of any specific person. Investors should seek financial advice regarding the appropriateness of investing in any security, namely in the security covered by this report.

The author hereby certifies that the views expressed in this report accurately reflect his personal opinion about the target company and its securities. He has not received or been promised any direct or indirect compensation for expressing the opinions or recommendation included in this report.

While preparing the report, the author may have performed an internship (remunerated or not) in EDP. This Company may have or have had an interest in the covered company or security.

The content of each report have been shown or made public to restricted parties prior to its publication in Nova SBE's website or in Bloomberg Professional, for academic purposes such as its distribution among faculty members for students' academic evaluation.

Nova SBE is a state-owned university, mainly financed by state subsidies, students tuition fees and companies, through donations, or indirectly by hiring educational programs, among other possibilities. Thus, Nova SBE may have received compensation from the target company during the last 12 months, related to its fund raising programs, or indirectly through the sale of educational, consulting or research services. Nevertheless, no compensation eventually received by Nova SBE is in any way related to or dependent on the opinions expressed in this report. The Nova School of Business and Economics does not deal for or otherwise offer any investment or intermediation services to market counterparties, private or intermediate customers.

This report may not be reproduced, distributed or published, in whole or in part, without the explicit previous consent of its author, unless when used by Nova SBE for academic purposes only. At any time, Nova SBE may decide to suspend this report reproduction or distribution without further notice. Neither this document nor any copy of it may be taken, transmitted or distributed, directly or indirectly, in any country either than Portugal or to any resident outside this country. The dissemination of this document other than in Portugal or to Portuguese citizens is therefore prohibited and unlawful.