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# Equity valuation of Ence Energía y Celulosa SA

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Company Name: ENCE Energía y Celulosa SA

Stock Exchange: Madrid Stock Exchange

Ticker Symbol: ENC.MC

Operating Industries: Pulp and Paper & Renewable Energy

Recommendation: BUY

Current Price as of 29 Mar 2016: €3,04

Target Price: €4,21 (38% upside)



### Market Profile

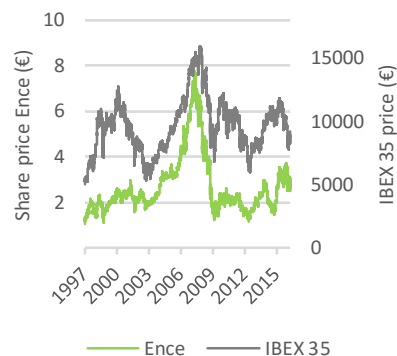
Closing Price	3,04€
52 week low/high	€2,50 - €3,75
Market Cap	€762,08M
Dividend Yield	4,1%
Beta	1,25
P/E	10,0x
EV / EBITDA	5,16x
Free Float	49,4%

### Financial data

	2013	2015	2016E
Revenue (m€)	853	664	736
EBITDA (m€)	148	192	216
EBITDA mg	17%	29%	29%
Net D/EBITDA	2,5x	2,1x	1,7x
EPS	(0,0)	0,2	0,4
ROE	-2%	9%	16%
ROA	-1%	4%	7%

### Valuation

Component	Method.	Value/share
Pulp	DCF	3,74 €
Biomass	DCF	0,37 €
<b>Sum-of-the-parts</b>		<b>4,21 €</b>
EV/EBITDA		3,90 €
P/E		3,39 €
<b>Average multiples</b>		<b>3,64 €</b>



## INVESTMENT SUMMARY

We issue a buy recommendation for ENCE Energía y Celulosa SA, with a target price of 4,21€ per common share, which represents a 38% upside over the coming year. This recommendation is based on a combination of macroeconomic and company-specific expected events that position the company in a particularly valuable position within the pulp and renewable energy industries.

### SUSTAINED UPWARDS TREND IN PULP PRICES

Macroeconomic indicators point towards an increase in BHKP demand of 3,4% annually until 2020, mainly driven by emerging economies, with special emphasis on Asia. China accounts for 70% of the Asian pulp market and its tissue consumption per capita (4Kg/year/capita) is still very low when compared with developed economies (12Kg/year/capita). This Asian potential to grow in the tissue market combined with the GDP growth forecast of 5,4% annually, and sustained demographic growth are expected to constitute a main driver to a continuous increase in pulp demand, which will drive pulp prices in an upwards trend.

### HIGHLY EFFICIENT CASH COSTS DRIVEN BY CURRENT INVESTMENT FOCUS

Ence has an outstandingly favourable cost structure *versus* European peers and is currently investing in increasing capacity and efficiency. Ence has cash costs of €359/ton of pulp with transportation costs and is targeting €330/ton until 2020, which is lower than the Iberian average of €383/ton, the European average of €469/ton and the world average of €368/ton. This makes Ence a highly competitive producer, allowing it to bear lower prices than peers. Ence also has competitive advantage compared with Latin American peers with lower cash costs due to their average delivery time of 60 days to Europe, which represents 26% of all worldwide pulp demand.

### GROWING INCUMBENT POSITION IN THE GOVERNMENT INCENTIVIZED RENEWABLES INDUSTRY

The high synergies between pulp and biomass energy production make Ence hold a strong position in this market. Spain is still 1,8pp away from its 20-20-20 EU targets for renewables consumption and the government has recently issued price incentives for biomass energy, providing significant profits and stability. These incentives may offset the high start-up costs, leading to new entrants. Ence is one of the first biomass producers and accounts for a share in the Spanish biomass market of 37,5%. Ence is currently investing in solidifying their position in the market by increasing energy production capacity and improving on cost efficiency to take advantage of their favourable position in the market and the government favourable incentives.

### HIGH FREE CASH FLOWS TO EQUITY, SUSTAINED HIGH DIVIDEND YIELD & CONTINUED DEBT STRUCTURE OPTIMIZATION

Ence's current investments to increase capacity and cost efficiency will allow for higher cash flow generation from 2016 onwards. These free cash flows will allow to repay existing debt and refinance towards the company's optimal debt level of 2x Debt/EBITDA, which is below the peer average of 2,7x. We expect Ence to provide investors with a FCFE yield of 8% in the upcoming 2 years. The low leverage levels and higher cash flow generation capability heavily contribute towards the sustainability of the FCFE over low cycle periods, reducing the cash flow obligations and proving more comfortable cash flow margins to investors. Namely, Ence's expected dividend yield is 5,5% for the next 6 years, which is higher than the peer average of 4,4%.

### RISK FACTORS

Ence is highly exposed to fluctuations in pulp prices and the exchange rate EUR/USD as the BHKP price is quoted in USD. We foresee nevertheless that, given Ence's competitive cash costs the company will be able to bear less favourable phases of the pulp price cycle better than its peers.

## **Abstract**

This dissertation aims to value the Spanish pulp and biomass energy producer Ence Energía y Celulosa. The main purpose is the determination of a target fair price for one common share of Ence and issue a buy, hold or sell recommendation, by comparing it to the current market price. The valuation is based on both a pulp and biomass energy industry analysis, complemented by a company analysis in order to form assumptions for the future. The valuation of Ence is computed through a Discounted Cash Flow method for each of the two businesses, followed by a sum of the parts approach. This methodology is complemented by a multiples valuation. Through the DCF methodology, Ence's fair value is €4,21/share, supported by the multiples valuation, which implies a buy recommendation with an upside of 38%. The buy recommendation is issued with a 66% confidence level as it holds in most conservative scenarios. This recommendation is consistent with Haitong Investment Bank's. The main differences between the valuation methodologies and assumptions are analyzed.

## **Resumo**

Esta dissertação tem como objetivo avaliar a Ence Energía y Celulosa, uma empresa espanhola produtora de pasta de papel e energia da biomassa. O principal objetivo é a determinação do preço-alvo de uma ação da Ence e emitir uma recomendação de “comprar”, “vender” ou “manter”, por comparação ao preço de mercado atual. A avaliação é baseada numa análise das indústrias da pasta de papel e da energia da biomassa, complementada por uma análise da empresa, que servem de base aos pressupostos considerados para o futuro da empresa. A avaliação da Ence é feita através do método dos *cash flows* descontados para as duas linhas de negócio separadamente, seguida da soma de ambas as partes. Esta metodologia de avaliação é complementada com uma avaliação por múltiplos. Através do método dos *cash flows* descontados, o preço-alvo obtido para uma ação da Ence é de €4,21, valor que é suportado pela avaliação por múltiplos e que traduz uma valorização potencial de 38% face à cotação atual. A recomendação de “comprar” é emitida com um nível de confiança de 66% dado que se mantém válida na maioria dos cenários conservadores. Esta recomendação é consistente com a que é emitida pelo Haitong Investment Bank. As principais diferenças entre as metodologias e hipóteses de ambas as avaliações são analisadas.

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## List of abbreviations

<b>APV</b>	Adjusted present value
<b>BHKP</b>	Bleached hardwood kraft pulp
<b>BSKP</b>	Bleached softwood kraft pulp
<b>CAGR</b>	Compounded annual growth rate
<b>CAPEX</b>	Capital expenditures
<b>CAPM</b>	Capital asset pricing model
<b>CCF</b>	Capital cash flows
<b>CRP</b>	Country risk premium
<b>D</b>	Debt value
<b>DCF</b>	Discounted cash flows
<b>DDM</b>	Dividend discount model
<b>DivYield</b>	Dividend yield
<b>DSI</b>	Days sales of inventories
<b>DOS</b>	Days outstanding sales
<b>DPO</b>	Days payable outstanding
<b>DPS</b>	Dividend per share
<b>E</b>	Equity value
<b>EBC</b>	Estimated bankruptcy costs
<b>EBIT</b>	Earnings before interest and taxes
<b>EBITDA</b>	Earnings before interest, taxes, depreciations and amortizations
<b>EBITDAmg</b>	EBITDA margin
<b>EBT</b>	Earnings before taxes
<b>EPS</b>	Earnings per share
<b>EV</b>	Enterprise value
<b>FCFE</b>	Free cash flow to the equity

<b>FCFF</b>	Free cash flow to the firm
<b>FC Inv</b>	Fixed capital investments
<b>FFM</b>	Fama-French three factor model
<b>GDP</b>	Gross domestic product
<b>GGM</b>	Gordon growth model
<b>GW</b>	Gigawatt
<b>Int</b>	Interest expenses
<b>MC</b>	Market capitalization
<b>MRP</b>	Market risk premium
<b>Mtoe</b>	Million tons of oil equivalent
<b>MW</b>	Megawatt
<b>MWh</b>	Megawatt hour
<b>ND</b>	Net debt
<b>NI</b>	Net income
<b>NNCC</b>	Net non-cash charges
<b>NOPLAT</b>	Net operating profit less adjusted taxes
<b>NWC</b>	Net working capital
<b>P/E</b>	Price to earnings ratio
<b>PVITS</b>	Present value of interest tax shields
<b>ROIC</b>	Return on invested capital
<b>UHKP</b>	Unbleached hardwood kraft pulp
<b>USD</b>	United states dollar
<b>USSP</b>	Unbleached softwood sulphite pulp
<b>V</b>	Enterprise value
<b>WACC</b>	Weighted average cost of capital
<b>WC Inv</b>	Working capital investments

## List of symbols and variables

$\beta_E$	Equity beta
$\beta_H$	Beta coefficient related to HML
$\beta_S$	Beta coefficient related to SMB
$\beta_U$	Unlevered beta
$CF_t$	Cash flow at time t
$Div_t$	Dividend at time t
$g$	Growth rate
<b>HML</b>	High minus low factor
$i_t^F$	Inflation rate in year t in foreign currency
$i_t^D$	Inflation rate in year t in domestic currency
$K_d$	Cost of debt
$K_e$	Cost of equity
$K_u$	Unlevered cost of assets
$P_0$	Current share price
$r$	Discount rate
$r_f$	Risk-free rate
$r_m$	Market return rate
<b>SMB</b>	Small minus big factor
$t$	Marginal tax rate
<b>T</b>	Corporate tax rate
<b>YTM</b>	Yield to maturity

# 1. Introduction

## 1.1. Topic Relevance and motivation

The environment post-financial crisis has witnessed important changes in the major macro-economic variables. Particularly, the USD/EUR exchange rate is in decline since 2014, reaching record levels in mid-2015, which favors selling commodities with prices quoted in USD but whose revenues are in Euros. Among commodities, pulp ranks as one of the lowest price volatility commodities with a 5-year volatility of 6% versus 35% for crude oil and 14% for the FX. The combination of these two factors provides a setup of stable profitability to European pulp producers. Moreover, with the approximation of the European 20-20-20 Targets, countries are providing strong incentives towards renewable energy. Specifically, the Spanish government instituted price incentives to biomass and wind energy producers, benefiting Ence, a Spanish pulp and biomass energy producer. This report aims to analyze macroeconomic and industry specific characteristics and ultimately to access the fair value of Ence.

## 1.2. Research Questions

The main purpose of this thesis is to determine the fair value of one common share of Ence at 27<sup>th</sup> of March 2016, answering the following research question:

*What is the fair value of one common share of Ence at 27<sup>th</sup> of March 2016 and what is the resultant expected upside or downside for a diversified investor?*

In order to address the main research question, five sub-research questions were defined:

*What are the relevant characteristics of the macroeconomic environment in which Ence operates?*

*What are the relevant characteristics and trends in the pulp and biomass energy industries?*

*What are Ence's main peers and what is Ence's competitive position among them?*

*What are the expected operational and financial results for Ence in the future?*

*What is/are the most suitable and accurate valuation methods to access Ence's fair value?*

### **1.3. Methodology**

Firstly, with the aim of assessing how to best value Ence, a discussion of the state-of-the-art of firm valuation is presented in the literature review.

Secondly, a description and analysis of the macroeconomic environment of pulp and biomass energy industries, in which Ence operates, is presented.

Thirdly, Ence's business and strategy, along with its past performance, are described and analyzed, comparing its competitive position relative to its peers.

Finally, Ence's future performance is forecasted. The equity valuation of Ence is developed based on the forecasted financial performance using the selected valuation methods. This valuation is contrasted with an investment bank report, Haitong, focusing on the differences between assumptions and methodologies. Limitations and conclusions are discussed.

## **2. Literature Review**

An accurate valuation is crucial for investment success (Pinto, et al., 2010). In addition to a comprehensive understanding of the industry, a proper methodology for forecasting future variables and perform a valuation is of utmost importance to drive accurate business decisions (Fernández, 2004).

Throughout this section, valuation methods, as well as their limitations, are presented with the objective of determining the most suitable valuation methodology for Ence.

### **2.1. Valuation methodologies**

The valuation methodologies addressed in this chapter were selected according to their relevance in valuating Ence. All valuation approaches should reach to the same conclusions if the base assumptions are the same, since the underlying financial theories are constant, while still providing complementary insights (Young, et al., 1999).

### **2.2. Intrinsic Valuation Methodologies**

The intrinsic value of an asset is computed by analyzing its characteristics (Graham & Dodd, 1962) and may differ from its market value (Fernandez, 2013). However, they should converge over time under the efficient market theory (Graham & Dodd, 1962) - the difference between the market price and the intrinsic value estimation is the estimated mispricing (Fernandez, 2013).

The most frequently used intrinsic value models to value equity are the discounted cash flow models (Luehrman, 1997). These models are built under the assumption that today's value of a company is the present value of all future cash flows (Damodaran, 2002). This is expressed in Formula 1 (Mitra, 2010).

$$Value = \sum_{t=1}^{t=n} \frac{CF_t}{(1+r)^t}$$

Where,  $n$  = Number of cash flows in the asset's life

$CF_t$  = Cash flow forecast at time  $t$

$r$  = discount rate

*Formula 1: Present value formula*

To analyze how the firm value changes when basic underlying assumptions regarding future cash flows and discount rates change, sensitivity analyses should be conducted (Graham & Dodd, 1962).

Discount rates will be described first as their understanding is crucial to analyze the different DCF methods.

### **2.2.1. The Discount Rate**

The discount rate reflects the sum of the risk-free rate with the demanded premium for the cash flow risk (Pinto, et al., 2010).

#### **2.2.1.1. The risk-free rate**

The risk-free rate is the return on a risk-free asset that can be accessed in the open market (Damodaran, 1999). Government bonds are favored to high rated corporate bonds because of their near-zero default and equity-market risk (Pinto, et al., 2010).

The risk-free asset's maturity should be similar to the cash flows forecasted, with a maturity no shorter than 10 years and in the same currency as the cash flows generated, since currencies with higher inflation have higher risk-free rates (Damodaran, 2008).

Damodaran (2008) suggests the use of the lowest risk 10-year government bond in the Euro-zone, therefore, the most suitable risk-free asset to value Ence is the 10 year German Bund.

### **2.2.1.2. Cost of Equity**

The equity risk premium is the additional return investors demand for holding equities rather than risk-free assets (Koller, et al., 2010). Because the specific risk of an asset can be diversified, the only risk rewarded by the market is the non-diversifiable one (Fernández, 2006).

There are two commonly used methodologies to compute the required return on equity: Capital Asset Pricing Model (CAPM) and the Fama-French three-factor model (FFM) (Fama & French, 2004).

#### **2.2.1.2.1. CAPM**

The CAPM relies on the assumption that the equity risk premium depends linearly on the performance of the stock when compared with the overall market, as expressed by Formula 2 (Ross, 1977).

$$K_e = r_f + \beta_e (r_m - r_f)$$

*Where,  $k_e$  = Cost of equity*

*$r_f$  = Risk-free rate*

*$\beta_e$  = Equity beta*

*$r_m$  = Market return rate*

*Formula 2: CAPM computation*

#### **2.2.1.2.2. Fama-French three-factor model**

The FFM adds complexity to the CAPM model as it incorporates two more factors to explain returns: market capitalization and book-to-market ratio (Fama & French, 1993), and is expressed in Formula 3.

$$K_E = r_f + \beta_E * (r_m - r_f) + \beta_S * SMB + \beta_v * HML$$

Where,  $\beta_S$  = Beta coefficient related to size

$\beta_v$  = Beta coefficient related to value

*SMB* = Small minus big factor (average return of small-cap portfolios minus the average return on large-cap portfolios)

*HML* = High minus low factor (average return of high book value portfolios minus the average return on low book value portfolios)

*Formula 3: Fama-French three-factor model*

The FFM has greater explanatory power of returns than the CAPM. However, both models have low explanatory power (Bartholdy & Peare, 2001). Despite this, CAPM is commonly used by analysts worldwide as its errors are believed to have low significance (Zabarankin, et al., 2014).

### **2.2.1.2.3. Beta**

The beta is a measure of market risk that measures the sensitivity of a security's returns to the market's returns (Koller, et al., 2010). The value of beta varies depending on the market portfolio chosen and the data's time period and frequency (Koller, et al., 2010). Barthody and Peare (2001) found evidence in favor of using five years of monthly data.

The most commonly used market portfolio is a broad national equity market index or the MSCI World Index (Koller, et al., 2010). The historical beta is commonly computed through the regression expressed in Formula 4 (Fernández, 2003).

$$r_i = \alpha + \beta * r_m$$

Where,  $r_i$  = Stock's returns

$r_m$  = Market portfolio's return

*Formula 4: Relationship between the stock's returns and the market portfolio's returns*

Alternatively, beta may be computed through a bottom-up approach, which allows to break down betas into the different business and financial risks (Damodaran, 2002) (Koller, et al., 2010). To follow this approach one must first collect data about at least 10 peers operating in the same industry and run the regression expressed by Formula 4 to obtain their betas (Damodaran, n.d.). Then, the betas must be unlevered, according to Formula 5.

$$\beta_u = \frac{\beta_L}{1 + (1 - t) * \left(\frac{D}{E}\right)}$$

Where,  $\beta_u$  = Unlevered beta

$\beta_L$  = Levered beta

$t$  = Corporate tax rate

$D$  = Debt level

$E$  = Equity level

*Formula 5: Unlevered beta computation (Damodaran, 2002)*

Finally, a regression of the main company-specific variables, such as size, growth, leverage and profitability, should be run on the unlevered betas. The regression coefficients should be multiplied by the company under valuation's variables and adjusted for its leverage to obtain its beta adjusted for its risk (Koller, et al., 2010). This method is more accurate than using a historical beta because it adjusts for company-specific variations, while the historical beta only reflects the past information. Therefore, Ence's beta will be computed through a bottom-up approach.

It is common to make beta adjustments for the future under the assumption that betas have a converging tendency towards the market beta of one, as expressed in Formula 6 (Blume, 1975).

$$\text{Adjusted } \beta = \frac{2}{3} * \text{Raw } \beta + \frac{1}{3}$$

Where, Raw  $\beta$  = Beta computed through regression

*Formula 6: Blume Beta adjustment*

#### **2.2.1.2.4. The market risk premium**

There is no consensus amongst financial literature regarding the MRP value, with some arguing in favor of using the historical values while others argue that it should reflect the future expectations (Damodaran, 2012). Koller et al. (2010) arrive to the conclusion that the MRP should range between 4,5 and 5,5%.

#### **2.2.1.2.5. The country risk premium**

The country risk premium (CRP) is not diversifiable and arises from different inflation levels, political instability and macroeconomic volatility (Damodaran, 2012). According to Damodaran (2012), the CRP should be added to the risk-free rate, as investors demand an additional premium related to the country-specific risk. Oppositely, some argue in favor that the additional risk derived from the country should be considered as a probability weighted cash flow (James & Koller, 2000). In this non-complementary alternative, the country specific risk is added to the estimated cash flows of the company and are attributed a percentage based on probability. However, despite higher accuracy and better discrimination of the risks, the second alternative is harder to estimate. Given this difficulty, the CRP will be added to the risk-free rate in Ence's valuation. The value incorporated into the computations of the market and country risk premium combined of Spain is 8,1%, which is consistent with Damodaran's estimate (Fernández, et al., 2015).

#### **2.2.1.3. Cost of Debt**

The before-tax return on debt is commonly computed based on the company's debt YTM (Koller, et al., 2010), which is easy to compute if the company has publicly traded debt or if their debt is rated by a rating agency. The after-tax cost of debt can be computed through Formula 7 (Koller, et al., 2010).

$$K_d = \text{Pre-tax cost of debt} * (1 - t)$$

Where,  $K_d$  = After-tax cost of debt

$t$  = marginal tax rate

*Formula 7: After tax cost of debt computation*

#### 2.2.1.4. Weighted Average Cost of Capital

The company's weighted average cost of capital (WACC) is the weighted average of the required cost of capital of all company's capital sources and is given by Formula 8 (Farber, et al., 2005).

$$WACC = k_E * \frac{E}{V} + K_D * \frac{D}{V} * (1 - t)$$

*Where, E = Equity market value*

*D = Debt market value*

*V = Enterprise value (E+D)*

*Formula 8: After-tax weighted average cost of capital*

The WACC is suitable to discount the cash flows of companies with simple capital structures and with a constant-through-time debt ratio (Booth, 2002). If that is not the case, periodic adjustments to the WACC should be done (Luehrman, 1997). However, the WACC is pointed out by Luehrman (1997) to not properly capture the interest tax shields of exotic debt contracts, such as convertible debt or floating rate debt.

#### 2.2.2. Discounted Cash Flows Valuation Methods

There are four main DCF valuation methods: Free cash flows to the firm, free cash flows to the equity, adjusted present value and capital cash flows (Oded & Michel, 2007). The dividend discount model was also included in this section as it shares some base assumptions.

The underlying assumption behind all DCF models is that the value of an asset is equal to the present value of all expected future cash flows arising from that asset (Oded & Michel, 2007). The main differences in the following models rest on how they approach the effects of different capital structures, such as interest tax shields and bankruptcy costs (Oded & Michel, 2007). However, under the same assumptions all models should lead to the same conclusions (Young, et al., 1999).

### 2.2.2.1. Dividend discount model

This model considers dividends to be an approximation for the free cash flow the firm has available to pay to equity holders (Pinto, et al., 2010) and is expressed Formula 9 (Williams, 1938).

$$Value = \sum_{t=1} \frac{D_t}{(1+r)^t}$$

Where,  $D_t$  = Dividend at time  $t$

*Formula 9: Dividend discount model*

However, this model has shortfalls. Firstly, it is difficult to estimate all future dividends and applying one perpetuity growth rate may be erroneous (Fernández, 2004). Secondly, a firm's decision to pay dividends has proven to be political rather than economical (Baker & Martin, 2011). Since the FCFE models consider the cash flows available to shareholders rather than the actual paid ones, these will be discussed in detriment of the DDM.

### 2.2.2.2. Free Cash Flow to the Firm

FCFF is the company's cash that can be distributed either to bond or shareholders without impacting its core business (Larrabee & Voss, 2012). The FCFF may be calculated from EBIT as expressed in Figure 1 (Mitra, 2010).

$$\begin{aligned} & \text{Earnings before profit and tax (EBIT)} \\ & - \text{Tax on EBIT} \\ & \hline & = \text{Net operating profit after taxes (NOPLAT)} \\ & + \text{Depreciations} \\ & + \text{Provisions} \\ & + \text{Non cash charges} \\ & - \text{Investments in working capital} \\ & - \text{Investments in CAPEX} \\ & \hline & = \text{Free cash flow from operations} \\ & \hline & +/- \text{Cash flow from non-operating activities} \\ & \hline & = \text{Free cash flow to the firm (FCFF)} \end{aligned}$$

*Figure 1: FCFF computation from EBIT (Fernandez, 2013)*

Non-cash charges are the required adjustments to the net income in items that have no cash impact, and are presented in Table 1 (Pinto, et al., 2010).

<b>Noncash item</b>	<b>Adjustments to NI</b>
Depreciation, amortization and impairment	Add
Restructuring charges (expense)	Add
Restructuring charges (income resulting from reversal)	Subtract
Losses	Add
Gains	Subtract

*Table 1: Non-cash charges and net income alterations to compute FCFF (Pinto, et al., 2010)*

The working capital investments represent the investment in current assets minus current liabilities.

The FCFF should be discounted at the WACC since these cash flows are going to all capital suppliers, as expressed in Formula 10 (Mitra, 2010). The equity value is expressed in Formula 11.

$$Firm\ Value = \sum_{t=1}^{\infty} \frac{FCFF_t}{(1 + WACC)^t}$$

*Formula 10: Firm capital value using the FCFF approach*

$$Equity\ value = Firm\ value - market\ value\ of\ debt - Excess\ cash$$

*Formula 11: Equity value using the FCFF approach*

Under this model, the tax deductibility of interest is taken into account in the after-tax WACC (Mitra, 2010).

This is the most common valuation methodology used. However, it is not the most suitable to value companies with changing capital structures (Luehrman, 1997), nor for companies with high capital investment needs, as their usual FCFF is negative despite possible high profitability (Oded & Michel, 2007). However, if the firm has a steady capital structure in the future, this methodology has proven to be effective (Sabal, 2008). Therefore, this model will be used since Ence has a future target steady capital structure.

### 2.2.2.3. Free Cash Flow to the Equity

FCFE is the maximum dividend the company could afford and is given by Formula 12 (Fernandez, 2013). It can be computed by adding the Net Borrowing to the FCFF computation.

$$FCFE = Net\ Income + Non\ cash\ charges - FC\ Inv - WC\ Inv + Net\ borrowing$$

Where,  $FC\ Inv = Fixed\ capital\ investments$

$WC\ Inv = Working\ capital\ investments$

$Net\ borrowing = new\ debt\ issued - debt\ repayments\ (all\ net\ obligations\ to\ debt\ providers)$

*Formula 12: FCFE computation from net income*

The present value of all FCFE is the company's common equity as expressed in Formula 13.

$$Equity\ value = \sum_{t=1}^{\infty} \frac{FCFE_t}{(1+r)^t}$$

Where,  $r = required\ rate\ of\ return\ on\ equity$

*Formula 13: Equity value using the FCFE approach*

Because the FCFE is going solely to equity holders, these cash flows should be discounted at the equity rate of return (Fernandez, 2013).

### 2.2.2.4. Adjusted Present Value

This Adjusted Present Value (APV) is considered to be more accurate than the WACC in valuing companies with changing leverage (Sabal, 2008). The APV values the firm's assets and all financing value sources separately, which allows to discount them at different discount rates (Luehrman, 1997).

In order to value a company using the APV, one must discount the FCFF at the unlevered cost of equity as if the company had no leverage according to Formula 14 (Luehrman, 1997).

$$K_e = K_u + \frac{D - PVITS}{E} * (K_u - K_d)$$

Where,  $K_e$  = Unlevered cost of equity

$D$  = Debt level

$E$  = Equity level

$PVITS$  = Present value of interest tax shields

$K_u$  = Unlevered cost of assets

$K_d$  = Cost of debt

*Formula 14: Unlevered cost of capital computation (Koller, et al., 2010)*

Debt interest is commonly deductible, providing companies with tax shields, computed as expressed in Formula 15 (Fernandez, 2013). However, the higher the debt level, the higher the probability of default, and the higher the expected bankruptcy costs, expressed in Formula 16 (Koller, et al., 2010).

$$PVITS_t = \frac{D * r_d * T}{(1 + r_d)^t}$$

Where,  $T$  = Corporate tax rate

*Formula 15: PVITS computation*

Note that there is no consensus in financial literature of whether the PVITS should be discounted at the cost of debt or at the cost of assets (Fernández, 2004).

*Expected bankruptcy costs = Probability of default \* Bankruptcy costs*

*Formula 16: Expected bankruptcy costs*

The inputs to compute the expected bankruptcy costs constitute the major issue with the APV (Sabal, 2008). The bankruptcy costs may be direct and indirect. Contrary to direct ones (such as lawyer fees), indirect costs (namely customer loss or financing interest rates) tend to be large, depend widely on the firm, and are difficult to estimate. (Sabal, 2008). There is lack of consensus in the literature about the average percentage of firm value that constitutes the indirect bankruptcy costs (Burgstahler, et al., 1989). The firm's rating can be used as a proxy for the probability of default (Altman, 1984).

By summing all the parts, the firm value is reached through the APV according to Formula 17 (Mitra, 2010).

$$APV = V_u + PVITS - EBC$$

Where,  $V_u$  = Present value of the unlevered firm

$PVITS$  = Present value of interest tax shields

$EBC$  = Estimated bankruptcy costs

*Formula 17: APV computation*

#### **2.2.2.5. Capital cash flows**

The Capital Cash Flows method (CCF) discounts the cash flows taking into consideration the asset's risk, which doesn't change with the capital structure (Ruback, 2000). We don't detail the CCF method since it leads to similar results to FCFF (Fernández, 2004) but fails to incorporate the changing capital structure, unlike the APV (Mitra, 2010).

#### **2.2.2.6. DCF valuation methodologies conclusions**

Despite the value source discriminatory power of the APV method, the FCFF method will be used to value Ence. This model was chosen due to the target constant and simple capital structure of Ence alongside with the fact that Ence's default probability is very low. Since the WACC accounts for the interest tax shields in the discount rate, APV's advantages don't add much value in this situation and may lead to higher inaccuracy due to the issue with estimating expected bankruptcy costs.

#### **2.2.3. The Terminal Value and growth rate**

The further in the future the forecast, the harder it is to make reasonable assumptions (Fernández, 2004). The terminal value is of utmost importance due to its usual share of more than half in the stock's total value (Pinto, et al., 2010). It can be estimated through liquidation value, multiples approach or through a free cash flow growth model (Damodaran, 2011). Damodaran (2011) states that the first two options lack accuracy, hence, this chapter will focus on the free cash flow model to estimate terminal value.

The Gordon Growth Model (GGM) states a way to calculate the value of a certain cash flow in perpetuity with a constant growth rate, as expressed in Formula 18.

$$P_0 = \frac{Div_t}{K_e - g}$$

Where,  $P_0$  = Current share price

$Div_t$  = Dividend per share at time  $t$

$g$  = growth rate in perpetuity

*Formula 18: Gordon Growth Model computation*

Because of the impossibility of estimating the FCFF until infinity, it is common practice to estimate the FCFF for an explicit period and add the terminal value according to the GGM as expressed in Formula 19.

$$Firm\ value = \sum_{t=1}^n \frac{FCFF_t}{(1 + WACC)^t} + \frac{FCFF_{n+1}}{WACC - g} * \frac{1}{(1 + WACC)^n}$$

*Formula 19: Firm value computation with explicit period and terminal value*

Note that the GGM may only be applied when the company is in steady state (Damodaran, 2011). There is no common rule to define the length of the explicit period, just that it should be computed until the company reaches steady state (Koller, et al., 2010).

### 2.2.3.1. Perpetuity growth rate

According to Damodaran (2011), the growth rate in perpetuity is given by Formula 20, whose inputs are expressed in Formulas 21 and 22.

$$Perpetuity\ growth\ rate = Reinvestment\ rate_{t+1} * Return\ on\ capital_{t+1}$$

*Formula 20: Perpetuity growth rate computation*

$$Reinvestment\ rate_{t+1} = \frac{Net\ CAPEX_{t+1} + \Delta NWC_{t+1}}{NOPLAT(1 - T)_{t+1}}$$

*Formula 21: Reinvestment rate computation*

$$Return\ on\ capital_{t+1} = \frac{NOPLAT_{t+1}}{Capital\ invested_{t+1}}$$

*Formula 22: Return on capital computation*

This methodology is only accurate if the firm has the same reinvestment rate in the future as in the past.

It is unfeasible that companies grow in perpetuity at a rate larger than the nominal GDP growth of the country where they operate (Damodaran, 2002). Given that Ence operates in Europe, the growth rate considered in perpetuity must be lower than the European nominal GDP growth rate.

#### **2.2.3.2. Perpetuity FCFF**

The perpetuity FCFF must be one generated in steady state (Fernández, 2004). For the company to be in stable growth, revenues and EBIT should be steadily growing, depreciations should match CAPEX and NWC growth should accompany sales growth (Fernández, 2004). As revenues, EBIT and other variables are usually not constant for cyclical companies, like Ence, an average value for the entire business cycle should be computed.

### **2.3. The Real Options Valuation Method**

The real options valuation method is considered to be best suitable for companies that exploit finite commodities (Luehrman, 1997). Since Ence paper pulp does not qualify as finite commodity this model is not suitable and will therefore not be further discussed.

### **2.4. The Relative Valuation Method**

The underlying assumption of relative valuation is that similar assets should have similar value (Eberhart, 2004). The main limitation of relative valuation lies on the inexistence of an exact similar company (Foushee, et al., 2012). However, multiples are simple to compute and are a tool to achieve a reference value, which makes them a good complement to the DCF models (Goedhart, et al., 2005).

Relative valuation is usually done through equity or enterprise value multiples. The former are ratios of stock price over another firm(s) fundamental value, while the latter are ratios of total stock and net debt over another firm(s) fundamental value, as expressed in Table 2 (Fernández, 2001) (Liu, et al., 2002).

<b>Enterprise Value Multiples</b>	<b>Equity Value Multiples</b>
EV/EBIT	Price-Sales Ratio = Market price / Sales per share
EV/EBITDA	Price-Earnings Ratio (P/E) = Market price / Earnings per share
EV/Book Value	Dividend Yield = Dividend / Market price per share
	Price Book Value = Market price / Book Value per share

*Table 2: Enterprise Value and Equity Value multiples*

Goedhart et al. (2005) support the EV multiples, highlighting the Enterprise Value /EBITDA multiple as it does not account for changes in capital structure. Furthermore, it is not based on earnings, which are sensitive to onetime events, such as restructuring. The EV/EBITDA multiple is the most accurate multiple for industrial companies, such as Ence.

According to Liu et al. (2002), the multiples that show the most accuracy are the forward-looking price earnings. However, this study did not include enterprise value multiples. When considering historical multiples, earnings multiples have a higher accuracy than sales and book value multiples (Lie & Lie, 2002). The P/E multiple is one of the most frequently computed multiples.

Therefore, the EV/EBITDA and the P/E multiples will be used to provide insights about Ence's valuation.

#### **2.4.1. The Peer Group**

Peer group selection is of utmost importance for an accurate relative valuation (Eberhart, 2004). The peer group must contain companies driven by the same fundamentals as the company being valued (Bhojraj & Lee, 2002). Operational risks, growth opportunities, company size, customers, products and markets should be taken into account to assess similarity (Foushee, et al., 2012), namely through a K-means cluster analysis. This analysis allows to minimize the distance of the observations to the centroids after predetermining the number of centroids. The allocation to the different centroids should be repeated until they stabilize.

#### **2.5. Additional considerations in valuing cyclical companies**

The cyclical company valuation is usually built upon the assumption that the company will follow the historical cycle pattern and rarely equations the hypothesis that it might reach new

values (Lippitt & Lewis, 2012). In order to overcome this issue one can build scenarios, in which the first scenario, which should weight 50%, follows the historical performance, while the following two scenarios, equally weighted, should be based on current company performance (De Heer & Koller, 2000).

Moreover, in line with section 2.2.3.2., the terminal value cash flow should be a cycle's average in order not to over or underestimate the company's value.

## **2.6. Sum of the parts valuation**

One way to perform a multi-business company valuation is to value each business separately as an independent company. The sum of the values of all company businesses is the company's value (Pinto, et al., 2010). This methodology allows to discount cash flows from different businesses at different rates, based upon the underlying risk and capital structure (Pinto, et al., 2010). This will be applied to Ence's valuation as the company has two different businesses, pulp and energy production.

## **2.7. Considerations in the estimation of the exchange rate EUR/USD**

The theory that the exchange rate follows a random walk outperforms most exchange rate models both for the seventies (Meese & Rogoff, 1983) and for the nineties (Cheung, et al., 2005). However, these studies don't include the USD/EUR exchange rate. Koller, et al. (2010) also support that exchange rates are unpredictable and companies should discuss their targets at the current currency rates. However, they find from data from 1995 to 2004 and for 38 countries that inflation differences explain most of the differences in interest rates and, therefore, the forward exchange rate can be approximately computed through Formula 23.

$$X_t = X_0 * \frac{(1 + i_1^F) * (1 + i_2^F) * \dots * (1 + i_t^F)}{(1 + i_1^D) * (1 + i_2^D) * \dots * (1 + i_t^D)}$$

Where,  $X_0$  = Current spot rate

$X_t$  = Forward exchange rate in year  $t$

$i_t^F$  = Inflation rate in year  $t$  in foreign currency

$i_t^D$  = Inflation rate in year  $t$  in domestic currency

*Formula 23: Exchange rate forecast based on inflation (Koller, et al., 2010)*

This methodology is only reliable for long-term forecasts, as for the short term exchange rates fluctuate widely and quickly. For the purpose of valuing Ence, we use Formula 23, complemented with sensitivity analysis for a scenario in which considers the current currency rate to hold in the upcoming years.

### 3. Industry Analysis

A reliable valuation of any company requires a deep understanding of the industry dynamics and the macroeconomic setting to develop reasonable assumptions. This chapter presents an analysis of the market environment, the key opportunities and threats and the forecasts for the near future in the two industries in which Ence operates: the pulp and the biomass energy business.

#### 3.1. Pulp industry analysis

To analyze the cyclical behavior of the pulp industry and Ence’s position, supply and demand forces were described and forecasted, complemented by a Porter’s 5 forces analysis (Appendix 1).

Within the four main types of pulp (see Figure 2 for detail on the subdivision), ENCE produces BHKP, which therefore will be the focus of our analysis.

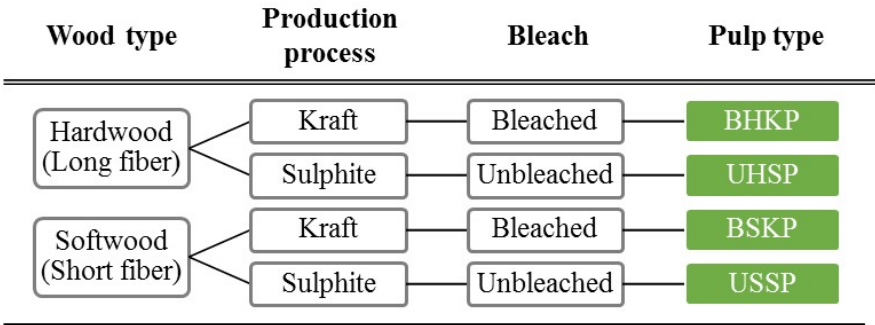


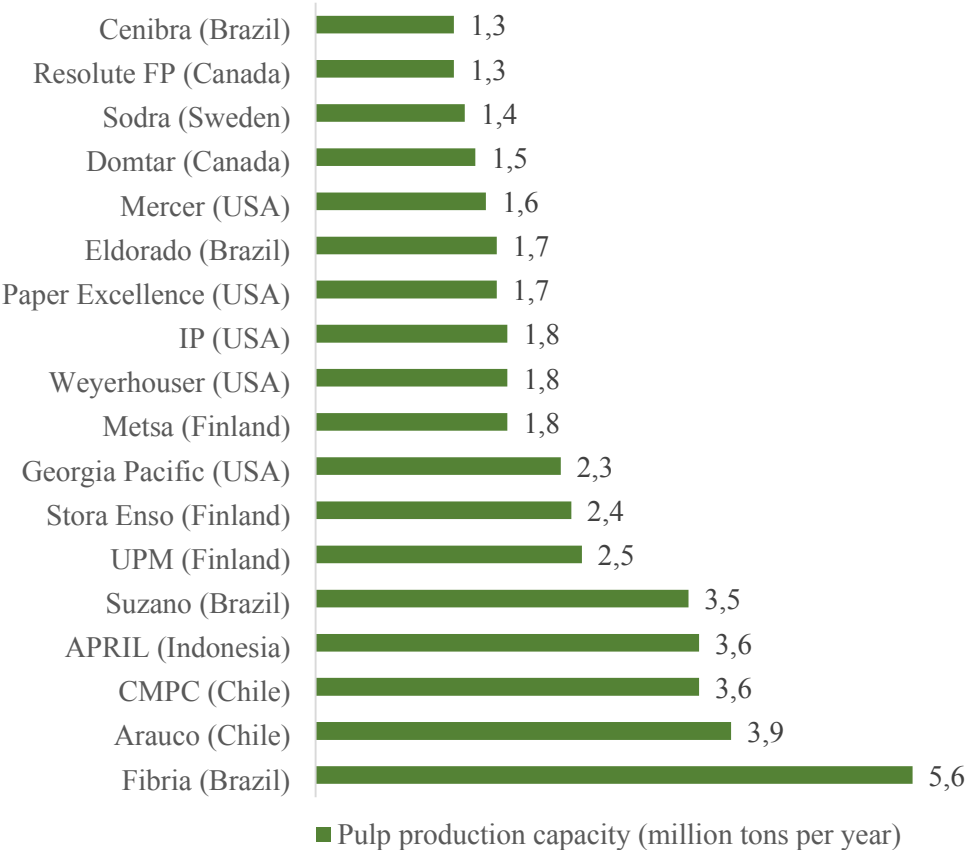
Figure 2: Pulp categories (Grupo Empresarial Ence, 2013)

The pulp market, and consequently price, is strongly influenced by macroeconomic factors, such as GDP growth, demographics and exchange and interest rate fluctuation (Schaefer, 2015). The pulp market reference price is the FOEX PIX index.

Pulp can be considered a global commodity, despite small differentiation in terms of end use (RISI, 2015). Therefore, pulp prices are highly dependent on supply and demand global shifts.

**3.1.1. Pulp supply**

In 2015, the total worldwide pulp capacity (both hardwood and softwood pulp) totaled 63 million tons per year. The top 18 largest suppliers account for 70% of the world capacity, as expressed in Figure 3 (RISI, 2015).



*Figure 3: Pulp production capacity in 2015 (Hawkins Wright, 2015)*

In 2015, the total BHKP capacity worldwide amounted to 33 million tons per year, with the 15 largest players holding 76% of the total capacity (Hawkins Wright, 2015).

Currently, BHKP supply is concentrated in Brazil, Chile and Indonesia, with 48%, 17% and 14% of worldwide BHKP capacity respectively. Fibria and Suzano are the two largest BHKP players in the world, with market share of 17% and 11% respectively. BHKP capacity broken down by the top 15 largest players is expressed in Figure 4.



Figure 4: BHKP production capacity in 2015 (Hawkins Wright, 2015)

Fibria and APP are currently investing to increase BHKP production capacity (Schaefer, 2015). Fibria is expected to increase its capacity to a total annual output of 7,95 million tons of BHKP in 2018 (Schaefer, 2015). APP is also expected to increase its capacity by 2,8 million tons for BHKP by 2018 (Schaefer, 2015).

The market pulp global supply has been increasing at a 3% CAGR globally over the past 7 years, with a future forecasted CAGR of 2,2% (Pöyry, 2013) as expressed in Table 3.

CAGR Supply	2009-2013	2014-2019E
North America	1,00%	0,10%
Europe	1,70%	1,20%
Asia	4,20%	4,70%
Latin America	5,70%	3,40%
Middle East, Oceania and Africa	1,50%	0,30%
<b>Total</b>	<b>3,00%</b>	<b>2,20%</b>

Table 3: CAGR of total global market pulp supply by region (Pöyry, 2013)

Supply of hardwood has been increasing above average when compared to the global market pulp (Pöyry, 2013). Hardwood supply has been growing at a CAGR of 4,5% since 2006 while

softwood supply has been relatively stable (RISI, 2015). Supply of hardwood is expected to continue to increase on average by 3,4% annually until 2020 mainly due to the increases in capacity from Brazil and Indonesia (Pöyry, 2013). This can be visualized in Figure 5.



Figure 5: Historical and forecasted supply volume by pulp type (Pöyry, 2013) (BMI, 2015)

### 3.1.2. Pulp demand

Pulp demand is concentrated in Asia. Asia’s pulp demand accounts for 56% of total world pulp demand in 2015 (RISI, 2015). China accounts for approximately 70% of the Asian pulp demand (RISI, 2015). Asia’s pulp demand has been increasing over the past 5 years at a CAGR of 14,3% (RISI, 2015). Pulp demand evolution can be visualized in Figure 6.

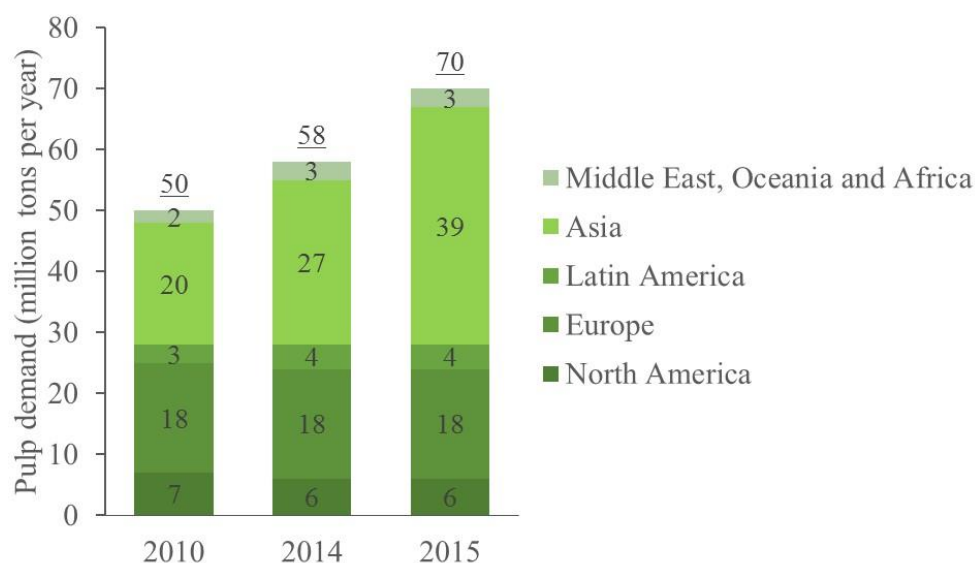


Figure 6: Pulp global demand by region (RISI, 2015)

In terms of final use, tissue represents more than 50% of the worldwide end use for BHKP (RISI, 2015). The tissue market has been increasing at 3,5% annually worldwide over the past 5 years (RISI, 2015). China’s current tissue consumption per capita is well below developed economies per capita consumption (4kg and 15kg per year per person respectively) (RISI, 2015) (Uutela, 2015). This is expressed in Figure 7. It is forecasted that tissue consumption will increase by 6,7% annually in the 5 upcoming years in developing economies, reinforcing consumer’s habits’ change and the improvement of the medium class’ lifestyle (RISI, 2015). This fact supports a growing demand for BHKP in China, especially when taking into consideration the large size and of China’s population.



Figure 7: Tissue consumption per capita per country in 2013 (Uutela, 2015)

Pulp demand for printing and writing purposes is in decline in developed economies by 1% annually (RISI, 2015). However, the increase in demand for tissue widely surpasses this effect, resulting in a net growing tendency for pulp demand (RISI, 2015).

China’s large importance in the pulp demand, combined with China’s large demographic and GDP growth rate, and with the country’s tendency to increase consumption per capita lead to a forecasted growth rate for the Asian pulp market of 4,1%, as described in Table 4.

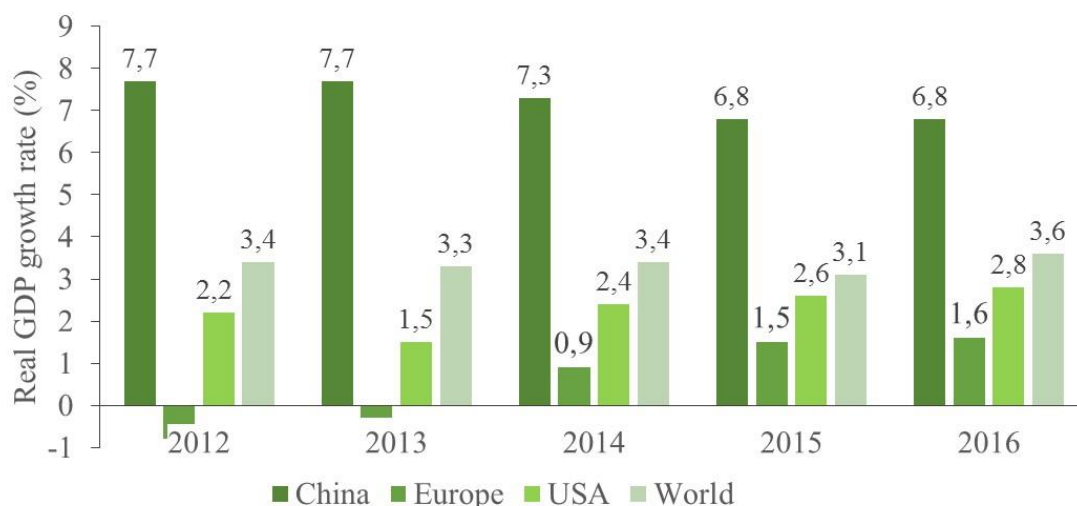


Figure 8: Real GDP % growth by region (IMF, 2016)

CAGR Demand	2009-2014	2015-2019E
North America	-2,60%	-1,80%
Europe	0,20%	0,00%
Asia	8,20%	4,10%
Latin America	4,40%	2,70%
Middle East, Oceania and Africa	5,80%	2,90%
<b>Total</b>	<b>3,80%</b>	<b>2,40%</b>

Table 4: CAGR of total global market pulp demand by region (RISI, 2015)

Europe, the second largest source for pulp world demand with a share of 27%, has been relatively stable over the past 7 years (RISI, 2015). All of these factors combined lead to a global demand growth rate of 2,4% annually.

### 3.1.3. The pulp cycle

Pulp prices are driven by supply, demand and industry cash costs, defined as the operational fixed and variable costs, players incur to produce 1 ton of pulp. (RISI, 2015). Another reason behind the pulp prices cyclicity is the strong correlation of paper and tissue consumption with the GDP growth rate (RISI, 2015).

The pulp industry requires large investments to increase capacity (RISI, 2015). Therefore, players rarely invest in capacity increases and produce pulp if price is above their cash costs, which vary within company and country, as observable in Figure 9.

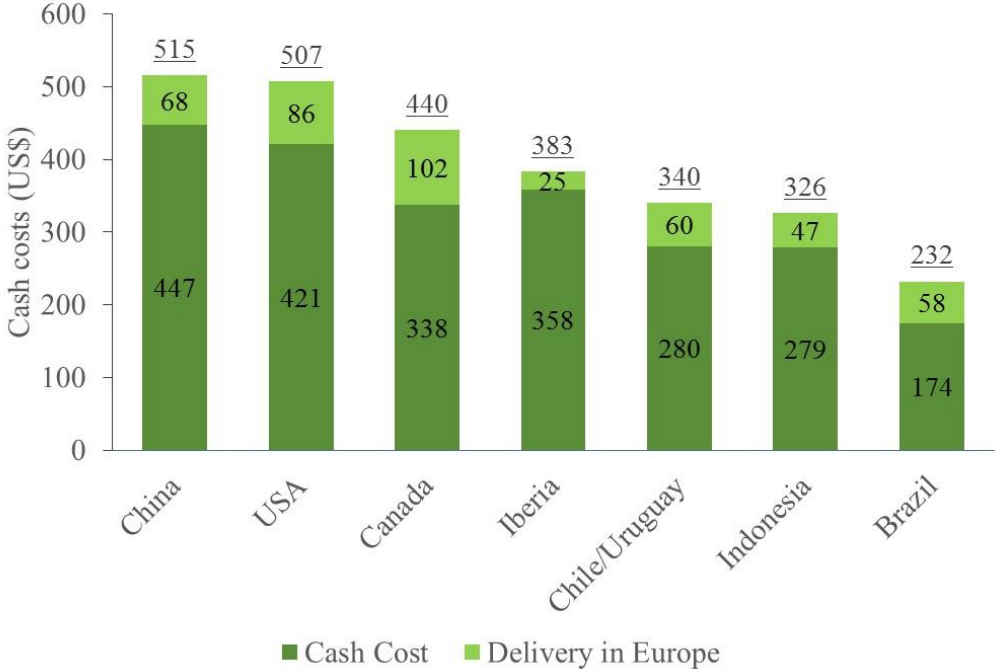


Figure 9: Cash costs per country in 2015 (Hawkins Wright, 2015)

The minimum spread between the BHKP price and the cash costs in countries with high cash costs such as North America, during low phases of the cycle, has been historically on average 36% (without taking into consideration any price rebates).

Industry cycles usually last between 3 and 6 years (RISI, 2015). Prices increase with demand until demand is fully satisfied. In some high phases of the cycle, new capacity is built. With new capacity, there starts to exist excess supply for the existing demand, putting pressure on prices to decrease (RISI, 2015). This leads to some players shutting down capacity when the price drops under their cash costs, leading to the price to go up again in another cycle (RISI, 2015). Figure 9 denotes that the Iberian players have higher cash costs than the South American players even after considering the delivery costs to Europe. Notwithstanding, Iberian players are still competitive because it takes on average 60 days for American players to deliver pulp in Europe, which does not fit the European customers’ needs.

**3.1.3.1. Historical cycle analysis**

The FOEX PIX BHKP has shown the lowest volatility among most commodities since 2009 (Figure 10). This has happened because pulp demand is increasing and supply has shown a disciplined growth that accompanies demand.

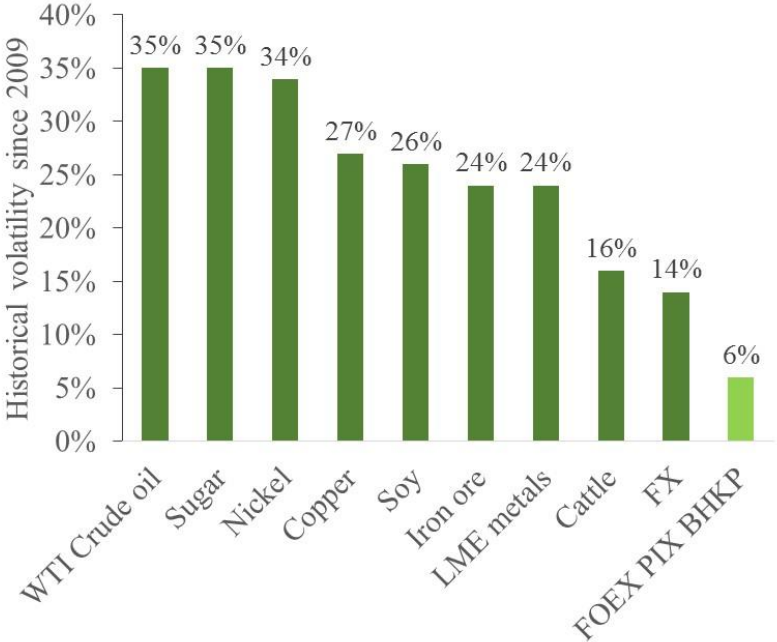


Figure 10: Historical volatility per commodity since 2009 (Reuters, 2016)

Despite the lower historical volatility, the different cycles of the pulp price are easily observable over the past years (Figure 11). BHKP prices dropped significantly in 2009, due to the 2008-2009 financial crisis. The pulp price rebounded back until the end of 2010, when it peaked. In 2011 the pulp price was pressured by a decrease in demand together with an increase in wood costs (RISI, 2015). Over the past few years, pulp prices have peaked in 2013 and 2015. The latter was a favorable year for European players due to the surge of USD vs. EUR.



Figure 11: FOEX PIX BHKP since 2008 in US\$ (Reuters, 2016)

**3.1.3.2. BHKP price cycle forecast**

In the long term it is forecasted that the pulp prices will follow an upwards trend driven by the growing demand (RISI, 2015). Although there will be new capacity arising in 2018, this is forecasted to be offset by mentioned strong demand growth (RISI, 2015) (Hawkins Wright, 2015) (BMI, 2015). However, BHKP price is forecasted to drop in 2018, driven by the new capacity available, rebounding from 2018 onwards to an average price of \$775/ton (RISI, 2015) (BMI, 2015). The rebound is expected since prices below \$690/ton mean that approximately 24% of the world capacity would be shut down since that price is below their cash costs plus minimum spread of 36%. This is observable in Figure 12 and Table 5.

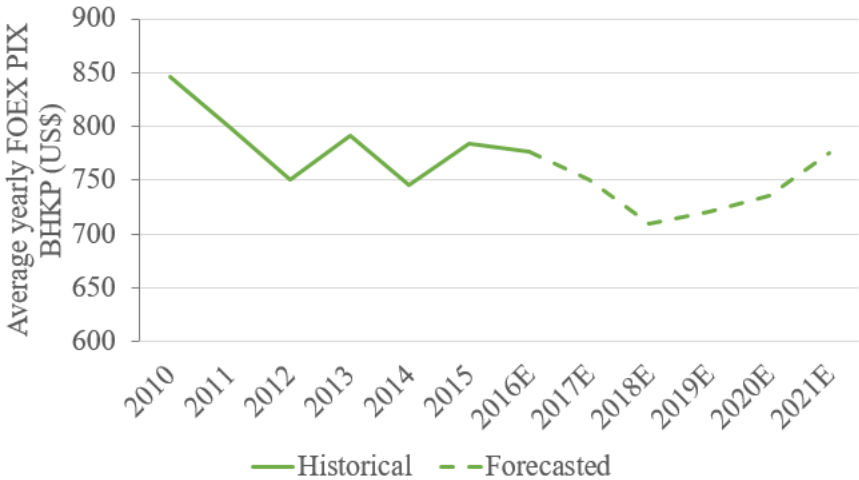


Figure 12: Historical and forecasted FOEX PIX BHKP annual average (Reuters, 2016)

Cash costs forecast	Weight in Global Capacity 2014	Cash Costs (US\$)	Cash Costs with 36% spread (US\$)
China	8,20%	515	700
USA	7,20%	507	689
France/Belgium	2,60%	509	692
Japan	3,00%	554	753
Other Asia	2,70%	525	714
<b>Total</b>	<b>23,80%</b>		

Table 5: Top 5 highest cash costs countries in the world in 2014 (RISI, 2015)

FOEX PIX BHKP reference price is quoted in USD, exposing companies operating outside the United States to forex risks.

**3.2. Biomass energy industry analysis**

Biomass energy is a renewable type of energy produced either through cogeneration conjointly with the pulp production process or through independent biomass plants (Grupo Empresarial Ence, 2012). The biomass is used as fuel to generate heat, which drives a turbine, generating electricity. This process allows pulp producers to become energetically more efficient and earn revenues from the sale of the unutilized energy. Biomass is the most stable and reliable renewable energy source to the national grid as it doesn't depend on weather conditions (Grupo Empresarial Ence, 2012).

**3.2.1. Demand: Energy consumption**

Spain's energy consumption has been relatively stable over the past 12 years, averaging a total of 147 Mtoe per year as displayed in Figure 13 (BP, 2015). Oil, coal and nuclear energy have been decreasing in importance, while renewable sources of energy have been growing (BP, 2015). As observable from Table 6, biomass has been growing at a CAGR of 4% over the past 12 years (BP, 2015). Renewable energies account for 19% of Spain's total energy supply, with Biomass accounting for 1% in 2014, as observable from Figure 14 (BP, 2015).

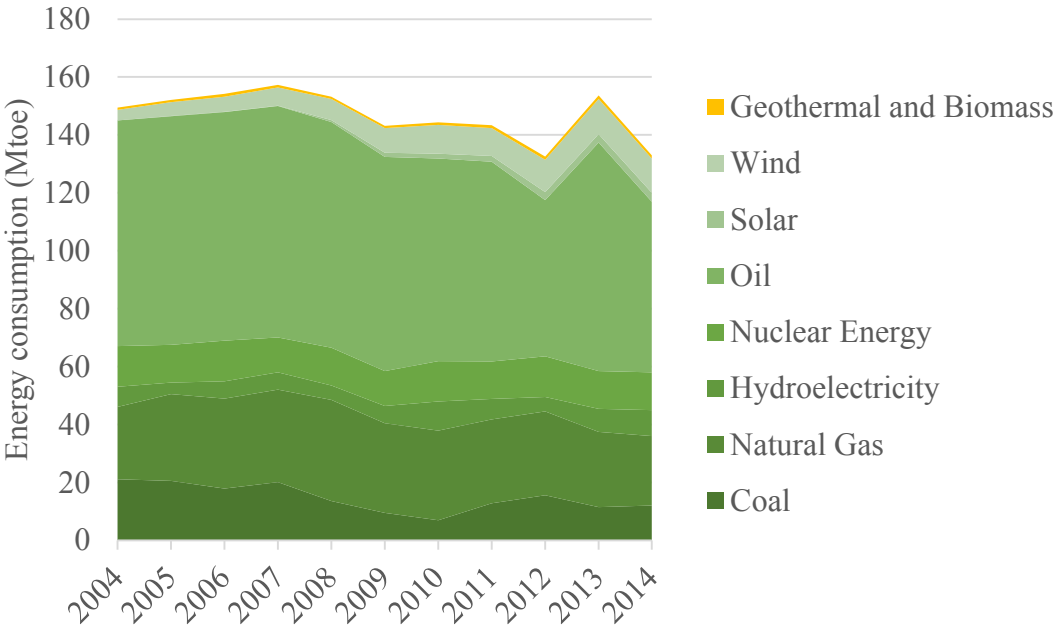


Figure 13: Total energy consumption in Spain by energy type (BP, 2015)

	Coal	Natural Gas	Hydro electricity	Nuclear energy	Oil	Solar	Wind	Geothermal & Biomass
CAGR 2004-2014	-5%	0%	3%	-1%	-3%	73%	12%	4%

Table 6: CAGR 2004-2014 of different energy types in Spain (BP, 2015)

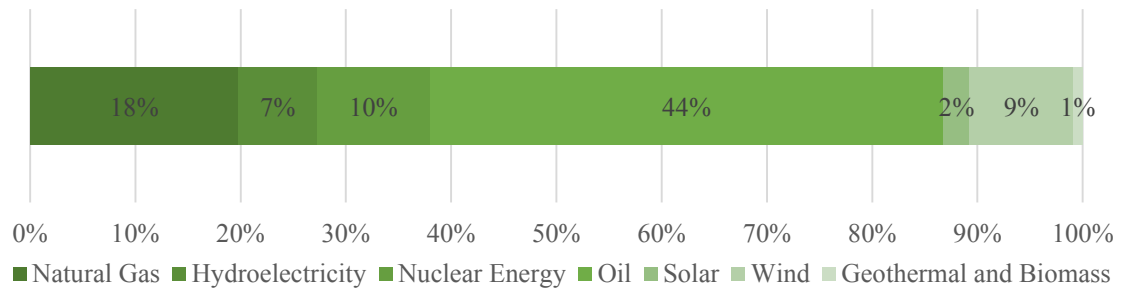


Figure 14: Energy consumption in Spain in 2014 by energy type (Enerdata, 2015)

Table 7 depicts that biomass energy consumption has been increasing worldwide. Spain's biomass energy consumption growth rate has been below the European Union's average, demonstrating Spain's growth potential (Enerdata, 2015).

	2004	2008	2012	2014	CAGR
Spain	0,8	0,7	1,1	1,1	3,90%
USA	16,3	16,6	17,4	19,3	1,70%
Germany	2,4	6,3	10,1	11,1	16,70%
Italy	2,5	3	4,1	6,1	9,20%
Portugal	0,4	0,5	0,7	0,7	7,30%
Total European Union	15,4	24,1	35,2	39,9	9,90%
Total South and Cental America	5,8	8,4	13	17,2	11,60%
Total North America	20,4	20,5	21,5	23,5	1,40%
Total Asia Pacific	12,8	16,2	29,5	30,6	9,20%

Table 7: Geothermal and Biomass energy consumption evolution by region (BP, 2015)

### 3.2.2. Supply: Power generation

Spain's electricity capacity in 2015 amounted to 124GW (IEA, 2015). Fuel fossils account for approximately 45% of total Spanish electricity production (IEA, 2015). Approximately 41% of all electricity produced in Spain is from renewable sources (IEA, 2015). As described in Figure

15, Spain has been investing in capacity in the renewables sector and retracting from the non-renewables (Eurostat, 2015) to reduce its dependence from fossil fuel imports. In fact, 20% of all renewable capacity (excluding the hydroelectricity) was installed over the last 3 years (Eurostat, 2015).

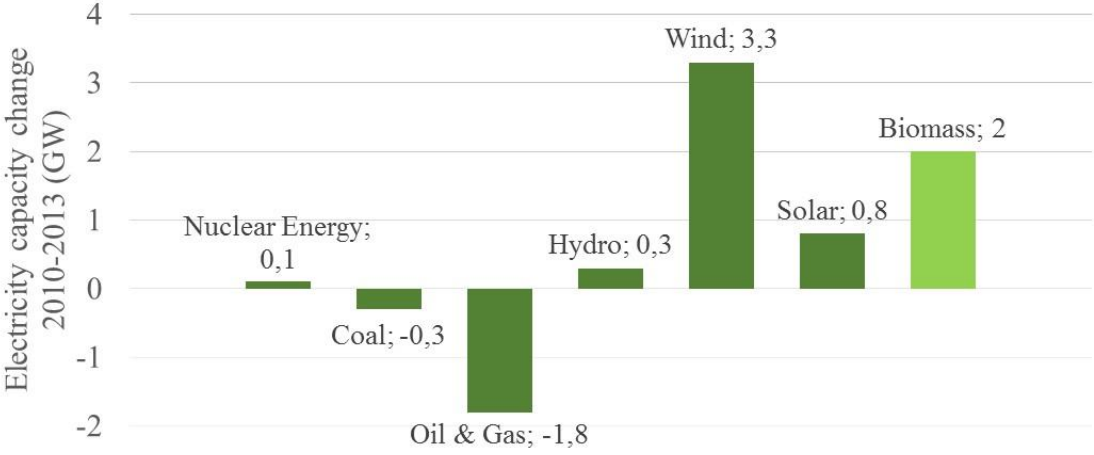


Figure 15: Electricity capacity change in Spain from 2010 to 2013 by type of energy (Ministerio de Industria, Energia y Turismo, 2013)

European renewable energy targets led to large investments in renewable energy capacity starting from 2005. The biomass suppliers account for 480MW of renewable energy in Spain (Enerdata, 2015), as displayed in Table 8.

Company	Capacity 2014 (MW)
Ence	180
Rest of pulp/paper industry*	60
Valoriza	43
ECYR	32
Acciona	25
Others (fragmented in small parts)	140
<b>Total</b>	<b>480</b>

Table 8: Spanish biomass energy suppliers' capacity in 2014 (Enerdata, 2015)

Approximately 60% of all the biomass energy produced in Spain is produced through cogeneration, leading to high cost effectiveness. However, there is still untapped potential through economies of scale that can result in a 15-40% biomass energy cost reduction (European Climate Foundation, 2014).

### 3.2.3. Renewable energy targets

Spain committed to reach a 20,8% share of renewables in final consumption in the 20-20-20 EU targets (IEA, 2015). Currently, Spain's share of renewables consumption stands at 19% (BP, 2015) as observable in Figure 16. This implies that, in the upcoming years, Spain will be making efforts towards increasing the renewable energy consumption (Ministerio de Industria, Energia y Turismo, 2013). Total energy consumption is also targeted to drop to 120Mtoe/year in 2020 (IEA, 2015). However, experts claim that this reduction is due to recession and that we should expect an increase in energy consumption (IEA, 2015) (Robinson, 2013).



Figure 16: Historical and targeted energy consumption and renewables share in Spain (Deloitte, 2015)

Moreover, Spain targets to reach CO<sub>2</sub> emissions of 216Mt/year in 2020, which represents a 10% reduction when compared to 2016's value (Energy Efficiency Watch, 2014) (Enerdata, 2015). The historical CO<sub>2</sub> emissions are displayed in Figure 17.



Figure 17: Carbon dioxide emissions evolution in Spain (BP, 2015)

The government is strongly betting on biomass and wind energy in order to meet these goals since these are CO<sub>2</sub> emissions neutral and the former keeps fields and forests clean (Ministerio de Industria, Energia y Turismo, 2013).

All in all, biomass energy is considered an excellent path towards achieving the 20-20-20 renewable energy targets and to meet the need to reduce CO<sub>2</sub> emissions by 10%.

#### **3.2.4. Power prices and regulation**

Historically, the Spanish energy industry was characterized by tariffs supported by the government (Ministerio de Industria, Energia y Turismo, 2013). However, due to the rapid growth of renewables the total amount of the tariff escalated and lead to an accumulated deficit of €30billion over the last 18 years (IEA, 2015). To solve this, government has moved its policy towards charging the tariffs to final consumers and reducing the incentives and remuneration paid directly to operators (IEA, 2015).

This was accomplished mostly thanks to the RDL09/13 that removed bonuses for renewable energy production efficiency, leading to a drop in prices on average by 15% for producers from 145€/MWh to 123€/MWh (Enerdata, 2015). However, acknowledging the importance of biomass and wind energy production, the recent RD 947/2015 has reintroduced subsidies to the biomass and wind energy producers, which is expected to provide price stability to these forms of energy for the upcoming 15 years (IEA, 2015). Since these require large startup costs, this law comes in favor of existent operating players in these industries (Deloitte, 2015).

## 4. Company Analysis

### 4.1. Company overview

ENCE Energía y Celulosa was incorporated in 1968 and became publically listed in January 1997 in the Bolsa de Madrid. Ence’s business is subdivided into three segments: BHKP production, biomass energy production and forestry management. We focus on the two main contributors to Ence’s profitability: BHKP production and energy production through biomass. A complementary SWOT analysis is presented in Appendix 2.

#### 4.1.1. The pulp business

Ence is a manufacturer of bleached eucalyptus kraft pulp. Until the third quarter of 2014 the company had three mills located in Spain, more precisely in Asturias, Pontevedra and Huelva, which had a combined capacity of 1.350.000 tons of pulp per year (Ence, 2015). In 2014 the company decided to devote Huelva mill solely to the renewable energy business due to the negative impact of the regulatory changes taken by the Spanish government in the energy sector (the discussed RDL09/13), which reduced heavily the premiums paid for cogeneration, as well as due to the scarcity of eucalyptus in the nearby area (Ence, 2015). The switch would also create large scale synergies with the nearby Huelva energy-dedicated plant (Ence, 2015). Ence’s pulp and energy mills are all located in the locations observable in Figure 18.



Figure 18: Ence’s mills locations (Ence, 2015)

Currently the pulp business segment is concentrated in Asturias and Pontevedra, which add up to a total annual capacity of 960.000 tons of pulp, as visualized in Figure 19.

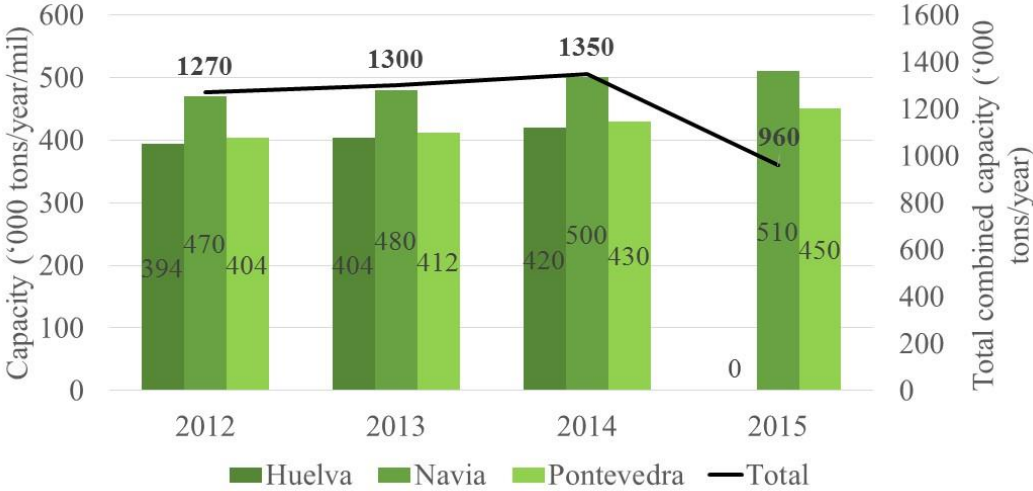


Figure 19: Ence's pulp capacity evolution by mill (Ence, 2015)

The energy produced at Navia and Pontevedra mills through cogeneration (using the biomass from the timber that is not utilized to produce pulp) is also allocated to the pulp business (Ence, 2015). The two pulp mills have a combined installed capacity of 53MW (Ence, 2015).

In order to increase the cost efficiency of the pulp manufacturing process, facilitate timber access and reduce dependence from suppliers and price volatility, Ence manages 72 thousand hectares of forested land, of which 64% are owned by the company (Ence, 2015).

Ence's pulp main end use is tissue, accounting for 51% of its sales, followed by specialties with 17%, as shown in Figure 20.

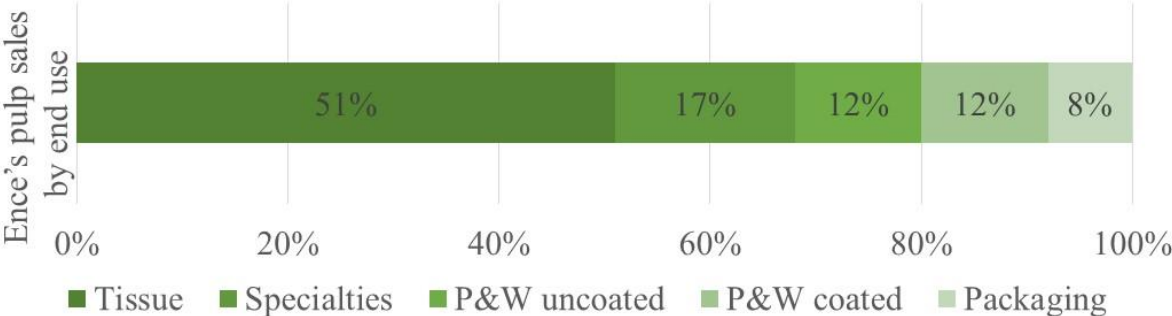


Figure 20: Ence's pulp sales by end use in 2015 (Ence, 2015)

Ence’s pulp sales are concentrated in Western Europe, with a large focus on the German and Spanish markets, respectively accounting for 26% and 17% of total revenues (Figure 21).

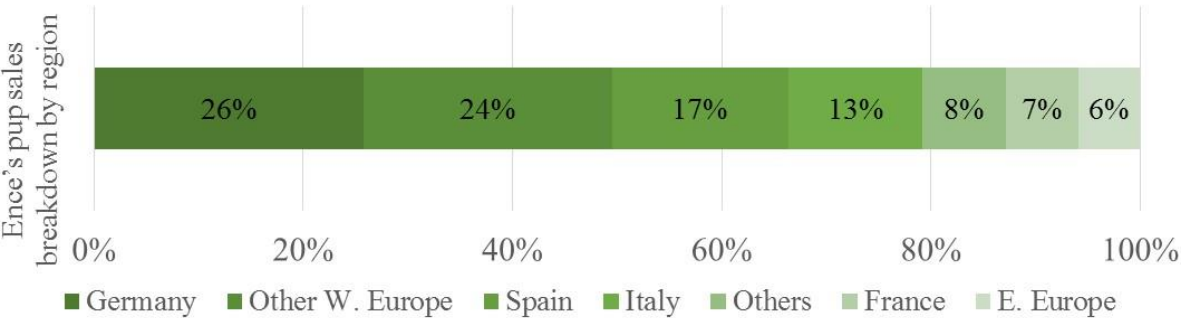


Figure 21: Ence’s pulp sales by region in 2015 (Ence, 2015)

**4.1.2. The energy business**

Independently from the pulp business, Ence operates three mills to produce electrical power from forestry and agricultural biomass.

Ence’s power generation capacity, independently from the cogeneration adds up to 111MW, split between Huelva’s first plant, Mérida and the converted Huelva’s plant, with a capacity of 50MW, 20MW and 41MW respectively (Ence, 2015).

**4.2. Share price evolution**

Ence’s share price performance since the IPO is displayed in Figure 22. Since the IPO in 1997, the share has gained 142%. The lowest price observable was 1,06€/share in the IPO date and the highest price was 7,81€/share on April 20, 2007.

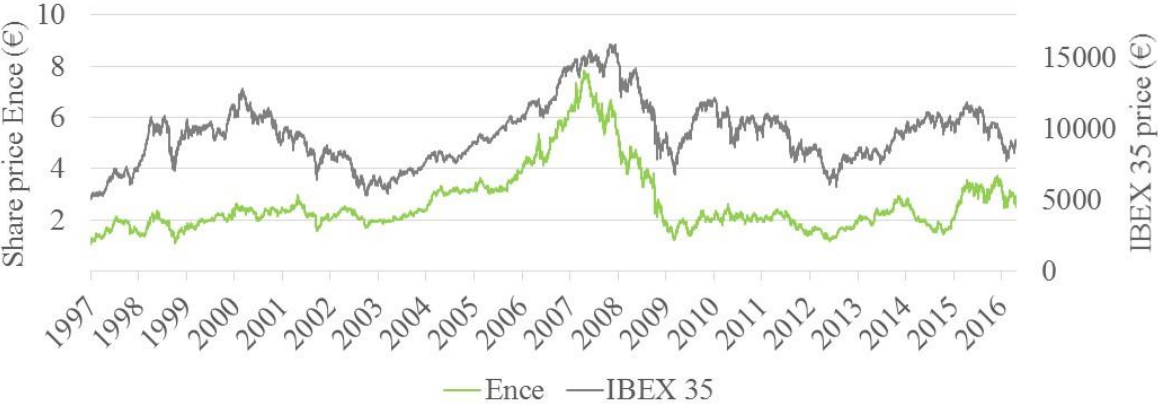


Figure 22: Ence’s share price and IBEX 35 evolution since IPO date (Reuters, 2016)

As observable from Figure 23, Ence's stock shows more volatility than the Spanish Price Index IBEX 35. The standard deviations of Ence's stock return and IBEX 35 are 2,2% and 1,5% respectively. Ence's stock returns show a correlation with the IBEX 35 returns since 1997 of 47%.

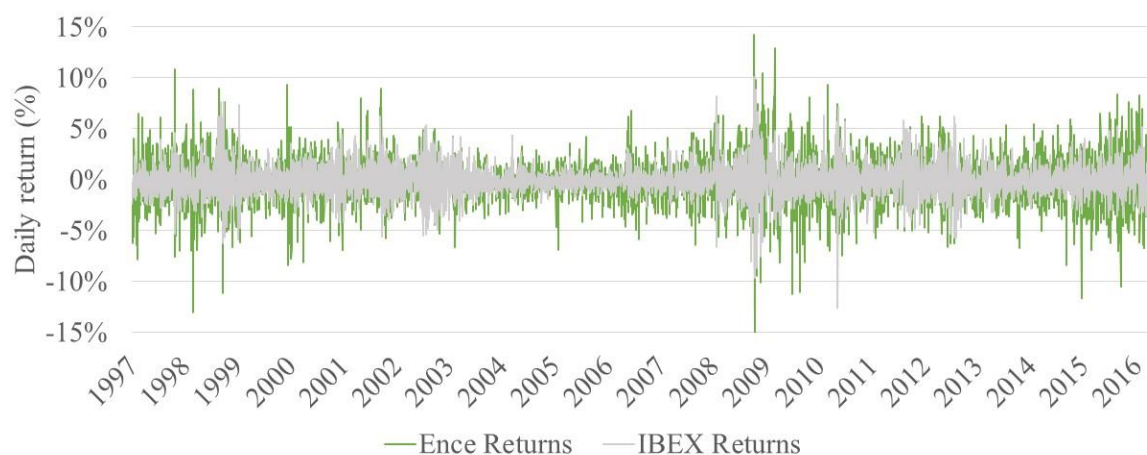


Figure 23: Ence and IBEX 35 returns 1997-2016

### 4.3. Company shareholder structure

Approximately half of the shares of Ence are in free-float (Ence, 2015). One quarter of Ence's shares are held by Retos Operativos XXI, S.L. The detailed shareholder structure is displayed in Table 9.

Shareholders	Number of shares	Ownership
Retos Operativos XXI, S.L.	66 322 213	26,50%
Alcor Holding, S.A.	14 766 078	5,90%
Mendibea 2002, S.L.	13 514 715	5,40%
Asúa Inversiones, S.L.	13 014 170	5,20%
Amber Cpital UK LLP	10 010 900	4,00%
LSV Asset Management	7 508 175	3,00%
Treasury Shares (own shares)	1 501 635	0,60%
Free Float	123 634 615	49,40%
<b>Total</b>	<b>250 272 500</b>	<b>100%</b>

Table 9: Ence shareholder structure 2016 (Ence, 2016)

#### 4.4. Past financial analysis

The past financial analysis will be conducted from 2010 until 2015, covering a full pulp business cycle, which lasts between 3 and 6 years. Due to the financial crisis of 2008, this year and the following were not representative of Ence's normal operations.

##### 4.4.1. Operational performance

Ence's total revenues have fallen at a CAGR of 4,4% since 2010. Due to the increase in cost efficiency, the company's gross margin dropped by a lower CAGR of 3,3% for the same period. The company's EBITDA has grown at a 1,5% CAGR since 2010. 2014's abnormally low EBITDA results from the conversion of Huelva pulp mill into a biomass energy production plant. Adjusted EBITDA for non-current events is detailed in Appendix 24. In 2015 the company was able to surpass the normal EBITDA levels, as shown in Figure 24.

<i>Million €</i>	2010	2011	2012	2013	2014	2015	CAGR 2010-2015	Variance (vs. 2014)
Revenue	831	825	828	853	688	664	-4,4%	-3,4%
Cost of sales	(367)	(391)	(408)	(428)	(379)	(273)	-5,7%	-28,1%
<b>Gross Margin</b>	<b>469</b>	<b>433</b>	<b>420</b>	<b>427</b>	<b>298</b>	<b>396</b>	<b>-3,3%</b>	<b>32,8%</b>
<b>EBITDA</b>	<b>178</b>	<b>139</b>	<b>139</b>	<b>148</b>	<b>2</b>	<b>192</b>	<b>1,5%</b>	<b>11275,1%</b>
<b>EBIT</b>	<b>107</b>	<b>72</b>	<b>73</b>	<b>17</b>	<b>(169)</b>	<b>133</b>	<b>4,6%</b>	<b>-179,0%</b>
<b>EBT</b>	<b>80</b>	<b>49</b>	<b>54</b>	<b>(10)</b>	<b>(195)</b>	<b>67</b>	<b>-3,4%</b>	<b>-134,3%</b>
<b>Net profit/(loss)</b>	<b>54</b>	<b>33</b>	<b>34</b>	<b>(11)</b>	<b>(141)</b>	<b>50</b>	<b>-1,6%</b>	<b>-135,4%</b>

Figure 24: Profit and loss statement summary 2010-2015 (Reuters, 2016)

Ence's revenues have fallen from 2013 onwards, as shown in Figure 25. This is also a consequence of the discontinuation of pulp production in Huelva, which reduced the quantity produced in 2014 (Figure 26), impacting both year-over-year evolution of revenues in 2014 and 2015. The energy business' revenues have been growing ever since the company started the business line, mainly due to increases in MWH sold and in average income per MWH sold, as shown in Figure 27.

<i>Million €</i>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>CAGR 2010-2015 (vs. 2014)</b>	<b>Variance</b>
Pulp	627	597	598	609	501	483	-5,1%	-3,7%
Cogeneration	140	184	198	182	71	72	-12,4%	1,8%
Energy	-	-	11	52	96	95	106,6%	-1,2%
Forestry	64	44	21	11	19	12	-28,2%	-37,1%
<b>Total Sales</b>	<b>831</b>	<b>825</b>	<b>828</b>	<b>853</b>	<b>688</b>	<b>664</b>	<b>-4,4%</b>	<b>-3,4%</b>

Figure 25: Ence's revenue by business line 2010-2015 (Ence, 2015)

<i>Million €</i>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>CAGR 2010-2015 (vs. 2014)</b>	<b>Variance</b>
Sales (mtons)	1,15	1,23	1,25	1,27	1,14	0,89	-5,0%	-22,1%
FOEX PIX BHKP (US\$)	847	799	751	792	746	784	-1,5%	5,2%
EUR/USD	0,754	0,720	0,779	0,752	0,750	0,899	4,9%	19,8%
BHKP Price (w/ rebate)	546	485	479	479	440	545	-0,1%	23,7%
<b>Total Pulp Sales</b>	<b>627</b>	<b>597</b>	<b>598</b>	<b>609</b>	<b>501</b>	<b>483</b>	<b>-5,1%</b>	<b>-3,7%</b>

Figure 26: Pulp revenues summary 2010-2015 (Ence, 2015)

	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>CAGR 2012-2015 (vs. 2014)</b>	<b>Variance</b>
Sales (GWH)	-	-	74,6	376,1	698,3	615,4	102,0%	-11,9%
Average Income (€/MWh)	-	-	145	139	138	158	2,9%	14,2%
<b>Total energy sales</b>	<b>-</b>	<b>-</b>	<b>11</b>	<b>52</b>	<b>96</b>	<b>95</b>	<b>106,6%</b>	<b>-1,2%</b>

Figure 27: Energy revenues (excluding cogeneration) summary 2010-2015 (Ence, 2015)

Overall, all profitability margins have been increasing, as shown in Figure 28. Even though the total EBITDA margin has fallen in 2014, it reached record values in 2015 thanks the favorable exchange rate and to efficiency improvements in the energy business. Without the exchange rate effect, the EBITDA margin in 2015 is approximately 20%, which is 3pp higher than in 2013.

	2010	2011	2012	2013	2014	2015	CAGR 2010-2015	Variance (vs. 2014)
Pulp gross mg	*	*	*	*	43%	57%	N/A	33,2%
Energy gross mg	*	*	*	*	47%	76%	N/A	61,0%
<b>Total gross mg</b>	<b>56%</b>	<b>52%</b>	<b>51%</b>	<b>50%</b>	<b>43%</b>	<b>60%</b>	<b>1,1%</b>	<b>37,5%</b>
Pulp EBITDA mg	*	*	*	*	-2%	27%	N/A	-1679,2%
Energy EBITDA mg	*	*	*	*	12%	37%	N/A	199,4%
<b>Total EBITDA mg</b>	<b>21%</b>	<b>17%</b>	<b>17%</b>	<b>17%</b>	<b>0%</b>	<b>29%</b>	<b>6,1%</b>	<b>11680,0%</b>
Pulp EBIT mg	*	*	*	*	-24%	19%	N/A	-179,4%
Energy EBIT mg	*	*	*	*	-30%	28%	N/A	-193,0%
<b>Total EBIT mg</b>	<b>13%</b>	<b>9%</b>	<b>9%</b>	<b>2%</b>	<b>-25%</b>	<b>20%</b>	<b>9,4%</b>	<b>-181,8%</b>

\* Data not available

Figure 28: Ence's profitability margins 2010-2015

#### 4.4.2. Financial position

As observable in Figure 29, Ence has maintained a stable ratio of net debt over EBITDA of approximately 1x (excluding 2014 due to the reconfiguration of Huelva's factory). This ratio is below the industry average, as detailed in Appendix 33, denoting Ence's low leverage levels.

Million €	2010	2011	2012	2013	2014	2015	CAGR 2010-2015	Variance (vs. 2014)
Net debt	173	210	297	203	284	241	6,9%	-15,1%
EBITDA	178	139	139	148	2	192	1,5%	11275,1%
Net debt/EBITDA	0,9x	1,0x	1,1x	0,6x	3,0x	0,9x	1,0%	-70,1%
Debt/Total Assets	19%	22%	25%	27%	32%	34%	11,8%	6,8%
Debt/Total Equity	34%	42%	48%	51%	67%	72%	16,4%	6,8%
Interest coverage ratio	3,7	2,5	3,8	0,5	(6,0)	2,5	-7,7%	-141,1%

Figure 29: Ence's leverage and interest coverage ratios 2010-2015

Ence's improving liquidity ratios are expressed in Figure 30.

	2010	2011	2012	2013	2014	2015	CAGR 2010-2015	Variance (vs. 2014)
Cash ratio	39%	35%	19%	68%	39%	85%	17,0%	119,8%
Current ratio	161%	135%	148%	158%	152%	198%	4,3%	30,3%

Figure 30: Ence's liquidity ratios 2010-2015

#### **4.5. Ence's strategy going forward**

For the next 5 years ENCE has set three key objectives: i) increase its pulp capacity by 20%, ii) decrease pulp cash costs by 9% and iii) increase energy capacity by 233%. Ence is currently on an investment phase, driven by the high free cash flow generated by the favorable pulp cycle stage. The increase in pulp capacity will be achieved by investing in debottlenecking the Navia pulp mill, by replicating Navia's production process in Pontevedra and by direct investment in increasing capacity in both mills.

Ence aims to save up to 10% in woods costs (which account for around 60% of the total cash costs) by renegotiating better terms with small wood supplier thanks to the increasing scale. Ence is also focused on positioning itself as environmentally friendly and sustainable and is investing towards maintaining their FSC/PEFC wood certifications. The wood certifications alongside with investments in special product features (such as beaching with a total chlorine free technology and high porosity and softness) is expected to allow Ence to achieve a premium price on its pulp sales. Moreover, Ence is also investing in improving their delivery logistics to more quickly satisfy the needs of their clients compared to South American competitors.

In the energy business, Ence plans to increase and consolidate the local production, supported by the recent market stability, and spread globally through partnerships and joint ventures in Chile, Colombia and India. Ence plans to invest in a minimum of 100MW per country. However, Ence has not yet disclosed any more information about the partners of these projects so these projects were not quantified into the company valuation. Nevertheless, the market seems to anticipate a positive impact in company value since on the announcement date (November 20, 2015), the share price went up by 2% in the following day and by 7% in the following week. However, because no information is disclosed, these projects were not quantified into the company valuation.

## 5. Valuation of Ence

In order to compute Ence's fair value the future cash flows were firstly estimated and then a DCF valuation was performed using the FCFF method.

### 5.1. Future cash flows forecast

The FCFF were computed separately for both the pulp and the energy business. The data collection date is the 27<sup>th</sup> of March 2016. At this date, Ence has published up to 2015's results. Historical and forecasted financial statements are displayed in Appendices 3 to 7.

#### 5.1.1. Pulp business

The explicit period for the estimation of the pulp business cash flows ranges from 2016 until 2021, covering for one full pulp cycle. Moreover, by this year the company is forecasted to have finalized its investment cycle and the depreciations match the CAPEX.

##### 5.1.1.1. Pulp business revenues

Pulp business revenues include the pulp and the energy cogeneration sales. The forecasts for the components of the pulp revenue streams are expressed in Figure 31.

<b>Pulp business - pulp</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Sales ('000 tons)	1 249	1 270	1 137	885	940	959	1 009	1 029	1 049	1 081
BHKP FOEX PIX (US\$)	751	792	746	784	777	750	709	720	736	736
BHKP Price (w/ rebate) (€)	479	479	440	545	561	540	506	509	517	515
Exchange rate EUR/USD	0,78	0,75	0,75	0,90	0,90	0,90	0,89	0,88	0,87	0,87
<b>Total Pulp Sales (M€)</b>	<b>598,3</b>	<b>608,8</b>	<b>500,8</b>	<b>482,5</b>	<b>527,7</b>	<b>518,7</b>	<b>511,1</b>	<b>525,0</b>	<b>543,9</b>	<b>558,2</b>
<i>Growth rate</i>	<i>0%</i>	<i>2%</i>	<i>-18%</i>	<i>-4%</i>	<i>6%</i>	<i>-2%</i>	<i>-1%</i>	<i>3%</i>	<i>4%</i>	<i>3%</i>

*Figure 31: Historical and forecasted pulp business revenues*

We forecast Ence's pulp production to continue to grow steadily slightly above the historical average of 2% to meet its 5-year objective of 20% increase in capacity. On the long-term, we expect the yearly volume growth to converge to 1,5% due to efficiency improvements. We forecast capacity utilization to converge towards 98% in the upcoming years, based on Ence's

estimates. This represents an increase vis-à-vis the historical 93% of capacity utilization mostly thanks to efficiency improvements. We also expect that Ence will continue to be able to sell 100% of its production. Appendix 10 displays in detail the historical and forecasted pulp production capacity, production levels and sales.

The pulp price has been estimated based on supply and demand for pulp, industry spare capacity and cash costs as described in section 3.1.4.2. An average rebate of 20% was considered over the estimated index price based on company information and historical values. The exchange rate USD/EUR central scenario was built under the assumption that its tendency is greatly explained by the inflation rate in the long term and are computed based on Formula 23 and the data on Appendix 8. BHKP price and USD/EUR exchange rate forecasts can be found in detail in Appendices 11, 12 and 13. These assumptions lead to an average growth rate of the pulp revenues of 2% for the upcoming 6 years, with higher growth rates in some years mainly due to the BHKP price cyclicalities.

The forecasts for the revenue streams of the energy cogeneration from the pulp production are expressed in Figure 32.

<b>Pulp business - Cogeneration</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Sales (GWh)	1542,8	1519,5	707,5	709,5	809,9	878,2	941,7	989,6	1037,8	1059,4
Average Income (€/MWh)	128	119	100	102	107	111	110	110	111	113
<b>Total energy sales (M€)</b>	<b>197,6</b>	<b>181,5</b>	<b>71,0</b>	<b>72,2</b>	<b>86,9</b>	<b>97,5</b>	<b>103,6</b>	<b>108,9</b>	<b>115,4</b>	<b>119,9</b>
<i>Growth rate</i>	7%	-8%	-61%	2%	20%	12%	6%	5%	6%	4%

*Figure 32: Energy production through cogeneration revenue forecast*

Energy production through cogeneration capacity is forecasted to grow at 10% per year on average in the upcoming 5 years due to large investments to reach a total target capacity of 86MW by 2020. The daily energy production hours are foreseen to increase from 14 to 16 hours in the upcoming years. Electricity sales are forecasted to remain at historical average of 97% of production, since increasing this ratio implies high fixed costs to decrease energy dissipation. The average income is forecasted to grow at 2% on average, driven mainly by inflation since we foresee stability for energy prices in Spain, as described in section 3.2.4. Energy cogeneration production capacity, sales, consumption and average income are displayed in detail in Appendix 14.

Forestry revenues were estimated based on the average historical ratio between forestry sales and pulp production of 19€/ton. These are displayed in detail in Appendix 15.

### 5.1.1.2. Pulp business operational costs

As highlighted before, Ence is currently investing to increase efficiency, which is forecasted to lead cash cost decreases. Historical and forecasted cash costs are expressed in Figure 33.

<b>Cash costs (yearly average)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Wood	199	212	213	198	198	198	198	198	198	198
Processing cost*	69	78	101	72	67	62	58	54	49	45
Personnel & other fixed costs	31	34	39	38	34	34	34	34	34	34
Commercial	27	29	29	28	28	28	28	28	28	28
Corporate costs	23	25	24	23	23	23	24	24	24	25
<b>Total cash costs (€/ton)</b>	<b>348,6</b>	<b>377,7</b>	<b>406,0</b>	<b>359,0</b>	<b>349,5</b>	<b>345,4</b>	<b>341,4</b>	<b>337,5</b>	<b>333,5</b>	<b>329,6</b>
<i>Growth rate</i>	-5%	8%	7%	-12%	-3%	-1%	-1%	-1%	-1%	-1%

\*Chemicals and energy

*Figure 33: Historical and forecasted cash costs per ton of pulp produced*

Wood costs are of utmost importance to Ence as they represent on average 56% of all pulp cash costs. Ence is changing its supplying strategy towards smaller and closer suppliers in order to have a larger bargaining power, negotiate better deals and have lower transportation costs. The timber consumption per ton of pulp produced has been steady over the last 3 years at 2,98m<sup>3</sup> of timber per ton of pulp produced. The unit cost of timber is expected to remain constant as it is forecasted that the supplying strategy efficiency increase will offset the inflation growth rate. Wood costs forecasts are described in detail in Appendix 16.

The process improvement projects undergoing in the pulp mills aim to reduce the energy and chemicals necessary per ton of pulp produced. Ence forecasts these projects to lead to a reduction in total processing cash costs of 11€/ton by 2021. Furthermore, the replication of the Navia industrial model in Pontevedra is expected to lead to the same processing cash costs in Pontevedra as observable in Navia, upon project completion. This reduction can be translated into a processing cash cost reduction of 16€/ton by 2021 (Ence, 2015). Furthermore, the capacity improvements will lead to a dilution of fixed costs, resulting in a fixed cash cost reduction of 4€/ton, observable from 2016. Workforce costs were computed based on the company's target number of employees of 950 and considering the average remuneration per employee to grow with inflation, as observable in Appendix 18. Cash costs evolution details are expressed in Appendix 17. Other operating expenses were forecasted mainly dependent on sales volume, apart from the fixed ones and are expressed in detail in Appendix 19.

**5.1.1.3. Pulp business capital expenditures and depreciations**

The pulp business historical and forecasted capital expenditures are expressed in Figure 34.

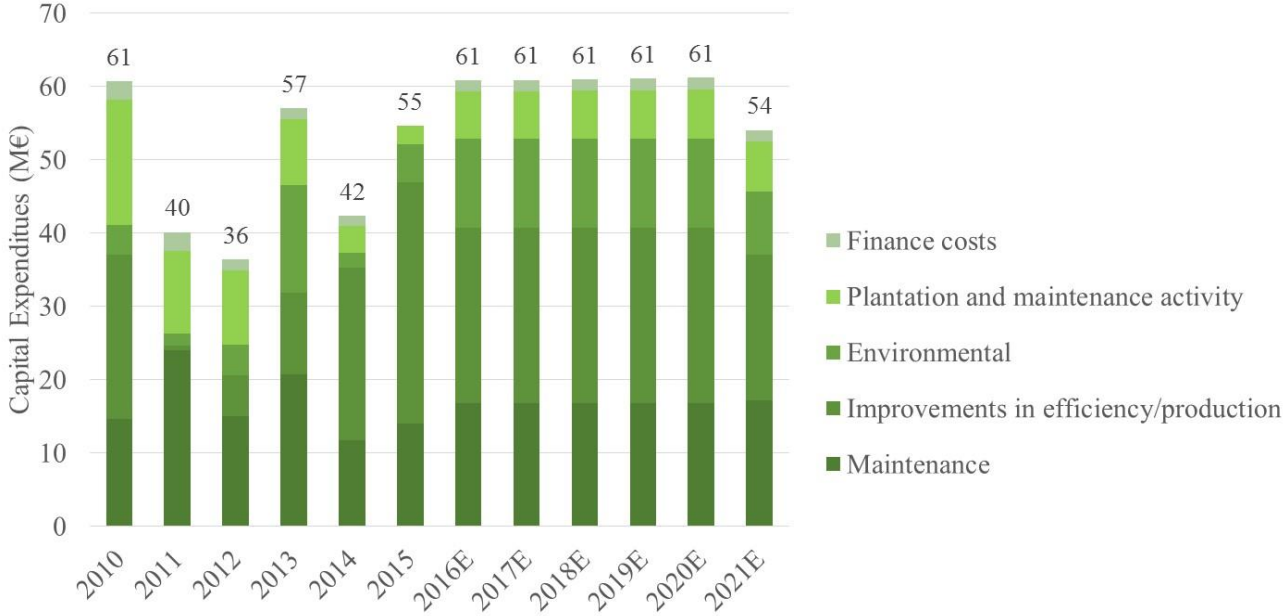
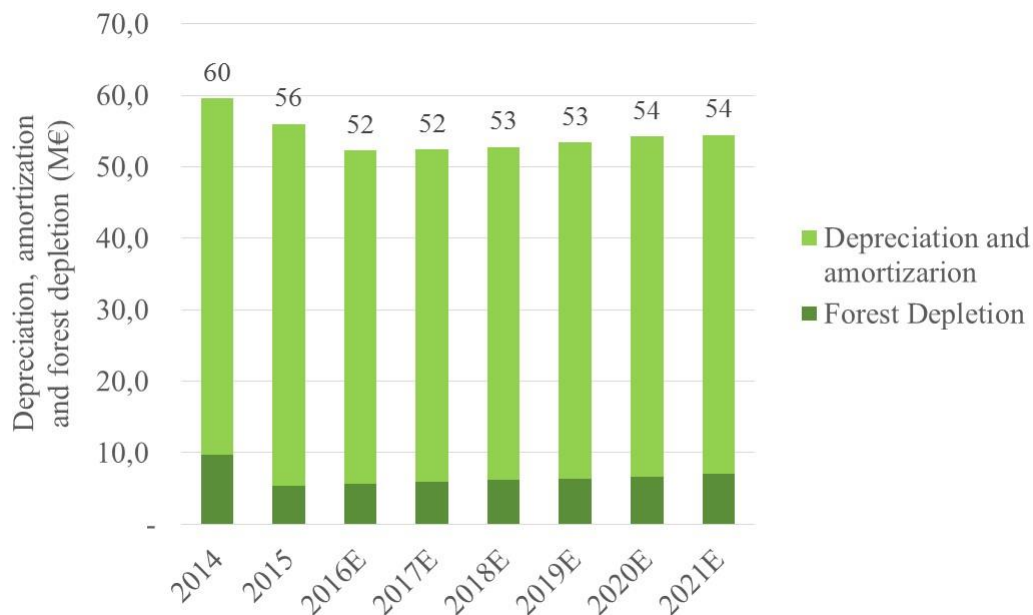


Figure 34: Historical and forecasted pulp business CAPEX

As mentioned in Section 4.5, Ence is investing heavily until 2020 in projects to increase efficiency and capacity. Process improvement and cost reduction investments are forecasted to cost a total of €45M, out of which €33M are allocated to Navia and €12M to Pontevedra. The replication of the Navia industrial model in Pontevedra is forecasted to cost €74M. Both these expenditures are labeled under improvements in efficiency/production and are assumed to be spread evenly until 2020. The debottlenecking of the pulp mills is expected to cost €124M, assumed to be spread evenly until 2020. Environmental investments, namely acquiring timber quality certifications, are forecasted to amount to €61M in the upcoming 5 years. Maintenance and plantation activity investments are forecasted to remain on the same track as the historical average, growing with inflation. Property, plant and equipment disposals were assumed to be one third of the non-current assets held for sale, in line with historical levels. Detailed information on CAPEX can be found in Appendix 20.

Total depreciations, amortizations forest depletion are expressed in Figure 35 and can be found in more detail in Appendix 21.



*Figure 35: Historical and forecasted depreciation, amortization and forest depletion (pulp business)*

Pulp business depreciations drop from 2014 onwards because the Huelva mill depreciations are reallocated to the energy business in the end of that year. Depreciation rates are computed assuming the same historical useful life. Depreciations increase steadily from 2016 onwards due to the new investments until 2021, when the investment cycle is forecasted to slowdown and the business reaches its steady state.

#### **5.1.1.4. Pulp and energy business working capital**

Due to the lack of working capital data broken down by business segment, working capital was computed for the entire firm and was allocated to the pulp and energy business based on sales value. The working capital computation by business is expressed in Figure 36.

<b>Net working capital (m€)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Inventories	87,6	71,0	37,9	40,2	45,0	45,3	46,8	47,0	47,4	48,0	48,7	49,3	49,9
Trade and other receivables	138,6	114,4	100,4	122,0	116,5	117,8	118,8	122,7	127,5	131,4	133,6	136,0	138,3
Income tax receivable	-	8,2	11,9	1,0	-	-	-	-	-	-	-	-	-
Other current financial assets	7,6	55,9	8,5	8,7	12,6	12,7	12,9	13,1	13,3	13,6	13,8	14,0	14,3
Deferred tax assets	30,6	35,6	81,6	70,8	53,7	48,7	36,4	39,7	49,5	53,8	55,4	55,8	56,5
Other receivables*	29,7	18,6	9,7	9,0	16,9	16,9	16,9	17,0	17,0	17,0	17,0	17,0	17,0
Other current assets	0,9	1,0	1,3	0,5	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Trade and other payables	(184,7)	(187,7)	(144,6)	(149,4)	(130,8)	(131,7)	(136,0)	(136,7)	(137,8)	(139,4)	(141,4)	(143,2)	(145,1)
Income tax payable	(1,3)	(0,0)	(0,1)	(0,1)	(1,0)	(0,9)	(0,7)	(0,8)	(0,9)	(1,0)	(1,1)	(1,1)	(1,1)
Deferred tax liabilities	(31,7)	(27,6)	(21,9)	(20,6)	(30,6)	(27,8)	(20,8)	(22,7)	(28,3)	(30,7)	(31,6)	(31,9)	(32,3)
Other payables*	(8,5)	(11,3)	(8,6)	(7,0)	(9,8)	(9,8)	(9,8)	(9,8)	(9,8)	(9,8)	(9,8)	(9,8)	(9,8)
Other current liabilities	(0,5)	(0,7)	(0,5)	0,0	(0,4)	(0,4)	(0,4)	(0,4)	(0,4)	(0,4)	(0,4)	(0,4)	(0,4)
<b>Working Capital requirement</b>	<b>68,2</b>	<b>77,1</b>	<b>75,7</b>	<b>75,2</b>	<b>73,0</b>	<b>71,9</b>	<b>65,2</b>	<b>70,3</b>	<b>78,6</b>	<b>83,3</b>	<b>85,2</b>	<b>86,7</b>	<b>88,4</b>
<b>Δ NWC</b>	<b>(34,2)</b>	<b>8,9</b>	<b>(1,5)</b>	<b>(0,5)</b>	<b>(2,1)</b>	<b>(1,1)</b>	<b>(6,7)</b>	<b>5,1</b>	<b>8,3</b>	<b>4,7</b>	<b>1,8</b>	<b>1,6</b>	<b>1,6</b>
% Sales Pulp Business	1,0	0,9	0,9	0,9	0,9	0,9	0,8	0,8	0,8	0,8	0,8	0,8	0,8
% Sales Energy Business	0,0	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2	0,2	0,2	0,2	0,2
<b>Δ NWC Pulp Business</b>	<b>(33,8)</b>	<b>8,3</b>	<b>(1,2)</b>	<b>(0,4)</b>	<b>(1,8)</b>	<b>(1,0)</b>	<b>(5,7)</b>	<b>4,3</b>	<b>7,0</b>	<b>4,0</b>	<b>1,5</b>	<b>1,3</b>	<b>1,4</b>
<b>Δ NWC Energy Business</b>	<b>(0,4)</b>	<b>0,5</b>	<b>(0,2)</b>	<b>(0,1)</b>	<b>(0,3)</b>	<b>(0,2)</b>	<b>(1,1)</b>	<b>0,8</b>	<b>1,3</b>	<b>0,8</b>	<b>0,3</b>	<b>0,3</b>	<b>0,3</b>

\*Public authorities

Figure 36: Historical and forecasted net working capital by business

Days sales of inventories (DSI), days outstanding sales (DOS) and days payable outstanding (DPO) were computed based on the average of the last 5 years, with more weight on the most recent years. This leads to DSI of 57 days, DOS of 58 days and DPO of 166 days. Deferred tax assets and liabilities are forecasted based on an historical average of the ratio between deferred tax assets or liabilities and income tax. Other items were assumed to either remain constant or grow at the same rate as sales.

**5.1.2. Energy business**

The explicit period for the estimation of the energy business cash flows ranges from 2016 until 2024, as the major investments occurring in this business will lead to a rapid forecasted growth in the upcoming years, only reaching steady state by 2024.

**5.1.2.1. Energy business revenues**

Energy business revenue stream arises from the sale of biomass energy to the Spanish grid. Figure 37 displays the components of the independent biomass plants energy business.

<b>Energy business - Biomass</b>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Sales (GWh)	698	615	662	695	724	746	761	776	791	799	807
Average Income (€/MWh)	138	158	158	160	162	165	168	170	173	176	179
<b>Total energy sales (M€)</b>	<b>96</b>	<b>95</b>	<b>105</b>	<b>111</b>	<b>117</b>	<b>123</b>	<b>127</b>	<b>132</b>	<b>137</b>	<b>141</b>	<b>145</b>

*Figure 37: Historical and forecasted energy business revenues*

The three biomass energy plants are forecasted to reach a total capacity of 135MW by 2022, a 22% increase in relation to today’s capacity. Ence’s current investments in the energy business are focused towards efficiency improvements, such as decreasing energy dissipation and on short-term capacity improvements.

Production is forecasted to increase from an average of 89% of capacity to 95% until 2021, as targeted by the company. Historically, Ence has sold on average 96% of its total production, which is forecasted to increase to 97%, also propelled by the efficiency investments.

The average income for the biomass sales is forecasted to remain stable, growing with inflation, due to recent governmental policies supporting the price’s stability, as described in section 3.2.4. The average income paid by the Spanish grid to Ence is forecasted to increase given

government’s incentives to renewable energy. Biomass energy production capacity, production sales and average income are displayed in detail in Appendix 22.

**5.1.2.2. Energy business operating costs**

The cost of sales per MW of energy produced has been decreasing significantly since 2012 when Ence started producing biomass energy through independent plants. This cost is estimated by the company to remain at 45€/MW, decreasing at 1% annually due to the efficiency improvements. Other operating expenses were estimated based on sales level, apart from fixed costs. Appendix 23 details the operating costs for the energy business.

**5.1.2.3. Energy business capital expenditures and depreciations**

The energy business historical and forecasted capital expenditures are expressed in Figure 38.

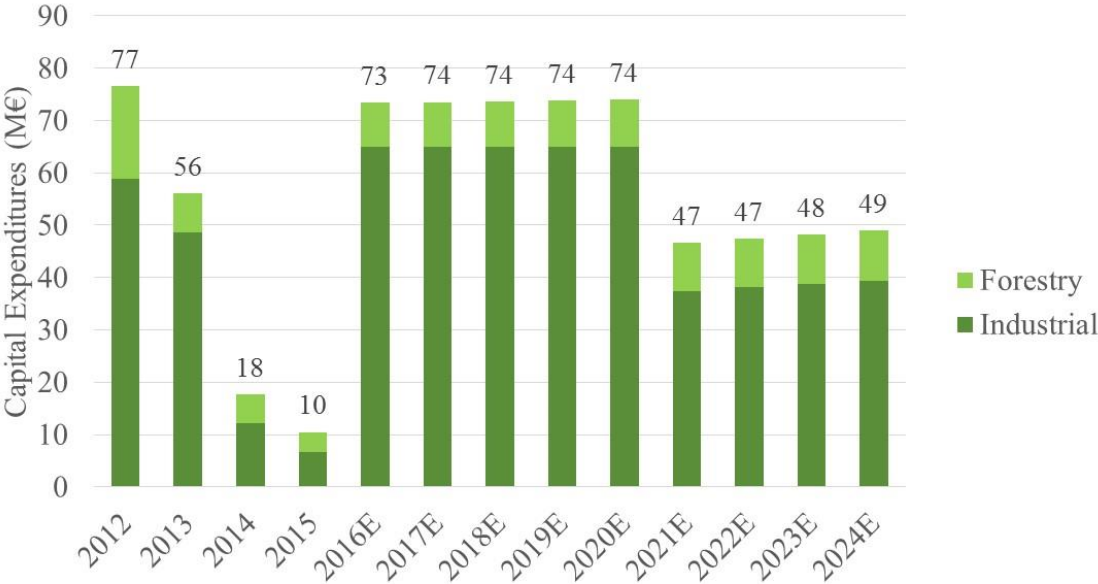


Figure 38: Historical and forecasted energy business CAPEX

Ence plans to invest a total of €325M until 2020 in capacity and efficiency increases in order to increase competitiveness before other incumbent players arise to also seize the governmental incentives. Forestry capex is estimated to grow with inflation. Capital expenditures are expressed with more detail in Appendix 20. Energy business depreciations, amortizations forest depletion are displayed in Figure 39 and, with more detail, in Appendix 21.



Figure 39: Historical and forecasted depreciation, amortization and forest depletion (energy business)

Depreciations in the energy business increase steadily until 2024 when they match the capital expenditures and the company reaches stability.

## 5.2. The discount cash flow valuation method

The FCFF valuation method was chosen to value Ence as discussed in Section 2.2.2.6. The valuation is performed as a sum of the both businesses value. As the company only provides broken down data by business for the operational cash flows, total financing cash flows and cost of debt are computed for the firm as a whole.

### 5.2.1. The capital structure

Ence has a target ratio of debt over EBITDA, which we used to compute the future debt level. EBITDA has been a constant percentage of total assets historically, as observable in Appendix 24. Ence's debt is subdivided into high-yield bonds, non-recourse debt to finance the restructuring, bank borrowings and other financial liabilities, according to Figure 40. More details on Ence's debt can be found in Appendices 26 and 27. The term high-yield debt is used to be consistent with Ence's financial reports. In fact, that portion of debt is rated as BBB- by S&P, which corresponds to an investment grade. The high-yield term is used by Ence because

in 2013 the company issued bonds to finance the restructuring. Because this would imply Huelva's production to stop, they were given a speculative grade by S&P.

<b>Debt end-year balance (M€)</b>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
High-yield bond	250	250	250	250	250	250	250	250	150	150	150
Non-recourse debt	109	128	116	103	90	76	61	46	30	15	-
Bank loans	1	30	30	57	242	225	155	186	315	345	374
Arrangement fees	(11)	(9)	(9)	(8)	(7)	(5)	(4)	(3)	(2)	(1)	-
Other financial liabilities	10	8	7	10	10	10	10	10	10	10	10
<b>Total</b>	<b>358</b>	<b>407</b>	<b>393</b>	<b>412</b>	<b>585</b>	<b>555</b>	<b>471</b>	<b>488</b>	<b>503</b>	<b>519</b>	<b>534</b>

*Figure 40: Historical and forecasted debt end-year balance*

The historical and forecasted debt levels lead to an average capital structure of approximately 30%.

Ence's dividend policy has been steadily increasing from a dividend of €0,07/share in 2012 to €0,10/share in 2015. Additionally, Ence also pays dividends in stocks of amounts close to the total regular dividend amount. Ence announced they target to distribute dividends of €0,08/share in 2016, increasing steadily until reaching the target dividend of €0,12/share in 2021. This implies a dividend yield growth from 4% in 2015 to 6% in 2021. The historical and forecasted number of shares outstanding and shareholder remuneration are in Appendices 25 and 30, respectively.

## **5.2.2. Valuation of pulp business**

In this section, the pulp business cash flows will be valued, by discounting the FCFF from that business at an appropriate WACC that reflects the business' risk.

### **5.2.2.1. Cost of capital**

#### **5.2.2.1.1. Cost of debt**

Given the lack of broken down data by business regarding debt, cost of debt is computed at company level. Ence's cost of debt is computed through a combination of three factors: the current yield to maturity on currently traded debt, corporate and debt issue specific ratings by both Moody's and Standard & Poor's, and the interest coverage ratio rating. The overall

company cost of debt was computed through a weighted average of the cost of debt of the different types of debt.

Bonds, which represent 61% of Ence's total debt in 2015, were considered to have a cost of debt equal to the current YTM. Non-recourse debt is expected to have the same cost of debt as the historical one due to already negotiated contracts, which is consistent with the corporate spread given by the rating agencies. Bank loans were assumed to have a cost of debt based on the spread given by the corporate ratings by both Moody's and Standard & Poor's as well as by the interest coverage ratio. Other financial liabilities were assumed to continue having low interest rates of 1%, as observable historically. More details on the different costs of debt are displayed in Appendix 29. The market cost of debt incorporated into the WACC was approximately 5,1%.

#### **5.2.2.1.2. Cost of equity**

The risk-free rate is assumed to be the yield on a 10-year government bond issued by Germany. This duration was chosen as it matches the explicit period. At the data collection point this rate is 0,125%, as detailed in Appendix 28.

The beta is computed through the following methodology. Firstly, the 22 peers' 5-year monthly betas against the MSCI Europe Index were computed and are detailed in Appendix 34. Secondly, these betas were unlevered through Formula 5. Third, we conducted a regression on these betas, with the independent variables described in Formula 24.

$$\begin{aligned} \beta_{ui} = & \alpha + \beta_1 MC_i + \beta_2 Revenue_i + \beta_3 EBITDA_i + \beta_4 EBITDA_{mg}_i + \\ & + \beta_5 EPS_i + \beta_6 DivYield_i + \beta_7 RevGrowth_i + \beta_8 EBITDA_{Growth}_i + \\ & + \beta_9 ND/EBITDA_i + \beta_{10} D/E_i + \beta_{11} Forestry_i + \beta_{12} Cogen_i + \\ & + \beta_{13} Biomass_i + \beta_{14} Paper_i \end{aligned}$$

Where,  $MC$  = market capitalization

$Revenue$  = Revenue for 2015

$EBITDA$  = EBITDA for 2015

$EBITDA_{mg}$  = EBITDA margin for 2015

$EPS$  = Earnings per share

$DivYield$  = Dividend Yield

$RevGrowth$  = Revenues 5-year CAGR

$EBITDA_{Growth}$  = EBITDA 5-year CAGR

$ND/EBITDA$  = Net debt over EBITDA

$D/E$  = Debt over equity

$Forestry$  = Dummy variable for forestry management or ownership

$Cogen$  = Dummy variable for cogeneration

$Biomass$  = Dummy variable for biomass independent production

$Paper$  = Dummy variable for paper production

*Formula 24: Regression on the raw peer betas*

The methodology for peer selection is described further ahead in Section 6.1. The results for the regression are expressed in Figure 41.

	Beta
Intercept	1,25**
MC	0,00
Revenue	0,00
EBITDA	0,00
EBITDAmg	-1,29**
EPS	0,08
DivYield	-6,04
RevGrowth	-1,00
EBITDA Growth	1,50
ND/ EBITDA	0,03
D/E	-0,25***
Forestry	0,41
Cogen	0,37
Biomass	0,19
Paper	-0,59***

\*,\*\*,\*\*\* The value is significantly different from 0 with a 10%, 5% and 1% significance level, respectively

*Figure 41: Beta regression line based on pulp peers*

By plugging in Ence's values in the regression and by adjusting the computed beta to Ence's capital structure we arrive at the raw betas of 1,43 and 0,70 for the pulp and energy business respectively. When we adjust the betas for the market by giving it a weight of 1/3 we obtain an adjusted beta of 1,29 and 0,80 for the pulp and energy business respectively. This estimate is not far from the overall raw beta obtained by regressing Ence's stock on the MSCI world index of 1,28. Additionally, a market risk premium of 5,5% and a country risk premium of 3,4% were incorporated into the discount rate, based on Fernández (2015) and Damodaran (2015). By computing the cost of equity for the pulp business through the CAPM formula we arrive at 10,6%.

#### **5.2.2.1.3. WACC**

By applying the forward-looking capital structure of 30% D/A in perpetuity and considering a tax rate of 25% based on company information, we arrive at a WACC of 8,5% for the pulp business.

### 5.2.2.2. FCFF

The FCFF from the pulp business were computed based on the assumptions described in section 5.1.1. and are expressed in Figure 42. Total company FCFF are displayed in Appendix 31.

<i>Values in m€</i>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
EBIT	(139,7)	106,7	115,9	107,9	90,4	105,1	125,9	137,1
Tax on EBIT	53,7	(13,8)	(23,5)	(21,1)	(15,2)	(18,3)	(24,1)	(26,5)
<b>NOPLAT</b>	<b>(86,0)</b>	<b>92,9</b>	<b>92,5</b>	<b>86,8</b>	<b>75,2</b>	<b>86,7</b>	<b>101,9</b>	<b>110,6</b>
Dep., amort. and depletion	59,6	56,0	52,3	52,4	52,8	53,4	54,3	54,5
Impairment	69,8	(6,3)	2,6	2,6	2,6	2,6	2,6	2,6
Investment in WC	(1,2)	(0,4)	(1,8)	(1,0)	(5,7)	4,3	7,0	4,0
Capital Expenditures	42,4	54,6	60,9	60,9	61,0	61,1	61,2	54,1
<b>FCF from Operations</b>	<b>2,3</b>	<b>88,4</b>	<b>88,3</b>	<b>81,8</b>	<b>75,2</b>	<b>77,3</b>	<b>90,5</b>	<b>109,5</b>
CF from Non-Op Activities	0,3	1,1	1,2	1,2	1,2	1,2	1,2	1,3
<b>FCFF from pulp business</b>	<b>2,6</b>	<b>89,5</b>	<b>89,5</b>	<b>83,0</b>	<b>76,3</b>	<b>78,5</b>	<b>91,7</b>	<b>110,8</b>
<i>Growth rate FCFF</i>		3344%	0%	-7%	-8%	3%	17%	21%

Figure 42: Pulp business FCFF computation

### 5.2.2.3. Terminal value and growth rate

The terminal value for the cyclical pulp business was computed through the average FCFF on one entire BHKP price cycle, ranging from 2015 until 2020.

The central scenario accounts for a terminal value growth rate of 1,7%, which is the simple average between the Spanish GDP growth rate, weighted average of the GDPs of the countries to which Ence sells pulp, historical ROIC multiplied by the reinvestment rate (assuming the latter will remain constant) and the RISI (2015) pulp industry growth rate estimate. All these growth rates range between 1,5% and 1,8%. ROIC computations can be found in detail in Appendix 32.

## 5.2.3. Valuation of energy business

### 5.2.3.1. Cost of capital

The cost of debt assumptions are detailed in section 5.2.2.1.1. We employed the same risk-free rate as for the pulp business. The beta for the energy business follows the same methodology

as the pulp business beta and is computed as described in section 5.2.2.1.2. Like in the pulp business, a market risk premium of 5,5% and a country risk premium of 3,4% were incorporated into the discount rate, leading to a cost of equity of 7,93%. By applying a capital structure of D/A of 30% in perpetuity and considering a tax rate of 25% based on company information, we arrive at a WACC of 6,7% for the energy business.

### 5.2.3.2. FCFF

The FCFF from the energy business were computed based on the assumptions described in section 5.1.2. and are expressed in detail Figure 43.

<i>Values in m€</i>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
EBIT	-28,9	26,6	30,9	29,9	29,4	20,9	17,4	17,1	19,5	18,7	18,4
Tax on EBIT	11,1	-3,4	-6,2	-5,9	-4,9	-3,6	-3,3	-3,3	-3,7	-3,6	-3,5
<b>NOPLAT</b>	<b>-17,8</b>	<b>23,1</b>	<b>24,6</b>	<b>24,1</b>	<b>24,4</b>	<b>17,4</b>	<b>14,2</b>	<b>13,9</b>	<b>15,8</b>	<b>15,1</b>	<b>14,9</b>
Dep., amort. and depletion	9,5	11,2	14,0	19,6	25,3	31,1	36,8	41,0	42,6	46,7	50,3
Impairment & disposals gains/(losses)	31,4	-2,3	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
Investment in WC	-0,2	-0,1	-0,3	0,1	-1,3	0,5	1,0	0,9	0,3	0,3	0,3
Capital Expenditures	17,6	10,5	73,4	73,5	73,6	73,8	73,9	46,6	47,3	48,2	49,0
<b>FCF from Operations</b>	<b>5,7</b>	<b>21,6</b>	<b>-33,4</b>	<b>-28,8</b>	<b>-21,5</b>	<b>-24,8</b>	<b>-22,8</b>	<b>8,5</b>	<b>11,8</b>	<b>14,4</b>	<b>17,0</b>
CF from Non-Op Activities	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
<b>FCFF from energy business</b>	<b>5,7</b>	<b>21,6</b>	<b>-33,4</b>	<b>-28,8</b>	<b>-21,5</b>	<b>-24,8</b>	<b>-22,8</b>	<b>8,5</b>	<b>11,8</b>	<b>14,4</b>	<b>17,0</b>
<i>Growth rate FCFF</i>		-280%	-255%	-14%	-25%	15%	-8%	-137%	39%	22%	18%

Figure 43: Energy business FCFF computation

### 5.2.3.3. Terminal value and growth rate

The FCFF considered to grow in perpetuity for the energy business is the 2024 FCFF since the company is forecasted to have reached steady state by that year. The terminal value growth rate was computed based on the Spanish GDP and Spanish energy industry market forecasts addressed in section 3.2. The terminal growth rate considered under the central scenario is 1,5%.

### 5.2.4. Sum of the parts valuation

By adding the discounted FCFF from both pulp and energy business and by subtracting the market value of net debt we arrive at the equity value of Ence. This methodology allows to

assess how much each business contributes towards the company value, as expressed in Figure 44.

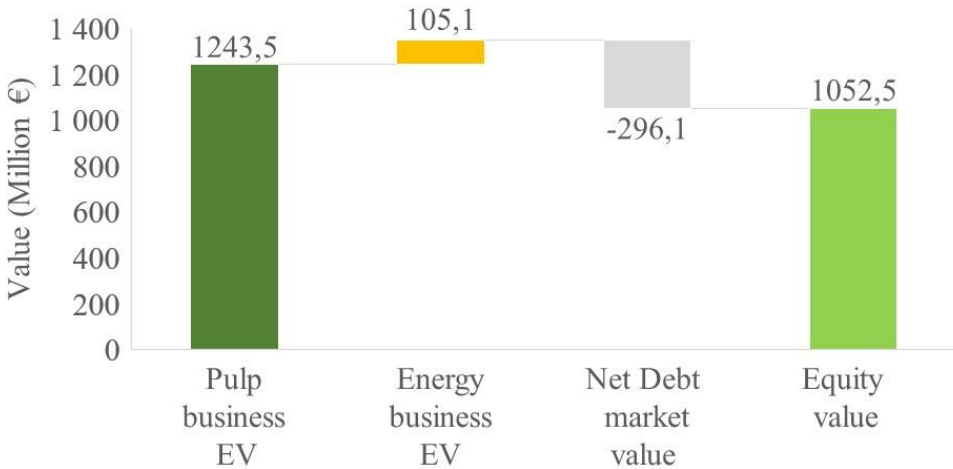


Figure 44: Ence’s computed share price broken down by value sources

The DCF central scenario provides a value per share of €4,21 which represents an upside of 38% compared with the market price of €3,04 on March 27<sup>th</sup>, 2016, supporting a buy recommendation of Ence’s common share. Due to the short-term FCFF of the energy business, the pulp business accounts for 92% of the total enterprise value, as observable from Figure 45.

	Total	%	% from Explicit Period	% from Terminal Value
<b>Enterprise Value ('000 €)</b>	<b>1 348 691</b>	<b>100%</b>	<b>20%</b>	<b>80%</b>
Pulp business enterprise value	1 243 580	92%	29%	71%
Energy business enterprise value	105 111	8%	-90%	190%

Figure 45: Enterprise value breakdown by business

**5.3. Sensitivity Analysis**

A sensitivity analysis was performed on key variables, especially the ones subject to higher uncertainty. These variables include the pulp price, the USD/EUR exchange rate, the pulp capacity growth rate, the biomass energy capacity, the terminal value growth rate, the beta and the country risk premium. In a *coeteris paribus* analysis, the valuation ranges from €3,91/share to €4,61/share, being these values the averages of the conservative and optimistic scenarios. The sensitivity analysis is summarized in Figures 46 and 47. The optimistic scenario for the pulp price is based on historical 7-year volatility. The conservative scenario deviation from the central one is lower since the central scenario is quite conservative as it considers a small cash

cost spread. The USD/EUR exchange rate optimistic scenario assumes the spot rate in the future, while the conservative scenario considers 5-year historical volatility. Ence's share price is highly sensitive to the pulp price, the USD/EUR exchange rate and the country risk premium considered, which are all exogenous factors to Ence.

	Conservative	Central	Optimistic
<b>Pulp production capacity growth rate (<math>\pm 0,3</math>pp)</b>			
Value per share	4,14 €	4,21 €	4,27 €
% Change	-1,6%		1,4%
<b>Pulp price forecast (-1,0%;+6,0%)</b>			
Value per share	4,04 €	4,21 €	5,39 €
% Change	-3,9%		28,1%
<b>USD/EUR exchange rate forecast (+10,8%;current)</b>			
Value per share	3,32 €	4,21 €	4,53 €
% Change	-21,1%		7,7%
<b>Biomass energy production capacity growth rate (<math>\pm 1</math>pp)</b>			
Value per share	4,05 €	4,21 €	4,45 €
% Change	-3,7%		5,8%
<b>Terminal growth rate (<math>\pm 0,1</math>pp)</b>			
Value per share	4,15 €	4,21 €	4,27 €
% Change	-1,4%		1,4%
<b>Raw Beta (<math>\pm 0,1</math>)</b>			
Value per share	4,00 €	4,21 €	4,45 €
% Change	-5,1%		5,8%
<b>Country risk premium (<math>\pm 1</math>pp)</b>			
Value per share	3,66 €	4,21 €	4,91 €
% Change	-13,0%		16,7%

Figure 46: Ence's share price sensitivity analysis

	Conservative	Central	Optimistic
Average	3,91 €	4,21 €	4,61 €
% Change	-7,1%	-	9,5%
Upside	28,4%	38,3%	51,5%
Min	3,32 €	4,21 €	4,27 €
% Change	-21,1%	-	1,4%
Upside	9,1%	38,3%	40,2%
Max	4,15 €	4,21 €	5,39 €
% Change	-1,4%	-	28,1%
Upside	36,3%	38,3%	77,1%

Figure 47: Ence's sensitivity analysis summary

Additionally, a Monte Carlo simulation was conducted on the DCF valuation to simulate a range of values for changing variables, determining a range of possible target share prices. We vary the BHKP price, the USD/EUR exchange rate, the WACC and the pulp and energy

capacity growth rates as they have the highest impact on the share price in a *coeteris paribus* analysis. The parameters used on the Monte Carlo analysis are the historically observable ones. The analysis simulated 10.000 outcomes for these variables. These inputs lead to an average price target of €4,01 and a 66% confidence level in the buy recommendation, which is consistent with the previous recommendation. The Monte Carlo simulation can be visualized graphically in Figure 48.

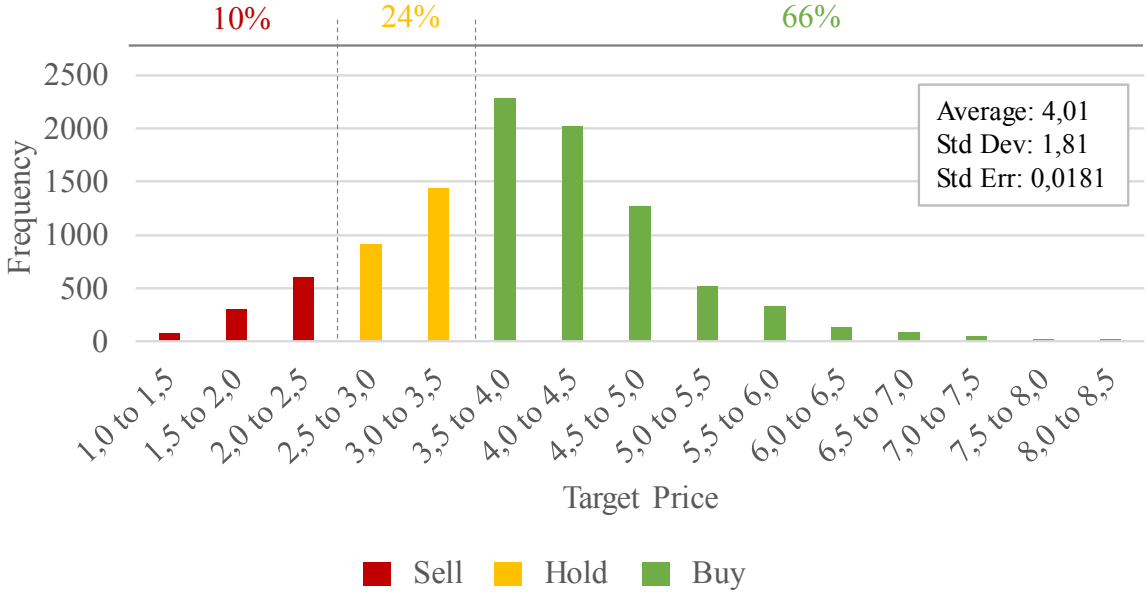


Figure 48: Monte Carlo simulation output

## 6. Valuation Through Multiples

### 6.1. Peer group selection

Figure 49 describes the value chain of the 30 largest BHKP producers worldwide.

<b>BHKP producers</b>	<b>Country</b>	<b>Forestry manage- ment/owner- ship</b>	<b>Pulp production</b>	<b>Energy co- generation</b>	<b>Biomass inde- pendent production</b>	<b>Paper/ tissue sales</b>
Suzano Papel e Celulose SA	Brazil	✓	✓	x	✓	✓
The Navigator Company	Portugal	✓	✓	✓	✓	✓
Klabin SA	Brazil	✓	✓	✓	x	✓
CMPC SA	Chile	✓	✓	✓	x	✓
International Paper Co	USA	✓	✓	✓	✓	✓
Metsa Board	Finland	✓	✓	✓	x	✓
Mondi Plc	South Afri	✓	✓	✓	✓	✓
Sappi Limited	South Afri	✓	✓	✓	✓	✓
Stora Enso Oyj	Finland	✓	✓	✓	x	✓
UPM-Kymmene	Finland	✓	✓	✓	✓	✓
RGE/APRIL	Indonesia	✓	✓	✓	x	✓
Asia Pulp and Paper (APP)	Indonesia	✓	✓	✓	x	✓
Marubeni Corp	Japan	✓	✓	✓	✓	✓
Oji Holdings Corp	Japan	✓	✓	✓	✓	✓
Nippon Paper Industries Co.	Japan	✓	✓	✓	✓	✓
Verso Corp	USA	x	✓	✓	✓	✓
Resolute Forest Products Inc.	Canada	✓	✓	✓	✓	✓
Georgia-Pacific LLC	USA	✓	✓	✓	x	✓
Domtar Corp	Canada	✓	✓	✓	x	✓
ENCE Energia y Celulosa SA	Spain	✓	✓	✓	✓	x
Altri SGPS SA	Portugal	✓	✓	✓	✓	x
Fibria Celulose SA	Brazil	✓	✓	x	x	x
Arauco	Chile	✓	✓	✓	✓	x
Eldorado	Brazil	✓	✓	✓	✓	x
Cenibra S.A.	Brazil	✓	✓	✓	x	x
Mercer International Inc	USA	✓	✓	✓	✓	x
Weyerhaeuser Co	USA	✓	✓	✓	✓	x
Sodra Skogsagarna	Sweden	✓	✓	✓	x	x
Powerflute OYJ	Finland	✓	✓	✓	x	✓
Billerud Korsnas	Sweden	✓	✓	✓	x	✓

Figure 49: Value chain of the 30 largest BHKP producers worldwide in capacity

We choose to use a single peer group, despite Ence’s two business since the majority of pulp producers also produce energy through cogeneration and through independent energy plant, to leverage synergies.

This company selection served as base to the K-means cluster analysis. Figure 50 depicts the criteria utilized in the clustering, to capture the most similar firms in terms of size, profitability, growth opportunities, capital structure and finally position in the value chain. This is displayed in more detail in Appendix 33.

<b>Criteria</b>	<b>Measure</b>
<b>Size</b>	Market capitalization
	Revenue 2015
	Revenue 2016E
	Average sales 2015-2016E
	EBITDA 2015
	EBITDA 2016E
	EBITDA margin 2015
<b>Profitability</b>	Return on long term capital 2015
	Earnings per share 2015
	Earnings per share 2016E
	Dividend yield 2016E
<b>Growth rate</b>	Revenues CAGR 2010-2015
	EBITDA CAGR 2010-2015
<b>Leverage</b>	Net debt 2015
	Net debt 2016E
	Debt/EBITDA 2015
	Debt/Equity 2015
<b>Position in the value chain</b>	

*Figure 50: Criteria and measures utilized to select the peer group*

We conducted a K-means clustering analysis. Firstly, a total of 5 centroids was chosen to allocate the different companies. Secondly, firm characteristics were standardized and each observation was attributed a cluster. Next, new centroids were computed as the mean values of observations of each cluster. This process was repeated until the centroids were stable. Through this analysis we were able to select a total of 12 peers belonging to the same cluster as Ence, which represents 60% of the 30 largest BHKP producers worldwide, whose characteristics and multiples are detailed in Appendix 34.

## 6.2. Multiples valuation

In order to perform a valuation of Ence relatively to its peers, current and forward-looking EV/EBITDA and P/E multiples were computed, as discussed in the literature review. The peer group average multiples are expressed in Figure 51.

<b>Multiple</b>	<b>EV/EBITDA 2015</b>	<b>EV/EBITDA 2016E (Next 12 months)</b>	<b>P/E 2015</b>	<b>P/E 2016E (Next 12 months)</b>
<b>Peer group average</b>	7,55	6,48	15,09	12,20

*Figure 51: Peer group average multiples*

By applying these multiples to Ence's financials we arrive at the relative valuation expressed in Figure 52. In order to compute Ence's equity value through the EV multiples, total net debt was deducted.

<b>Multiple</b>	<b>EV/EBITDA 2015</b>	<b>EV/EBITDA 2016E (Next 12 months)</b>	<b>P/E 2015</b>	<b>P/E 2016E (Next 12 months)</b>
<b>Ence's value per share (€)</b>	4,22	3,58	3,01	3,67

*Figure 52: Ence's multiple valuation*

As observable in Figure 52, Ence's relative valuation ranges from 3,01€/share to 4,22€/share, with an average value of €3,62/share. This result is consistent with the buy recommendation obtained through the DCF valuation as it supports that Ence is undervalued relative to peers. However, despite the cluster analysis to find the most relevant peer group, some peer group characteristics highly differ from Ence, as expressed in Figure 53.

	<b>Average Sales 2015-2016E (m€)</b>	<b>EBITDA margin 2015</b>	<b>EBITDA 5yr CAGR (2010-2015)</b>	<b>ND/EBITDA 2015</b>
Peer group average	3078	17,00%	2,70%	1,2x
Ence	738	29,50%	2%	2,8x

*Figure 53: Average peer group indicators versus Ence*

Due to the differences between the peer group and Ence, preference is given to the DCF valuation results, and the multiples are solely used as a qualitative supporter of the buy recommendation. The summary of all computed valuation methods' results is detailed in Figure 54.

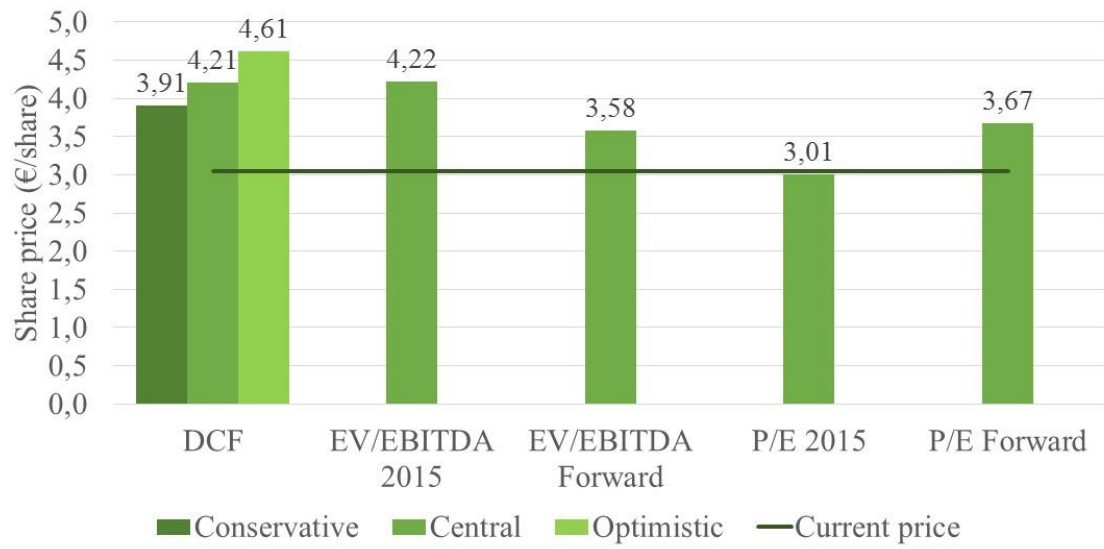


Figure 54: Valuation summary

## 7. Comparison with Investment Bank

We compare the Haitong Bank valuation as of 12<sup>th</sup> January 2016 with our methodology and results, summarized in Figure 55. Haitong Bank issued a buy recommendation with a target fair-value price of €4/share, which represented an upside of 29% from the market price at 12<sup>th</sup> of January 2016 of €3,10/share. This recommendation is in line with the consensus, as 81% of the total 16 analysts that cover Ence issued a buy recommendation, as shown in Figure 56.

	Valuation by Haitong Bank	Valuation in this report
Estimated fair price	€4,00/share	€4,21/share
Recommendation	Buy	Buy
Explicit forecast period	2015-2018	2016-2024
Method - Overall	Sum of the parts valuation	Sum of the parts valuation
Method - Pulp business	FCFF	FCFF
Method - Energy business	FCFF	FCFF
Method - Forestry business	75% of Book Value	FCFF
Cost of equity without CRP	8,0%	7,1%
Overall WACC	9,20%	8,30%
Perpetuity growth rate	1,50%	1,60%

Figure 55: Summary of main differences between this report's valuation and Haitong Bank's

Investment Bank	Recommendation	Target Price	Review Date
Santander	Buy	3,55 €	23/02/2016
JB Capital Markets	Buy	5,90 €	16/02/2016
Kepler Cheuvreux	Buy	5,10 €	16/02/2016
Ahorro Corporación	Sell	2,90 €	16/02/2016
N+1	Buy	4,12 €	16/02/2016
Sabadell	Buy	4,00 €	05/02/2016
La Caixa	Buy	4,40 €	04/02/2016
Bankinter	Buy	5,20 €	28/01/2016
BBVA	Neutral	4,50 €	25/01/2016
BPI	Neutral	3,55 €	20/01/2016
Fidentiis	Buy	5,50 €	13/01/2016
Haitong	Buy	4,00 €	12/01/2016
Mirabaud	Buy	3,40 €	15/09/2015
Intermonte	Buy	5,00 €	04/05/2015
Beka Finance	Buy	4,00 €	02/03/2015
<b>Average</b>		<b>4,34 €</b>	

Figure 56: Recommendations and target share price by Ence's covering analysts

The first main difference between the two valuations lies in the explicit period. At Haitong's valuation date Ence hadn't released the 2015 results, making them part of Haitong's explicit forecast period. Haitong slightly underestimated the results from 2015 and applied growth rates to them in order to estimate future cash flows.

Both valuations use a sum of the parts approach. However, there are differences between what is incorporated into each business, which leads to valuation differences due to the different WACC used for each business. Haitong allocates energy cogeneration to the energy business, while in this report they are considered to be part of the pulp business. Haitong considers the risk of the cogeneration cash flows depends mostly on sales, while this report defends that their risk is highly correlated to the pulp production, aligned with Ence's approach. If there is no pulp production energy cogeneration is also null. We also employ different valuation approaches to the forestry business. Contrary to Haitong (who value it as a book value percentage) we conduct a detailed DCF as well. However, since forestry sales account for only 2% of total revenues this has low impact on the estimated fair value.

Moreover, we employ different assumptions for the main financial drivers. While Haitong assumes a constant 3,5% yearly growth in revenues, we assume a higher growth in the first two years to align with projected capacity increases in pulp production. We also forecast that EBITDA margin will converge to 30% whereas Haitong is more conservative with a projection of 27%. Methodologies and results for estimating future pulp prices are equivalent, as well as regarding the future debt level.

One important difference is that Haitong calculates CAPEX as a fixed multiple of revenues (0,1x) while we detail the forecasted investments as released by Ence. Haitong's methodology allows for a smoother distribution of CAPEX over the explicit period, leading to CAPEX matching depreciations sooner in the explicit period. This can explain why Haitong's explicit period is shorter than this report's. We believe our methodology matches better the forecasted cash-flow with the time when they will be incurred, allowing to discount it at the most appropriate rate.

Regarding the discount rate, Haitong bases its cost of equity on the raw beta computed by Bloomberg. In this report's valuation, the beta was computed through a more sophisticated approach, as described in Section 5.2.2.1.2 The remaining difference arises from the risk-free rate. Haitong uses the weighted average of the risk-free rates of the countries in which Ence's sales are concentrated. One argument in favor of the German Bunds is that it is possibly the

lowest risk security currently available in the European market. Both valuations add the country risk premium separately. The differences in the cost of equity explain the differences in the overall WACC.

Overall, as observable from Figure 57, the main differences in the valuations arise from the CAPEX treatment and the beta computation, which almost offset each other. The forecast of 2015's results and the allocation of the cogeneration cash flows are also important differences.

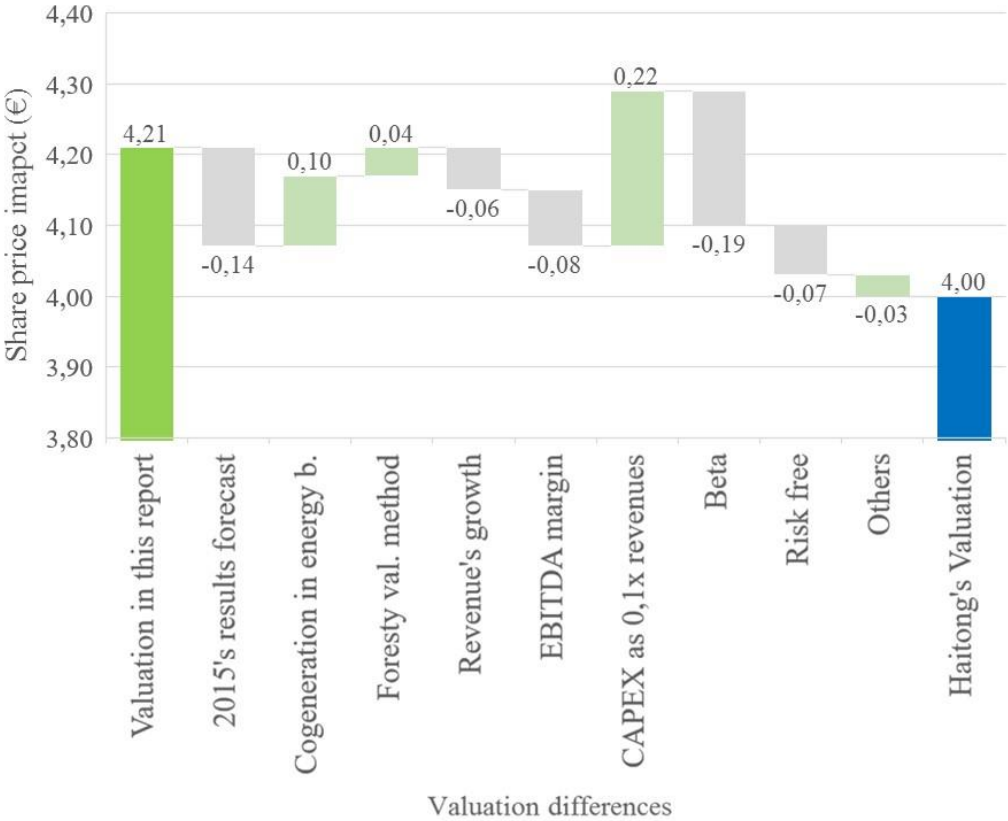


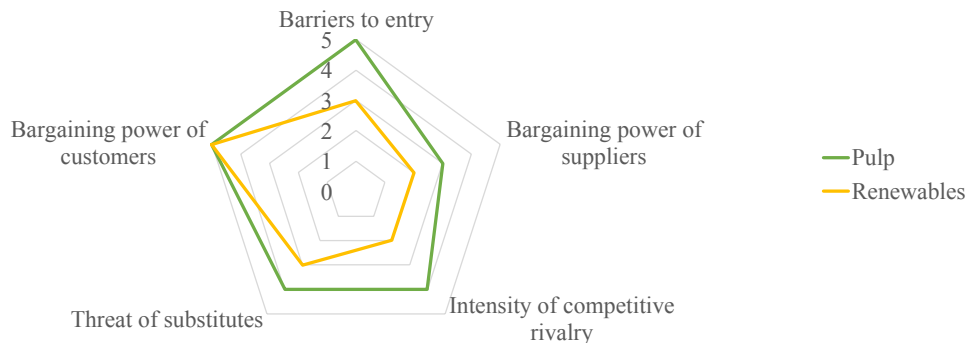
Figure 57: Valuation differences between this report and Haitong Bank's and respective share price impact

## 8. Conclusion

By applying a DCF method to value Ence we get a value of €4,21/share. Since Ence's common shares are trading at €3,04/share, a buy recommendation is issued, with an upside potential of 38%. Peer multiples valuation supports this recommendation as they also point towards Ence's share being undervalued. The pulp business is the largest component of Ence's enterprise value, accounting for 92%. The considered assumptions are supported by industry factors such as a sustained upwards trend in pulp prices mainly driven by increasing demand of BHKP and the Spanish government incentives in favor of biomass energy driven by the 20-20-20 European targets. Furthermore, Ence's competitive position, namely the low pulp production cash costs and the strong incumbent position in the biomass Spanish market. Multiples valuation also indicate Ence is undervalued with respect to peers. This valuation is in line with Haitong Bank's, despite significant differences in the beta and CAPEX computations. This report has as limitations the assumptions undertaken to make the valuation, despite the sensitivity and Monte Carlo analyses conducted for the most impactful assumptions.

## 9. Appendix

### Appendix 1 – Porter’s five forces



#### Pulp industry

#### Renewables industry

<b>Barriers to entry</b>	<b>High:</b> New players have to incur in large start up investments in order to enter the pulp industry. Moreover, the industry is competitive on marginal costs, which are high in the first years of operations due to the small capacity.	<b>Medium:</b> Even though the required startup costs for the renewables industry are quite large, and a good level of expertise is necessary, this is an industry that is advancing fast due to government incentives and worldwide pressure towards reaching energy sustainability.
<b>Bargaining power of customers</b>	<b>High:</b> Due to the low differentiation between the different pulp suppliers, combined with the low switching costs amongst pulp producers, customers have a high influence on rebates.	<b>High:</b> Because the main customer for renewable energy in Spain is the government, for the national grid, players are highly subject to its pricing and other regulations.
<b>Bargaining power of suppliers</b>	<b>Low:</b> Because of the existent excess wood supply in Spain, combined with the fact that Spanish pulp producers have self-sufficiency rates on average of 20%, suppliers' bargaining power is low.	<b>Low:</b> For biomass energy specifically, there is a high abundance of materials that are disposed and are not being used for energy production due to the still small capacity of current players.
<b>Threat of substitutes</b>	<b>Significant:</b> Because of its commodity nature and low differentiability, for a wide variety of end products there is a degree of indifference between different pulp types. Moreover, substitutes such as recycled paper are also a threat for pulp producers for some end-use products.	<b>Medium:</b> There is a large threat of substitutability between the different renewable sources of energy. However, due to the latest Spanish government incentives, biomass and wind stand in advantage. Non-renewables are also a threatening as they are widely, despite decreasingly, used.
<b>Intensity of competitive rivalry</b>	<b>Significant:</b> The pulp industry is very competitive on cash costs, due to its commodity status. Companies compete for customers in cost efficiency and rebates. Moreover, apart from the giant brazil companies, the pulp industry is quite fragmented.	<b>Low:</b> There are not many renewables players in Spain when compared to peers such as Germany or the US. The government's demand for renewables is increasing as we reach the 20-20-20 deadlines and the supply is still far from meeting the demand to reach those goals.

## Appendix 2 – SWOT Analysis

### Pulp business

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>• Strong customer base in Europe</li> <li>• Competitive cash costs</li> <li>• Efficiency improvements driven by investments</li> <li>• Low leverage and high EBITDA margin when compared with peers</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Price takers</li> <li>• Distance from the high and growing demand and emerging markets</li> <li>• Sales concentrated in Europe leading to high exposure to the EUR-USD fluctuations</li> </ul>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>• Increase of BHKP demand, mainly driven by emerging economies, leading to pressure for prices to increase</li> <li>• Over supply of wood allows for renegotiating with wood suppliers</li> <li>• High transportation costs from competitors to Europe highly favors European pulp producers</li> </ul>	<p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>• Increases in BHKP supply in the short term leading to a short term cycle unfavorable phase</li> <li>• M&amp;A trend in the pulp industry might lead to Latin American players to acquire European ones to enter this market</li> <li>• Recycled paper increasing market share</li> </ul>

### Energy business

<p><b>Strengths:</b></p> <ul style="list-style-type: none"> <li>• Synergies between the pulp and the energy business</li> <li>• Biomass energy know-how</li> <li>• Established position in an industry highly incentivized by the government</li> </ul>	<p><b>Weaknesses:</b></p> <ul style="list-style-type: none"> <li>• Highly subject to government regulations and price laws</li> <li>• Lower cost efficiency in independent plants vs. cogeneration due to their early advancement stage</li> </ul>
<p><b>Opportunities:</b></p> <ul style="list-style-type: none"> <li>• Use the know-how developed through the cogeneration and independent plants and expand overseas to seize opportunities</li> <li>• Highly incentivized type of renewable energy by the government due to the 20-20-20 objectives</li> </ul>	<p><b>Threats:</b></p> <ul style="list-style-type: none"> <li>• Renewable energy regulation</li> <li>• Competition from other similar renewable sources of energy</li> </ul>

## Appendix 3 – Consolidated Income Statement

<i>Values in '000€</i>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>Revenue</b>	<b>830 758</b>	<b>825 451</b>	<b>827 578</b>	<b>853 136</b>	<b>687 544</b>	<b>663 912</b>	<b>736 787</b>	<b>745 420</b>	<b>751 212</b>	<b>776 231</b>	<b>806 758</b>	<b>830 907</b>	<b>845 098</b>	<b>860 102</b>	<b>874 856</b>
Cost of sales	(367 034)	(390 759)	(408 048)	(427 836)	(379 447)	(272 984)	(286 761)	(288 810)	(298 143)	(299 671)	(302 107)	(305 772)	(310 080)	(314 083)	(318 154)
Change in inventories of finished products	4 840	(1 688)	831	2 117	(10 145)	4 800	-	-	-	-	-	-	-	-	-
<b>Gross Margin</b>	<b>468 564</b>	<b>433 004</b>	<b>420 361</b>	<b>427 417</b>	<b>297 952</b>	<b>395 728</b>	<b>450 026</b>	<b>456 610</b>	<b>453 068</b>	<b>476 560</b>	<b>504 651</b>	<b>525 135</b>	<b>535 018</b>	<b>546 019</b>	<b>556 702</b>
Own work capitalised	27 814	27 236	24 183	14 757	6 193	9 526	8 597	8 837	9 043	9 383	9 746	10 062	10 303	10 520	10 736
Other income	10 795	12 604	6 547	15 281	12 134	8 601	9 822	9 853	9 847	10 151	10 554	10 855	10 999	11 174	11 344
<i>Other operating income</i>	<i>3 548</i>	<i>5 173</i>	<i>2 267</i>	<i>2 186</i>	<i>6 448</i>	<i>5 995</i>	<i>4 227</i>	<i>4 188</i>	<i>4 102</i>	<i>4 316</i>	<i>4 620</i>	<i>4 820</i>	<i>4 861</i>	<i>4 931</i>	<i>4 994</i>
<i>Government grants taken to income</i>	<i>7 247</i>	<i>7 431</i>	<i>4 280</i>	<i>6 320</i>	<i>5 686</i>	<i>2 606</i>	<i>5 595</i>	<i>5 665</i>	<i>5 745</i>	<i>5 835</i>	<i>5 934</i>	<i>6 035</i>	<i>6 138</i>	<i>6 243</i>	<i>6 349</i>
Net gain/(loss) on hedging transactions	(4 852)	(10 434)	(27 567)	12 102	39	(1 630)	-	-	-	-	-	-	-	-	-
Employee benefits expense	(84 317)	(89 413)	(82 102)	(79 405)	(87 035)	(62 526)	(65 093)	(71 941)	(74 521)	(75 691)	(76 980)	(78 292)	(79 626)	(80 983)	(82 363)
Other operating expenses	(239 744)	(233 850)	(202 113)	(242 480)	(227 597)	(157 914)	(186 607)	(189 911)	(196 011)	(206 343)	(209 890)	(214 514)	(217 638)	(220 656)	(223 721)
<b>EBITDA</b>	<b>178 260</b>	<b>139 147</b>	<b>139 309</b>	<b>147 672</b>	<b>1 686</b>	<b>191 785</b>	<b>216 745</b>	<b>213 448</b>	<b>201 426</b>	<b>214 061</b>	<b>238 081</b>	<b>253 246</b>	<b>259 056</b>	<b>266 074</b>	<b>272 698</b>
Forest Depletion	(10 672)	(8 345)	(8 887)	(15 204)	(9 656)	(8 181)	(7 386)	(8 119)	(8 897)	(9 720)	(10 588)	(11 500)	(12 454)	(13 450)	(14 486)
Depreciation	(59 982)	(62 191)	(62 394)	(76 901)	(58 866)	(57 185)	(57 585)	(62 676)	(68 049)	(73 682)	(79 555)	(83 057)	(84 583)	(88 644)	(91 717)
Amortization	(1 224)	(1 269)	(978)	(1 437)	(613)	(1 796)	(1 368)	(1 259)	(1 160)	(1 071)	(990)	(916)	(849)	(789)	(734)
Impairment of and gains/(losses) on fixed-asset disposals	222	4 392	6 329	(37 516)	(101 175)	8 612	(3 592)	(3 592)	(3 592)	(3 592)	(3 592)	(3 592)	(3 592)	(3 592)	(3 592)
<b>EBIT</b>	<b>106 605</b>	<b>71 734</b>	<b>73 379</b>	<b>16 614</b>	<b>(168 624)</b>	<b>133 235</b>	<b>146 814</b>	<b>137 802</b>	<b>119 728</b>	<b>125 997</b>	<b>143 357</b>	<b>154 182</b>	<b>157 576</b>	<b>159 598</b>	<b>162 169</b>
Financial income	2 016	5 296	747	2 038	1 065	343	1 143	1 158	1 174	1 192	1 213	1 233	1 254	1 276	1 298
Finance costs	(28 956)	(28 361)	(19 375)	(30 762)	(28 032)	(53 921)	(26 739)	(28 843)	(37 970)	(36 876)	(32 595)	(33 834)	(34 462)	(35 488)	(36 497)
Net exchange differences	-	-	-	641	1 612	1 370	-	-	-	-	-	-	-	-	-
Result for changes in value of financial instruments at fair	-	-	(660)	1 830	(1 326)	(13 990)	(2 430)	(2 430)	(2 430)	(2 430)	(2 430)	(2 430)	(2 430)	(2 430)	(2 430)
<b>EBT</b>	<b>79 664</b>	<b>48 669</b>	<b>54 091</b>	<b>(9 639)</b>	<b>(195 305)</b>	<b>67 037</b>	<b>118 788</b>	<b>107 687</b>	<b>80 502</b>	<b>87 884</b>	<b>109 544</b>	<b>119 152</b>	<b>121 939</b>	<b>122 957</b>	<b>124 540</b>
Income tax	(25 624)	(15 822)	(19 947)	(1 254)	64 802	(17 183)	(29 697)	(26 922)	(20 126)	(21 971)	(27 386)	(29 788)	(30 485)	(30 739)	(31 135)
Restatement of deferred tax assets	-	-	-	-	(10 406)	-	-	-	-	-	-	-	-	-	-
<b>Net profit/(loss)</b>	<b>54 040</b>	<b>32 847</b>	<b>34 144</b>	<b>(10 893)</b>	<b>(140 909)</b>	<b>49 854</b>	<b>89 091</b>	<b>80 766</b>	<b>60 377</b>	<b>65 913</b>	<b>82 158</b>	<b>89 364</b>	<b>91 455</b>	<b>92 217</b>	<b>93 405</b>
EBITDA margin	21,5%	16,9%	16,8%	17,3%	0,2%	28,9%	29,4%	28,6%	26,8%	27,6%	29,5%	30,5%	30,7%	30,9%	31,2%
EBIT margin	12,8%	8,7%	8,9%	1,9%	(24,5%)	20,1%	19,9%	18,5%	15,9%	16,2%	17,8%	18,6%	18,6%	18,6%	18,5%
Gross margin (%)	56,4%	52,5%	50,8%	50,1%	43,3%	59,6%	61,1%	61,3%	60,3%	61,4%	62,6%	63,2%	63,3%	63,5%	63,6%
Earnings/(Loss) per Share	0,21	0,13	0,14	(0,04)	(0,56)	0,20	0,36	0,32	0,24	0,26	0,33	0,36	0,36	0,37	0,37

## Appendix 4 – Income Statement pulp business

<i>Values in '000€</i>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>Revenue (Pulp sales + Cogeneration + Forestry)</b>	<b>591 135</b>	<b>568 661</b>	<b>632 158</b>	<b>634 186</b>	<b>633 743</b>	<b>653 340</b>	<b>679 273</b>	<b>698 656</b>	<b>707 904</b>	<b>719 175</b>	<b>730 094</b>
Cost of sales	(328 325)	(249 779)	(256 017)	(256 852)	(265 555)	(266 441)	(267 174)	(270 498)	(274 460)	(278 466)	(282 541)
Change in inventories of finished products	(10 145)	4 800	-	-	-	-	-	-	-	-	-
<b>Gross Margin</b>	<b>252 665</b>	<b>323 682</b>	<b>376 141</b>	<b>377 334</b>	<b>368 188</b>	<b>386 899</b>	<b>412 098</b>	<b>428 159</b>	<b>433 444</b>	<b>440 708</b>	<b>447 553</b>
Own work capitalised	3 862	5 403	5 068	5 084	5 081	5 238	5 446	5 601	5 675	5 766	5 853
Other income	12 134	5 998	9 822	9 853	9 847	10 151	10 554	10 855	10 999	11 174	11 344
Net gain/(loss) on hedging transactions	38	(874)	-	-	-	-	-	-	-	-	-
Employee benefits expense	(87 035)	(62 526)	(65 093)	(71 941)	(74 521)	(75 691)	(76 980)	(78 292)	(79 626)	(80 983)	(82 363)
Other operating expenses	(191 956)	(115 328)	(155 120)	(157 500)	(162 900)	(165 574)	(168 362)	(172 234)	(174 592)	(176 987)	(179 420)
<b>EBITDA</b>	<b>(10 292)</b>	<b>156 355</b>	<b>170 818</b>	<b>162 831</b>	<b>145 694</b>	<b>161 023</b>	<b>182 756</b>	<b>194 089</b>	<b>195 900</b>	<b>199 678</b>	<b>202 967</b>
Forest Depletion	(9 656)	(5 317)	(5 701)	(5 906)	(6 141)	(6 405)	(6 698)	(7 020)	(7 369)	(7 743)	(8 141)
Depreciation and amortization charges	(49 954)	(50 680)	(46 620)	(46 505)	(46 641)	(47 010)	(47 593)	(47 454)	(47 938)	(48 443)	(48 480)
Impairment and gains/(losses) on fixed-asset disposals	(69 817)	6 306	(2 554)	(2 554)	(2 554)	(2 554)	(2 554)	(2 554)	(2 554)	(2 554)	(2 554)
<b>EBIT</b>	<b>(139 719)</b>	<b>106 664</b>	<b>115 943</b>	<b>107 866</b>	<b>90 357</b>	<b>105 054</b>	<b>125 910</b>	<b>137 061</b>	<b>138 039</b>	<b>140 938</b>	<b>143 792</b>
EBITDA margin	-2%	27%	27%	26%	23%	25%	27%	28%	27%	28%	28%
EBIT margin	-24%	19%	18%	17%	14%	16%	19%	20%	19%	20%	20%
Gross margin (%)	43%	57%	60%	59%	58%	59%	61%	61%	61%	61%	61%

## Appendix 5 – Income Statement energy business

<i>Values in '000€</i>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>Revenue</b>	<b>96 409</b>	<b>95 251</b>	<b>104 629</b>	<b>111 234</b>	<b>117 469</b>	<b>122 891</b>	<b>127 485</b>	<b>132 251</b>	<b>137 194</b>	<b>140 928</b>	<b>144 762</b>
Cost of sales	(51 122)	(23 204)	(30 744)	(31 959)	(32 588)	(33 230)	(34 932)	(35 275)	(35 620)	(35 617)	(35 613)
Change in inventories of finished products	-	-	-	-	-	-	-	-	-	-	-
<b>Gross Margin</b>	<b>45 287</b>	<b>72 047</b>	<b>73 884</b>	<b>79 276</b>	<b>84 881</b>	<b>89 661</b>	<b>92 553</b>	<b>96 976</b>	<b>101 574</b>	<b>105 311</b>	<b>109 149</b>
Own work capitalised	2 331	4 123	3 529	3 752	3 962	4 145	4 300	4 461	4 628	4 754	4 883
Other income	-	(3)	-	-	-	-	-	-	-	-	-
Net gain/(loss) on hedging transactions	1	(756)	-	-	-	-	-	-	-	-	-
Employee benefits expense	-	-	-	-	-	-	-	-	-	-	-
Other operating expenses	(35 641)	(39 981)	(31 487)	(32 411)	(33 111)	(40 769)	(41 528)	(42 280)	(43 046)	(43 669)	(44 300)
<b>EBITDA</b>	<b>11 979</b>	<b>35 430</b>	<b>45 927</b>	<b>50 617</b>	<b>55 732</b>	<b>53 038</b>	<b>55 326</b>	<b>59 157</b>	<b>63 155</b>	<b>66 396</b>	<b>69 732</b>
Forest Depletion	-	(2 865)	(1 686)	(2 213)	(2 756)	(3 314)	(3 889)	(4 480)	(5 085)	(5 707)	(6 345)
Depreciation and amortization charges	(9 525)	(8 300)	(12 333)	(17 430)	(22 568)	(27 743)	(32 952)	(36 519)	(37 495)	(40 990)	(43 972)
Impairment and gains/(losses) on fixed-asset disposals	(31 358)	2 307	(1 038)	(1 038)	(1 038)	(1 038)	(1 038)	(1 038)	(1 038)	(1 038)	(1 038)
<b>EBIT</b>	<b>(28 905)</b>	<b>26 572</b>	<b>30 871</b>	<b>29 936</b>	<b>29 371</b>	<b>20 944</b>	<b>17 447</b>	<b>17 121</b>	<b>19 537</b>	<b>18 661</b>	<b>18 377</b>
EBITDA margin	12%	37%	41%	43%	47%	43%	43%	45%	46%	47%	48%
EBIT margin	-30%	28%	28%	25%	25%	17%	14%	13%	14%	13%	13%
Gross margin (%)	47%	76%	66%	67%	72%	73%	73%	73%	74%	75%	75%

Notes: Financial income, finance costs, net exchange differences and result for changes in value of financial instruments for both business is pooled by the company

The depreciations, amortization and depletion breakdown was computed in the following way: the values correspondent to the existing assets were allocated based on historical breakdown while the depreciation, amortization and depletion of new assets was broken down given the business it was inserted in.

## Appendix 6 – Balance sheet (1/2)

	2010	2011	2012	2013	2014	2015
<b>ASSETS</b>						
Property, plant and equipment	749 442	772 332	776 257	778 213	643 996	641 930
Biological assets	166 187	180 586	170 958	154 145	90 247	87 893
Intangible assets	6 534	8 127	21 556	19 057	13 698	12 613
Non-current financial assets	5 788	4 065	4 144	2 918	2 956	3 027
Deferred tax assets	49 881	42 653	30 580	35 557	81 588	70 831
<b>Total fixed assets</b>	<b>977 832</b>	<b>1 007 763</b>	<b>1 003 495</b>	<b>989 890</b>	<b>832 485</b>	<b>816 294</b>
Inventories	105 911	112 462	87 575	70 989	37 919	40 215
Trade and other receivables	139 953	122 789	138 580	114 364	100 431	121 969
Other accounts receivables from public authorities	20 119	13 005	29 657	18 592	9 747	9 035
Non-current assets held for sale	0	16 544	59 345	0	77 379	50 338
Short-term financial assets	14 586	22 824	7 575	55 876	8 513	8 699
Cash and cash equivalents	70 986	71 629	40 205	103 391	73 428	159 565
Income tax receivable	-	-	-	8 204	11 934	959
Derivatives	786	867	10 721	0	999	245
Other current assets	1 534	911	896	953	1 321	473
<b>Total current assets</b>	<b>353 875</b>	<b>361 031</b>	<b>374 554</b>	<b>372 369</b>	<b>321 671</b>	<b>391 498</b>
<b>TOTAL ASSETS</b>	<b>1 331 707</b>	<b>1 368 794</b>	<b>1 378 049</b>	<b>1 362 259</b>	<b>1 154 156</b>	<b>1 207 792</b>

## Appendix 6 – Balance sheet (2/2)

	2010	2011	2012	2013	2014	2015
<b>EQUITY</b>						
Share capital	232 212	232 212	225 245	225 245	225 245	225 245
Share premium	254 328	254 328	230 221	210 037	195 665	170 776
Parent company reserves	48 470	106 630	99 930	117 458	99 965	135 096
Reserves in fully-consolidated companies	121 536	102 454	112 543	126 422	123 282	60 510
Valuation Adjustments	47 533	33 155	52 992	48 807	46 501	51 028
Parent company retained earnings (prior-period losses)	-	-	-	-	-	(109 117)
Profit of the year	64 711	41 192	43 031	4 311	(140 909)	49 855
Interim Dividend Paid	-	-	-	-	-	(10 951)
Translation differences	-	(591)	(2 011)	(2 218)	(1 077)	(1 116)
Own shares - parent company shares	(2 434)	(49 217)	(37 213)	(19 762)	(5 744)	(3 108)
<b>TOTAL EQUITY</b>	<b>766 356</b>	<b>720 163</b>	<b>724 738</b>	<b>710 300</b>	<b>542 928</b>	<b>568 218</b>
<b>LIABILITIES</b>						
Bonds and other marketable securities	-	-	-	240 679	242 089	243 108
Bank borrowings	242 962	274 186	309 632	98 258	97 960	143 527
Other financial liabilities	8 321	9 183	9 291	8 546	7 486	6 687
Grants	9 961	20 244	20 076	15 209	11 032	11 254
Deferred tax liabilities	23 649	28 289	31 745	27 633	21 948	20 560
Non-current derivatives	36 562	25 466	16 627	7 393	8 103	7 647
Non-current provisions	23 833	23 185	13 258	18 505	11 147	9 260
<b>Total non-current liabilities</b>	<b>345 287</b>	<b>380 553</b>	<b>400 629</b>	<b>416 223</b>	<b>399 765</b>	<b>442 043</b>
Bank borrowings	6 277	20 452	24 108	12 925	16 404	14 813
Other financial liabilities	704	574	1 562	1 962	2 385	1 356
Current derivatives	4 591	34 610	14 886	4 534	7 373	5 923
Trade payables	180 694	165 757	184 654	187 735	144 592	149 397
Other operational payables	20 369	16 207	17 248	9 444	11 734	12 676
Income tax payable	2 188	365	1 311	39	94	57
Other payables to public authorities	4 893	17 655	8 472	11 318	8 649	7 002
Other current liabilities	346	136	453	699	512	-
Current provisions	-	-	-	7 080	19 720	6 306
Non-current liabilities associated with non-current assets held for sale	-	12 322	-	-	-	-
<b>Total current liabilities</b>	<b>220 062</b>	<b>268 078</b>	<b>252 694</b>	<b>235 736</b>	<b>211 463</b>	<b>197 530</b>
<b>TOTAL LIABILITIES</b>	<b>565 350</b>	<b>648 631</b>	<b>653 323</b>	<b>651 959</b>	<b>611 228</b>	<b>639 573</b>
<b>TOTAL EQUITY + LIABILITIES</b>	<b>1 331 706</b>	<b>1 368 794</b>	<b>1 378 061</b>	<b>1 362 259</b>	<b>1 154 156</b>	<b>1 207 791</b>

## Appendix 7 – Cash flow statement (1/2)

<i>Values in '000€</i>	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>OPERATING ACTIVITIES</b>														
Consolidated Profit/(Loss) before tax	<b>57 014</b>	<b>62 978</b>	<b>5 566</b>	<b>(195 304)</b>	<b>67 050</b>	<b>118 788</b>	<b>107 687</b>	<b>80 502</b>	<b>87 884</b>	<b>109 544</b>	<b>119 152</b>	<b>121 564</b>	<b>122 582</b>	<b>124 165</b>
Depreciation	53 736	53 284	61 696	58 866	57 185	57 585	62 676	68 049	73 682	79 555	83 057	84 583	88 644	91 717
Depletion of forest reserve	8 455	9 110	15 205	9 656	8 181	7 386	8 119	8 897	9 720	10 588	11 500	12 454	13 450	14 486
Amortization	1 269	978	1 437	613	1 796	1 368	1 259	1 160	1 071	990	916	849	789	734
Impairment and gains/(losses) of disposals	(4 224)	(2 975)	35 890	101 175	(8 992)	3 592	3 592	3 592	3 592	3 592	3 592	3 592	3 592	3 592
Finance Costs	29 291	18 044	28 699	29 502	66 914	26 739	28 843	37 970	36 876	32 595	33 834	34 837	35 863	36 872
Finance Income	(5 296)	(747)	(2 039)	(1 066)	(343)	(1 143)	(1 158)	(1 174)	(1 192)	(1 213)	(1 233)	(1 254)	(1 276)	(1 298)
Government grants taken to income	(1 124)	(1 243)	(1 290)	(1 300)	(1 982)	(1 830)	(1 852)	(1 878)	(1 908)	(1 940)	(1 974)	(2 007)	(2 041)	(2 076)
Net changes in provisions and deferred expenses	(3 565)	3 679	21 962	32 840	2 793	9 536	9 705	10 016	10 544	10 726	10 962	11 122	11 276	11 432
<b>Total adjustments to profit</b>	<b>78 542</b>	<b>80 130</b>	<b>161 560</b>	<b>230 286</b>	<b>125 552</b>	<b>103 233</b>	<b>111 183</b>	<b>126 632</b>	<b>132 384</b>	<b>134 892</b>	<b>140 653</b>	<b>144 176</b>	<b>150 297</b>	<b>155 460</b>
Trade and other receivables	27 953	(24 047)	29 791	13 904	(22 070)	5 494	(1 365)	(916)	(3 955)	(4 826)	(3 818)	(2 243)	(2 372)	(2 332)
Financial and other current assets	(10 823)	18 184	(2 939)	2 363	(164)	(3 867)	(157)	(179)	(202)	(223)	(227)	(231)	(235)	(239)
Trade and other payables and other liabilities	(7 974)	(13 775)	4 657	(41 929)	(9 224)	(31 302)	934	4 256	697	1 111	1 672	1 964	1 825	1 857
Inventories	(8 332)	18 314	10 359	24 451	(4 095)	(4 792)	(322)	(1 465)	(240)	(382)	(575)	(676)	(628)	(639)
<b>Total changes in Working Capital</b>	<b>824</b>	<b>(1 324)</b>	<b>41 868</b>	<b>(1 211)</b>	<b>(35 553)</b>	<b>(34 466)</b>	<b>(909)</b>	<b>1 697</b>	<b>(3 701)</b>	<b>(4 321)</b>	<b>(2 948)</b>	<b>(1 186)</b>	<b>(1 410)</b>	<b>(1 354)</b>
Interest paid	(28 036)	(21 542)	(18 048)	(25 207)	(47 517)	(23 892)	(25 771)	(33 927)	(32 948)	(29 124)	(30 230)	(31 127)	(32 043)	(32 945)
Interest received	5 296	747	2 038	1 065	343	1 143	1 158	1 174	1 192	1 213	1 233	1 254	1 276	1 298
Income tax received/(paid)	(2 907)	(9 416)	(17 120)	(166)	744	(6 662)	(6 039)	(4 515)	(4 929)	(6 143)	(6 682)	(6 817)	(6 874)	(6 963)
<b>Other cash flows from operating activities</b>	<b>(25 647)</b>	<b>(30 211)</b>	<b>(33 130)</b>	<b>(24 308)</b>	<b>(46 430)</b>	<b>(29 410)</b>	<b>(30 653)</b>	<b>(37 267)</b>	<b>(36 685)</b>	<b>(34 054)</b>	<b>(35 679)</b>	<b>(36 690)</b>	<b>(37 642)</b>	<b>(38 611)</b>
<b>NET CF FROM OPERATING ACTIVITIES</b>	<b>110 733</b>	<b>111 573</b>	<b>175 864</b>	<b>9 463</b>	<b>110 619</b>	<b>158 145</b>	<b>187 309</b>	<b>171 564</b>	<b>179 883</b>	<b>206 062</b>	<b>221 177</b>	<b>227 865</b>	<b>233 827</b>	<b>239 660</b>

## Appendix 7 – Cash flow statement (2/2)

Values in '000€	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>INVESTMENT ACTIVITIES</b>														
PP&E and biological assets	(94 895)	(104 387)	(112 844)	(55 718)	(53 974)	(132 167)	(132 338)	(132 539)	(132 766)	(133 020)	(99 153)	(100 816)	(102 507)	(104 227)
Intangible assets	(447)	(16 052)	(893)	(4 113)	(5 192)	(2 122)	-	-	-	-	-	-	-	-
Other financial assets	-	(173)	1 347	(16)	(71)	-	-	-	-	-	-	-	-	-
<b>Total investments</b>	<b>(95 342)</b>	<b>(120 612)</b>	<b>(112 390)</b>	<b>(59 847)</b>	<b>(59 237)</b>	<b>(134 289)</b>	<b>(132 338)</b>	<b>(132 539)</b>	<b>(132 766)</b>	<b>(133 020)</b>	<b>(99 153)</b>	<b>(100 816)</b>	<b>(102 507)</b>	<b>(104 227)</b>
PP&E	4 338	361	64 397	58	32 266	15 101	10 571	7 400	5 180	3 626	2 538	1 777	1 244	871
Other financial assets	1 682	161	-	-	-	-	-	-	-	-	-	-	-	-
<b>Total Disposals</b>	<b>6 020</b>	<b>522</b>	<b>64 397</b>	<b>58</b>	<b>32 266</b>	<b>15 101</b>	<b>10 571,0</b>	<b>7 399,7</b>	<b>5 179,8</b>	<b>3 625,8</b>	<b>2 538,1</b>	<b>1 776,7</b>	<b>1 243,7</b>	<b>870,6</b>
<b>NET CASH FLOW FROM INVESTING ACTIVITIES (2)</b>	<b>(89 322)</b>	<b>(120 090)</b>	<b>(47 993)</b>	<b>(59 789)</b>	<b>(26 971)</b>	<b>(119 188)</b>	<b>(121 767)</b>	<b>(125 139)</b>	<b>(127 587)</b>	<b>(129 395)</b>	<b>(96 615)</b>	<b>(99 039)</b>	<b>(101 263)</b>	<b>(103 356)</b>
<b>FINANCING ACTIVITIES</b>														
Buyback of own equity instruments	(53 708)	(41 693)	(26 505)	(6 063)	(1 093)	(900)	(900)	(900)	(900)	(900)	(900)	(900)	(900)	(900)
Disposal of own equity instruments	7 164	1 309	27 506	156	5 026	287	287	287	287	287	287	287	287	287
<b>Total proceeds from and payments for equity instruments</b>	<b>(46 544)</b>	<b>(40 384)</b>	<b>1 001</b>	<b>(5 907)</b>	<b>3 933</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>	<b>(613)</b>
Proceeds from issuance of bonds and other marketable securities, 1	-	-	239 454	-	(7 032)	-	-	-	-	-	-	(100 000)	-	-
Increase/(decrease) in bank borrowings, net of issuance costs	43 057	37 428	(232 101)	1 127	44 639	(12 340)	14 111	71 619	(30 504)	(85 343)	15 827	(36 165)	14 707	14 213
Grants received	8 523	-	115	860	2 011	1 005	1 308	1 462	1 278	1 372	1 394	1 371	1 403	1 413
Other financial liabilities	-	(3 276)	(11 965)	(1 338)	(5 293)	(1 356)	2 989	-	-	-	-	-	-	-
<b>Total proceeds from and repayments of financial liabilities</b>	<b>51 580</b>	<b>34 152</b>	<b>(4 497)</b>	<b>649</b>	<b>34 325</b>	<b>(12 691)</b>	<b>18 409</b>	<b>73 081</b>	<b>(29 226)</b>	<b>(83 971)</b>	<b>17 221</b>	<b>(134 794)</b>	<b>16 110</b>	<b>15 626</b>
Dividends	(25 801)	(16 513)	(16 154)	(19 377)	(35 841)	(41 209)	(43 709)	(46 209)	(48 709)	(51 209)	(52 233)	(53 278)	(54 343)	(55 430)
<b>Dividends and repayments on other equity instruments</b>	<b>(25 801)</b>	<b>(16 513)</b>	<b>(16 154)</b>	<b>(19 377)</b>	<b>(35 841)</b>	<b>(41 209)</b>	<b>(43 709)</b>	<b>(46 209)</b>	<b>(48 709)</b>	<b>(51 209)</b>	<b>(52 233)</b>	<b>(53 278)</b>	<b>(54 343)</b>	<b>(55 430)</b>
<b>Translation differences</b>	<b>-</b>	<b>(161)</b>	<b>(29)</b>	<b>7</b>	<b>72</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
Fixed-term deposits	-	-	(45 000)	45 000	-	-	-	-	-	-	-	-	-	-
<b>Other cash received from/(used in) financing activities</b>	<b>-</b>	<b>-</b>	<b>(45 000)</b>	<b>45 000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>NET CASH FLOW FROM FINANCING ACTIVITIES (3)</b>	<b>(20 765)</b>	<b>(22 906)</b>	<b>(64 679)</b>	<b>20 372</b>	<b>2 489</b>	<b>(54 512)</b>	<b>(25 913)</b>	<b>26 259</b>	<b>(78 548)</b>	<b>(135 792)</b>	<b>(35 625)</b>	<b>(188 685)</b>	<b>(38 846)</b>	<b>(40 417)</b>
<b>NET INCREASE/(DECREASE) IN CASH AND CASH EQUIV</b>	<b>646</b>	<b>(31 423)</b>	<b>63 192</b>	<b>(29 954)</b>	<b>86 137</b>	<b>(15 555)</b>	<b>39 629</b>	<b>72 684</b>	<b>(26 252)</b>	<b>(59 125)</b>	<b>88 938</b>	<b>(59 545)</b>	<b>94 032</b>	<b>96 201</b>
Cash and cash equivalents opening balance	70 986	71 629	40 205	103 391	73 428	159 565	144 010	183 639	256 323	230 071	170 946	259 884	200 339	294 370
<b>Cash and cash equivalents closing balance</b>	<b>71 631</b>	<b>40 206</b>	<b>103 397</b>	<b>73 437</b>	<b>159 565</b>	<b>144 010</b>	<b>183 639</b>	<b>256 323</b>	<b>230 071</b>	<b>170 946</b>	<b>259 884</b>	<b>200 339</b>	<b>294 370</b>	<b>390 571</b>

## Appendix 8 – GDP growth rate and inflation rate

	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Yearly European Union inflation rate	0,4%	1,3%	1,6%	1,7%	1,8%	1,9%	1,9%	1,9%	1,9%
Yearly Spain inflation rate	0,7%	7,0%	1,0%	1,5%	1,5%	1,6%	1,6%	1,6%	1,6%
Yearly US inflation rate	0,8%	1,5%	2,4%	2,5%	2,3%	2,2%	2,2%	2,2%	2,2%
GDP growth rate European Union	1,8%	1,9%	1,9%	1,9%	1,8%	1,8%	1,8%	1,8%	1,8%
GDP growth rate Spain	2,6%	2,3%	2,0%	1,9%	1,8%	1,6%	1,6%	1,6%	1,6%

Source: (IMF, 2016)

## Appendix 9 – Revenues breakdown summary (historical and forecasted)

<i>Values in '000€</i>	2010	2011	2012	2013	2014	2015				
Pulp	626 751	597 360	598 328	608 798	500 845	482 508				
Electricity Cogeneration	140 194	184 304	197 564	181 524	70 999	72 242				
Biomass Independent Plants	-	-	10 800	52 215	96 409	95 251				
Forestry Sales and Others	63 813	43 786	20 887	10 598	19 291	13 912				
<b>Total Sales</b>	<b>830 758</b>	<b>825 451</b>	<b>827 578</b>	<b>853 136</b>	<b>687 544</b>	<b>663 912</b>				
	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E	
Pulp	527 737	518 667	511 086	524 990	543 949	558 158	566 530	575 028	583 653	
Electricity Cogeneration	86 920	97 660	103 862	109 171	115 753	120 326	120 899	123 365	125 347	
Biomass Independent Plants	104 629	111 234	117 469	122 891	127 485	132 251	137 194	140 928	144 762	
Forestry Sales and Others	17 502	17 860	18 794	19 179	19 571	20 173	20 475	20 782	21 094	
<b>Total Sales</b>	<b>735 726</b>	<b>748 885</b>	<b>749 831</b>	<b>769 285</b>	<b>792 617</b>	<b>818 850</b>	<b>832 860</b>	<b>847 681</b>	<b>862 249</b>	

## Appendix 10 – Pulp capacity, production and sales

<i>Pulp Capacity ('000 Tons/Year)</i>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva	394	404	420	-	-	-	-	-	-	-	-	-	-
Navia	469	481	500	510	520	531	542	553	564	576	584	593	602
Pontevedra	404	413	430	450	459	469	478	488	498	508	516	523	531
<b>Total Capacity</b>	<b>1 270</b>	<b>1 300</b>	<b>1 350</b>	<b>960</b>	<b>980</b>	<b>1 000</b>	<b>1 020</b>	<b>1 041</b>	<b>1 062</b>	<b>1 084</b>	<b>1 100</b>	<b>1 117</b>	<b>1 133</b>
<i>Capacity Growth Rate</i>		2%	4%	-29%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%	1,5%	1,5%	1,5%

### Scenario for the pulp production capacity (capacity growth rate):

1. Conservative	1,7%	1,7%	1,7%	1,7%	1,8%	1,8%	1,3%	1,3%	1,3%
2. Central	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%	1,5%	1,5%	1,5%
3. Optimistic	2,3%	2,3%	2,3%	2,3%	2,3%	1,8%	1,8%	1,8%	1,8%

Note: The company has a target capacity of 1.090.000 tons per year in 2020

<i>Production ('000 Tons/Year)</i>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva	328	368	357	369	235	-	-	-	-	-	-	-	-	-	-
Pontevedra	391	417	407	418	406	429	500	510	537	547	559	576	584	593	602
Navia	437	458	486	484	475	469	441	450	473	483	493	508	516	523	531
<b>Total Production</b>	<b>1 156</b>	<b>1 243</b>	<b>1 250</b>	<b>1 271</b>	<b>1 116</b>	<b>898</b>	<b>940</b>	<b>960</b>	<b>1 010</b>	<b>1 031</b>	<b>1 052</b>	<b>1 084</b>	<b>1 100</b>	<b>1 117</b>	<b>1 133</b>
<i>Production Growth Rate</i>		7%	1%	2%	-12%	-20%	5%	2%	5%	2%	2%	3%	2%	1%	1%
<i>Production/Capacity</i>			98%	98%	83%	94%	96%	96%	99%	99%	99%	100%	100%	100%	100%

Note: Ence produces slightly under its estimated capacity because producing at capacity has very high marginal costs

<i>Sales ('000 Tons/Year)</i>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva	333	361	354	376	245	-	-	-	-	-	-	-	-	-	-
Pontevedra	389	409	406	417	413	424	500	510	537	547	559	576	584	593	602
Navia	426	462	489	477	479	461	441	450	473	483	493	508	516	523	531
<b>Total Sales</b>	<b>1 147</b>	<b>1 233</b>	<b>1 249</b>	<b>1 270</b>	<b>1 137</b>	<b>885</b>	<b>940</b>	<b>960</b>	<b>1 010</b>	<b>1 031</b>	<b>1 052</b>	<b>1 084</b>	<b>1 100</b>	<b>1 117</b>	<b>1 133</b>
<i>Sales Growth Rate</i>		7%	1%	2%	-10%	-22%	6%	2%	5%	2%	2%	3%	2%	1%	1%
<i>Sales/Production (tons)</i>		99%	99%	100%	100%	102%	99%	100%	100%	100%	100%	100%	100%	100%	100%

Note: Historically, on average, Ence has sold 100% of its production. This has happened even during the unfavourable years of 2008 and 2009. Forecasts are made based on the assumption that Ence will continue selling 100% of its production.

## Appendix 11 – BHKP Price estimation in USD

	2008	2009	2010	2011	2012	2013	2014	2015	2016E*	2017E	2018E	2019E	2020E
Total Pulp Market Demand (million tons/year)			50	51	52	54	58	60	61	62	63	64	68
Total Pulp Market Capacity (million tons/year)			53	54	56	58	58	60	61	63	64	66	67
Total BHKP Demand	24,0	25,0	25,0	27,0	28,0	29,0	32,0	33,0	34,0	35,0	36,0	37,0	38,1
Variation (million tons)		1,0	-	2,0	1,0	1,0	3,0	1,0	1,0	1,0	1,0	1,0	1,1
Variation %		4,2%	0,0%	8,0%	3,7%	3,6%	10,3%	3,1%	3,0%	2,9%	2,9%	2,9%	2,9%
Total BHKP Capacity	27,7	28,5	27,9	29,3	29,7	30,3	31,1	32,6	33,9	36,1	39,2	40,2	41,3
Variation (million tons)		0,8	(0,6)	1,4	0,4	0,6	0,8	1,5	1,3	2,2	3,1	1,1	1,1
Variation %		2,8%	-1,9%	4,9%	1,4%	2,0%	2,8%	4,7%	4,0%	6,4%	8,6%	2,7%	2,7%
Spare Capacity Change (million tons)		(0,2)	(0,6)	(0,6)	(0,6)	(0,4)	(2,2)	0,5	0,3	1,2	2,1	0,0	0,0
	2008	2009	2010	2011	2012	2013	2014	2015	2016E*	2017E	2018E	2019E	
FOEX USD (Average of weekly price)	787,96	561,67	844,18	810,38	750,53	791,23	745,15	784,44	741,15				
FOEX growth rate		-29%	50%	-4%	-7%	5%	-6%	5%	-6%				
Capacity Variation (BHKP + BEKP)		2,8%	-1,9%	4,9%	1,4%	2,0%	2,8%	4,7%	4,0%	6,4%	8,6%	2,7%	
Demand Variation (BHKP + BEKP)		4,2%	0,0%	8,0%	3,7%	3,6%	10,3%	3,1%	3,0%	2,9%	2,9%	2,9%	

\* Includes only January, February and March

**Correlation FOEX growth rate - Capacity variation -0,67**

	2016E	2017E	2018E	2019E	2020E
Supply and Demand Price	776,6	750,1	709,0	708,9	708,9
High Cash Costs	513,9	523,0	534,7	546,8	558,7
Cash costs spread	51%	43%	33%	30%	27%
Cash costs spread in low cycle	32%	32%	32%	32%	32%
Marginal Price based on high cash costs produc	676,8	688,9	704,3	720,2	735,8
<b>FOEX BHKP</b>	<b>776,6</b>	<b>750,1</b>	<b>709,0</b>	<b>720,2</b>	<b>735,8</b>

Notes: Supply and demand price was calculated using the following expression:  $(Total\ Market\ Value\ t-1)/(Total\ Capacity\ t-1 + Spare\ Capacity\ t)$

The marginal price was computed under the assumption that the price cannot go lower than the 30% higher cash cost producers in the industry plus their average spread in low cycle phases. If the price drops under the cash costs of these producers, approximately 30% of producers will stop production. As this is not sustainable, the price is expected to raise again to a sustainable level.

Note: The FOEX BHKP forecast is the maximum price between the supply and demand predicted price and the marginal price

## Appendix 12 – EUR/USD Exchange rate

	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Average Exchange Rate USD/EUR	1,326	1,390	1,284	1,330	1,333	1,113	1,114	1,117	1,128	1,138	1,145	1,150
Average Exchange Rate EUR/USD	0,754	0,720	0,779	0,752	0,750	0,899	0,898	0,895	0,887	0,879	0,873	0,869

### Scenario for the USD/EUR exchange rate:

1. Conservative	10,8%						1,234	1,238	1,249	1,261	1,268	1,274
2. Central							1,114	1,117	1,128	1,138	1,145	1,150
3. Optimistic							1,116	1,116	1,116	1,116	1,116	1,116

Spot rate: 1,1163

USD/EUR exchange rate computed through inflation rates: 1,114 1,117 1,128 1,138 1,145 1,150

*Notes: Ence does currency hedges for approximately 50% of its sales in USD through a tanner options strategy. However, Ence doesn't disclose its upcoming hedging strategy and hisotrical hedging strategy does not follow any visible pattern.*

*The optimistic scenario for the USD/EUR exchange rate is currently observable rate*

*The conservative scenario was built based on the historical 5-year volatility of the USD-EUR exchange rate*

## Appendix 13 – Pulp price forecast in EUR

	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
BHKP (\$/ton)	847	799	751	792	746	784	777	750	709	720	736	736
BHKP (€/ton)	639	575	585	595	559	705	697	671	629	633	643	640
<b>Net pulp sale price (€/ton)</b>	<b>546</b>	<b>485</b>	<b>479</b>	<b>479</b>	<b>440</b>	<b>545</b>	<b>561</b>	<b>540</b>	<b>506</b>	<b>509</b>	<b>517</b>	<b>515</b>
Average Rebate	14%	16%	18%	19%	21%	23%	20%	20%	20%	20%	20%	20%

### Scenario for the pulp price (\$/ton):

1. Conservative	-1%						770,0	743,7	703,0	714,1	729,5	729,5
2. Central							776,6	750,1	709,0	720,2	735,8	735,8
3. Optimistic	6,0%						822,8	794,7	751,2	763,0	779,6	779,6

*Note: The optimistic scenario was built based on historical pulp price volatility*

*The conservative scenario is closer to the central scenario because the central scenario is quite conservative given it is based on a low spread above industry cash costs. A lower price would not be sustainable as it would imply that approximately 1/4 of worldwide capacity would have to be shut down.*

## Appendix 14 – Energy cogeneration capacity, production and sales

<b>Energy Capacity (MW)</b>	2015	2016E	2017E	2018E	2019E	2020E	2021E
Navia	37	42	46	51	55	60	61
Pontevedra	16	18	20	22	24	26	26
<b>Total MW Capacity</b>	<b>53</b>	<b>60</b>	<b>66</b>	<b>73</b>	<b>79</b>	<b>86</b>	<b>87</b>
<i>Capacity growth rate</i>		12%	11%	10%	9%	8%	1%

*Note: Ence has a target energy capacity from cogeneration of 86MW in 2020*

<b>Electricity Production for sale ('000 MWh)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Huelva	700	815	815	814	423	-	-	-	-	-	-	-
Pontevedra	193	222	229	214	211	223	248	270	290	304	319	326
Navia	463	490	515	525	524	527	587	638	684	719	755	770
<b>Total Production</b>	<b>1356</b>	<b>1527</b>	<b>1559</b>	<b>1554</b>	<b>1158</b>	<b>750</b>	<b>836</b>	<b>908</b>	<b>974</b>	<b>1024</b>	<b>1074</b>	<b>1096</b>
<i>Production Growth Rate</i>		13%	2%	0%	-25%	-35%	11%	9%	7%	5%	5%	2%
Total Hours Operating						4972	5475	5862	5862	5862	5862	5862
Total Hours/Day Operating						14	15	16	16	16	16	16

<b>Electricity Sales ('000 MWh)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Biomass generation	365	462	504	479	302	208	237	258	277	291	305	311
Biomass co-generation	629	659	663	663	605	502	573	622	667	701	736	751
Natural gas co-generation	338	369	376	378	185	-	-	-	-	-	-	-
<b>Total Electricity Sales</b>	<b>1332</b>	<b>1490</b>	<b>1543</b>	<b>1519</b>	<b>1093</b>	<b>709</b>	<b>810</b>	<b>880</b>	<b>944</b>	<b>992</b>	<b>1041</b>	<b>1063</b>
<i>Electricity Sales Growth Rate</i>		12%	4%	-2%	-28%	-35%	14%	9%	7%	5%	5%	2%
Electricity Sales/Electricity Production (MWh)	98%	98%	99%	98%	94%	95%	97%	97%	97%	97%	97%	97%

*Note: Electricity sales were assumed to be 97% of the total production of electricity for sale based on the historical average*

<b>Electricity Consumption ('000 MWh)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
	<b>715</b>	<b>746</b>	<b>732</b>	<b>738</b>	<b>654</b>	<b>487</b>	<b>509</b>	<b>520</b>	<b>547</b>	<b>558</b>	<b>570</b>	<b>587</b>
<i>Electricity Consumption Growth Rate</i>		4%	-2%	1%	-11%	-26%	5%	2%	5%	2%	2%	3%

*Note: Electricity consumption has been assumed to grow at the same rate as the pulp production*

Average income (€/MWh) (including own consumption)	105	124	128	119	100	102	107	111	110	110	111	113
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## Appendix 15 – Forestry revenues

	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Total pulp production ('000 tons)	1 156	1 243	1 250	1 271	1 116	898	940	960	1 010	1 031	1 052	1 084
Timber consumption ('000 m3)	3 502	3 699	3 643	3 795	3 323	2 672	2 802	2 858	3 007	3 069	3 132	3 228
Forestry Sales and Others ('000€)	63 813	43 786	20 887	10 598	19 291	13 912	17 502	17 860	18 794	19 179	19 571	20 173
Forestry Sales and Others/Pulp production (€/ton)	55	35	17	8	17	15	19	19	19	19	19	19

*Note: The forestry sales computed based on a fixed ratio between the pulp production and the historical forestry sales. The ratio was computed based on the historical average excluding 2010 in which Ence abnormally was undertaking strong changes towards depending less on own timber, therefore abnormally selling forestry.*

## Appendix 16 – Wood costs

<b>Wood costs</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Timber consumption ('000 m3)	3 502	3 699	3 643	3 795	3 323	2 672	2 802	2 858	3 007	3 069	3 132	3 228
Timber consumption/pulp production (m3 per ton of pulp produced)	3,03	2,98	2,92	2,98	2,98	2,98	2,98	2,98	2,98	2,98	2,98	2,98
Cost (€/m3)	69	70	68	71	72	67	67	67	67	67	67	67
Total Timber Cost	241 092	259 312	248 678	269 534	237 668	177 837	186 467	190 167	200 105	204 245	208 392	214 803

*Note: Cost mer m3 of timber is expected to remain constant since it is assumed that the improvements in the suppliers selection will offset the inflation rate.*

<b>Wood Purchases per source</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Owned timber		4%	6%	4%	2%	1%	1%	0%	0%	0%
Standing timber acquired directly from land owners		28%	27%	33%	30%	32%	34%	36%	38%	39,50%
Suppliers		57%	56%	54%	68%	67%	65%	64%	62%	60,50%
<i>Small</i>					45%	44%	43%	42%	41%	39,5%
<i>Big</i>					23%	23%	22%	22%	21%	21%
Imported timber		11%	11%	9%	0%	0%	0%	0%	0%	0%

## Appendix 17 – Pulp business cash costs

<b>Cash costs (yearly average) (€/ton)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Pulp production ('000 tons)	1 156	1 243	1 250	1 271	1 116	898	940	960	1 010	1 031	1 052	1 084
Wood	208	209	199	212	213	198	198	198	198	198	198	198
Processing cost (Chemicals and energy)	*	80	69	78	101	72	67	62	58	54	49	45
Personnel and other fixed costs	*	31	31	34	39	38	34	34	34	34	34	34
Commercial	*	26	27	29	29	28	28	28	28	28	28	28
Corporate costs	*	20	23	25	24	23	23	23	23	23	23	23
<b>Total cash costs (€/ton) (Central scenario)</b>	<b>377</b>	<b>366</b>	<b>349</b>	<b>378</b>	<b>406</b>	<b>359</b>	<b>349</b>	<b>345</b>	<b>341</b>	<b>336</b>	<b>332</b>	<b>328</b>
<b>Ence Target Cash Cost (Optimistic scenario)</b>						<b>362</b>	<b>344</b>	<b>339</b>	<b>337</b>	<b>329</b>	<b>329</b>	<b>329</b>
<b>Cash cost reduction projections (vs. 2015)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Processing cost (Chemicals and energy) improvement projects												
Capacity increase in Navia (due 2020)							(1)	(3)	(4)	(5)	(6)	(7)
Capacity increase in Pontevedra (due 2020)							(1)	(1)	(2)	(3)	(3)	(4)
Replicate Navia industrial model in Pontevedra and increase energy capacity (due 2020)							(3)	(6)	(8)	(11)	(13)	(16)
Personnel and other fixed costs improvement projects												
Navia investment to dilute fixed costs (due 2016)							(4)	(4)	(4)	(4)	(4)	(4)
<b>Total annual cash cost reduction per ton vs. 2015</b>							<b>(9)</b>	<b>(14)</b>	<b>(18)</b>	<b>(22)</b>	<b>(27)</b>	<b>(31)</b>

Notes: In order to have a conservative forecast, projects with due date of 2020 were considered to be finished only in 2021.

Improvements towards cash cost targets were estimated to be uniform throughout the years until the project forecasted conclusion.

<b>Cash costs (in '000€)</b>	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Pulp production ('000 tons)	1 156	1 243	1 250	1 271	1 116	898	940	960	1 010	1 031	1 052	1 084
Wood	241 092	259 312	248 678	269 534	237 668	177 837	186 467	190 167	200 105	204 245	208 392	214 803
Processing cost (Chemicals and energy)	*	99 324	86 225	99 168	112 697	64 668	62 633	59 768	58 533	55 278	51 865	48 778
Personnel and other fixed costs	*	39 034	39 114	43 227	43 517	34 130	31 975	32 629	34 336	35 038	35 755	36 854
Commercial	*	31 824	33 365	36 870	32 359	25 149	26 013	26 544	27 934	28 505	29 087	29 982
Corporate costs	*	25 111	28 242	31 785	26 779	20 658	21 593	22 034	23 187	23 661	24 145	24 887
<b>Total cash costs (k€)</b>		<b>454 605</b>	<b>435 623</b>	<b>480 585</b>	<b>453 019</b>	<b>322 442</b>	<b>328 680</b>	<b>331 142</b>	<b>344 095</b>	<b>346 728</b>	<b>349 244</b>	<b>355 304</b>

\* Data not available

## Appendix 18 – Workforce costs

	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
Average full time headcount	1 234	1 172	1 040	941	899	716	744	822	842	842	842	842
Average temporary workers	457	403	230	107	102	116	108	108	108	108	108	108
<b>Average headcount</b>	<b>1 691</b>	<b>1 575</b>	<b>1 270</b>	<b>1 048</b>	<b>1 001</b>	<b>832</b>	<b>852</b>	<b>930</b>	<b>950</b>	<b>950</b>	<b>950</b>	<b>950</b>
Employee benefits expense	(84 317)	(89 413)	(82 102)	(79 405)	(87 035)	(62 526)	(65 093)	(71 941)	(74 521)	(75 691)	(76 980)	(78 292)
Average remuneration per employee (k€)	49,9	56,8	64,6	75,8	86,9	75,2	76,4	77,4	78,4	79,7	81,0	82,4

Note: Ence has a target number of employees of 950

Average remuneration per employee is assumed to grow with inflation rate

## Appendix 19 – Other pulp business costs

	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E
External services	(155 176)	(103 609)	(133 610)	(135 990)	(141 389)	(144 064)	(146 852)	(150 723)
Use of emission allowances	(2 642)	(1 002)	(1 822)	(1 822)	(1 822)	(1 822)	(1 822)	(1 822)
Taxes other than income tax and other management charges	(3 504)	(3 328)	(3 416)	(3 416)	(3 416)	(3 416)	(3 416)	(3 416)
Electricity generation levy	(5 251)	(5 084)	(5 168)	(5 168)	(5 168)	(5 168)	(5 168)	(5 168)
Change in trade and other provisions	(2 926)	(885)	(1 906)	(1 906)	(1 906)	(1 906)	(1 906)	(1 906)
Impact of regulatory changes on the energy business	-	-	-	-	-	-	-	-
Impact of the closure of the Huelva Factory	(18 246)	(2 371)	-	-	-	-	-	-
Other non-recurring charges	(11 248)	(7 151)	(9 200)	(9 200)	(9 200)	(9 200)	(9 200)	(9 200)
<b>Total other operating costs</b>	<b>(198 993)</b>	<b>(123 430)</b>	<b>(155 120)</b>	<b>(157 500)</b>	<b>(162 900)</b>	<b>(165 574)</b>	<b>(168 362)</b>	<b>(172 234)</b>

Note: The sum of the historical costs doesn't add up to the values in the financial statements due to transactions between businesses

External services that are not forecasted in the cash costs are assumed to be the historical average growing at the inflation rate

## Appendix 20 – CAPEX

Capex	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Maintenance	15 094	20 723	11 722	13 999	16 893	16 893	16 893	16 893	16 893	17 181	17 473	17 771	18 074
Improvements in efficiency/production	5 524	11 193	23 632	32 989	23 800	23 800	23 800	23 800	23 800	19 910	20 249	20 594	20 945
Environmental	4 223	14 599	2 027	5 142	12 200	12 200	12 200	12 200	12 200	8 569	8 715	8 863	9 014
<b>Industrial capex, pulp</b>	<b>24 841</b>	<b>46 515</b>	<b>37 381</b>	<b>52 130</b>	<b>52 893</b>	<b>52 893</b>	<b>52 893</b>	<b>52 893</b>	<b>52 893</b>	<b>45 659</b>	<b>46 437</b>	<b>47 228</b>	<b>48 033</b>
Plantation and maintenance activity	10 131	9 091	3 677	2 509	6 417	6 482	6 563	6 655	6 760	6 875	6 992	7 111	7 232
Finance costs	1 489	1 435	1 337	-	1 565	1 565	1 565	1 565	1 565	1 565	1 565	1 565	1 565
<b>Forestry capex, pulp</b>	<b>11 619</b>	<b>10 526</b>	<b>5 014</b>	<b>2 509</b>	<b>7 981</b>	<b>8 047</b>	<b>8 128</b>	<b>8 220</b>	<b>8 325</b>	<b>8 440</b>	<b>8 557</b>	<b>8 676</b>	<b>8 797</b>
<b>Industrial capex, biomass</b>	<b>58 900</b>	<b>48 686</b>	<b>12 145</b>	<b>6 673</b>	<b>65 000</b>	<b>65 000</b>	<b>65 000</b>	<b>65 000</b>	<b>65 000</b>	<b>37 473</b>	<b>38 112</b>	<b>38 761</b>	<b>39 422</b>
<b>Forestry capex, biomass</b>	<b>17 640</b>	<b>7 442</b>	<b>5 457</b>	<b>3 794</b>	<b>8 415</b>	<b>8 520</b>	<b>8 640</b>	<b>8 776</b>	<b>8 925</b>	<b>9 077</b>	<b>9 232</b>	<b>9 389</b>	<b>9 549</b>
<b>Total capital expenditure</b>	<b>113 000</b>	<b>113 169</b>	<b>59 998</b>	<b>65 106</b>	<b>134 289</b>	<b>134 460</b>	<b>134 661</b>	<b>134 888</b>	<b>135 142</b>	<b>100 649</b>	<b>102 338</b>	<b>104 055</b>	<b>105 801</b>
Capex growth rate	11%	0%	-47%	9%	106%	0%	0%	0%	0%	-26%	1,7%	1,7%	1,7%

### *Pulp Business Notes:*

*Through 2016 to 2020 Ence will be doing the following investments:*

- *Process and cost efficiency improvements (amounting to €45M)*
- *Debotlenecking and increasing capacity until 1,09M tons per year (amounting to €124M)*
- *Replicating the Navia efficient industrial model in Pontevedra (amounting to €74M)*
- *Environmental, plantation and forest investments (amounting to €61M)*

*These investments have been assumed to be distributed equally throughout 2006 until 2020*

*Yearly maintenance investments are not included in the description above and were estimated to be in line with th historical average*

### *Energy Business Notes:*

*Through 2016 until 2020 Ence will be investing €325M to seize growth opportunities in Spain and overseas*

*These investments have been assumed to be distributed equally throughout 2006 until 2020*

*Note: From 2020 onwards, when the investment cycle will slowdown, maintenance CAPEX is assumed to grow with inflation*

## Appendix 21 – Depreciations

Depreciations on existing assets	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Property, plant and equipment	776 257	778 213	643 996	641 930	593 143	548 064	506 412	467 924	432 362	399 502	369 939	342 564	317 557
Depreciation	(62 394)	(76 901)	(58 866)	(57 185)	(48 787)	(45 079)	(41 653)	(38 487)	(35 562)	(32 860)	(29 563)	(27 376)	(25 007)
% Depreciation	8%	10%	9%	9%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Biological assets	170 958	154 145	90 247	87 893	81 668	75 884	70 510	65 516	60 876	56 564	52 558	48 836	45 377
Forest Depletion	(8 887)	(15 204)	(9 656)	(8 181)	(6 225)	(5 784)	(5 374)	(4 994)	(4 640)	(4 311)	(4 006)	(3 722)	(3 459)
% Depletion	5%	10%	11%	9%	7%	7%	7%	7%	7%	7%	7%	7%	7%
Intangible assets	21 556	19 057	13 698	12 613	11 442	10 380	9 417	8 543	7 750	7 031	6 378	5 786	5 249
Amortization	(978)	(1 437)	(613)	(1 796)	(1 171)	(1 062)	(963)	(874)	(793)	(719)	(653)	(592)	(537)
% Amortization	5%	8%	4%	14%	9%	9%	9%	9%	9%	9%	9%	9%	9%
Depreciations on new assets (capex)	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E				
Property, plant and equipment CAPEX	115 770,7	115 770,7	115 770,7	115 770,7	115 770,7	81 635,9	83 027,0	84 441,8	85 880,7				
Depreciation	(8 798,6)	(17 597,2)	(26 395,7)	(35 194,3)	(43 992,9)	(50 197,2)	(55 020,2)	(61 268,9)	(66 710,2)				
% Depreciation		8%	8%	8%	8%	8%	7%	7%	7%				
Property, plant and equipment net value	106 972,2	205 145,8	294 520,8	375 097,2	446 875,1	478 313,8	506 320,5	529 493,4	548 663,8				
Biological assets CAPEX	16 396,2	16 566,9	16 767,8	16 995,7	17 249,6	17 516,9	17 788,7	18 065,2	18 346,3				
Forest Depletion	(1 161,2)	(2 334,6)	(3 522,1)	(4 725,8)	(5 947,5)	(7 188,1)	(8 448,0)	(9 727,4)	(11 026,8)				
% Depletion		7%	7%	7%	7%	7%	7%	7%	7%				
Biological assets net value	15 235,0	29 467,3	42 713,0	54 982,9	66 285,0	76 613,8	85 954,5	94 292,3	101 611,8				
Intangible assets CAPEX	2 122,1	-	-	-	-	-	-	-	-				
Amortization	(197,0)	(197,0)	(197,0)	(197,0)	(197,0)	(197,0)	(197,0)	(197,0)	(197,0)				
% Amortization		9%	9%	9%	9%	9%	9%	9%	9%				
Intangible assets net value	1 925,1	1 728,2	1 531,2	1 334,2	1 137,3	940,3	743,4	546,4	349,5				
<i>Intangible Assets/PP&amp;E</i>		1,8%											
Total depreciation on new assets of Pulp business	(3 196,6)	(6 391,6)	(9 585,4)	(12 777,7)	(15 968,7)	(18 220,8)	(21 622,1)	(24 077,7)	(26 216,1)				
Total forest depletion on new assets of Pulp business	(565,3)	(1 133,9)	(1 707,3)	(2 285,7)	(2 870,2)	(3 463,3)	(4 063,7)	(4 671,7)	(5 287,4)				
Total amortization on new assets of Pulp business	(89,3)	(89,3)	(89,2)	(89,2)	(89,2)	(105,9)	(105,8)	(105,8)	(105,8)				
Total depreciation on new assets of Energy business	(5 602,0)	(11 205,6)	(16 810,3)	(22 416,6)	(28 024,2)	(31 976,4)	(33 398,2)	(37 191,2)	(40 494,2)				
Total forest depletion on new assets of Energy business	(596,0)	(1 200,6)	(1 814,9)	(2 440,1)	(3 077,3)	(3 724,8)	(4 384,3)	(5 055,7)	(5 739,4)				
Total amortization on new assets of Energy business	(107,7)	(107,7)	(107,7)	(107,7)	(107,7)	(91,1)	(91,1)	(91,1)	(91,2)				

## Appendix 22 – Biomass energy independent plants capacity, production and sales

<b>Energy Capacity (MW)</b>	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva 50MW	50	53	55	57	58	60	61	62	63	63
Mérida 20MW	20	21	22	23	23	24	24	25	25	25
Huelva 41MW	41	43	45	47	48	49	50	51	51	52
<b>Total MW Capacity</b>	<b>111</b>	<b>117</b>	<b>122</b>	<b>126</b>	<b>130</b>	<b>132</b>	<b>135</b>	<b>138</b>	<b>139</b>	<b>141</b>
<i>Spanish plants growth rate</i>		5%	5%	3%	3%	2%	2%	2%	1%	1%
<b>Scenario for energy capacity growth rate</b>										
1. Conservative		4%	4%	3%	3%	2%	1%	1%	1%	1%
2. Central		5%	5%	3%	3%	2%	2%	2%	1%	1%
3. Optimistic		6%	6%	4%	4%	2%	2%	2%	2%	2%

Note: Ence has a target capacity of 135MW by the end of 2020 for the existing plants

Note: Spanish plants' capacity increases by 1% annually due to continuous investment in efficiency improvements

<b>Energy Production ('000 MWh)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva 50MW	75	385	344	344	361	323	333	343	350	357	364	367	371
Mérida 20MW	0	0	99	137	144	129	133	137	140	143	146	147	148
Huelva 41MW	0	0	25	170	178	265	273	281	287	292	298	301	304
<b>Total Energy Production</b>	<b>75</b>	<b>385</b>	<b>468</b>	<b>651</b>	<b>683</b>	<b>717</b>	<b>739</b>	<b>761</b>	<b>776</b>	<b>792</b>	<b>808</b>	<b>816</b>	<b>824</b>
<i>Energy Sales Growth Rate</i>		410%	22%	39%	5%	5%	3%	3%	2%	2%	2%	1%	1%
<b>Energy Sales ('000 MWh)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Huelva 50MW	75	376	324	325	350	313	326	336	343	350	357	360	364
Mérida 20MW	0	0	94	130	140	125	130	134	137	140	143	144	145
Huelva 41MW	0	0	24	161	173	257	267	275	281	287	292	295	298
<b>Total Energy Sales</b>	<b>75</b>	<b>376</b>	<b>441</b>	<b>615</b>	<b>662</b>	<b>695</b>	<b>724</b>	<b>746</b>	<b>761</b>	<b>776</b>	<b>791</b>	<b>799</b>	<b>807</b>
<i>Energy Sales Growth Rate</i>		404%	17%	39%	8%	5%	4%	3%	2%	2%	2%	1%	1%
Sales/Production	99%	98%	94%	95%	97%	97%	98%	98%	98%	98%	98%	98%	98%
Total Hours Operating				5862	5862	5862	5862	5862	5862	5862	5862	5862	5862
Total Hours/Day Operating				16	16	16	16	16	16	16	16	16	16
<b>Energy Price (€/MWh)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Average income (€/MWh)	145	139	138	158	158	160	162	165	168	170	173	176	179

Note: The average income is the 2015's without gas cogeneration, growing at inflation rate

## Appendix 23 – Energy business operational costs

Energy business costs	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>Cost of sales</b>											
Purchases	(39 567)	(16 675)	(22 808)	(23 923)	(24 439)	(24 953)	(26 514)	(26 713)	(26 913)	(26 761)	(26 607)
Changes in raw materials and other inventories	(3 765)	1 227	-	-	-	-	-	-	-	-	-
Other external expenses	(7 790)	(7 923)	(7 937)	(8 036)	(8 149)	(8 277)	(8 418)	(8 561)	(8 707)	(8 855)	(9 006)
<b>Total cost of sales</b>	<b>(51 122)</b>	<b>(23 371)</b>	<b>(30 744)</b>	<b>(31 959)</b>	<b>(32 588)</b>	<b>(33 230)</b>	<b>(34 932)</b>	<b>(35 275)</b>	<b>(35 620)</b>	<b>(35 617)</b>	<b>(35 613)</b>
<b>Other operating expenses</b>											
External services	(25 052)	(10 292)	(23 782)	(24 577)	(25 153)	(25 764)	(26 263)	(26 753)	(27 252)	(27 612)	(27 977)
Use of emission allowances	(2 475)	619	-	-	-	-	-	-	-	-	-
Taxes other than income tax and other management charges	(315)	(180)	(328)	(345)	(356)	(367)	(375)	(382)	(390)	(394)	(398)
Electricity generation levy	(6 840)	(6 692)	(6 835)	(6 921)	(7 018)	(14 036)	(14 275)	(14 518)	(14 765)	(15 017)	(15 273)
Change in trade and other provisions	(537)	391	(74)	(75)	(76)	(77)	(78)	(80)	(81)	(82)	(84)
Impact of regulatory changes on the energy business	(8 921)	4 658	-	-	-	-	-	-	-	-	-
Impact of the closure of the Huelva Factory	-	-	-	-	-	-	-	-	-	-	-
Other non-recurring charges	5 191	(442)	(469)	(493)	(509)	(525)	(536)	(547)	(558)	(564)	(569)
<b>Total other operating costs</b>	<b>(38 949)</b>	<b>(11 938)</b>	<b>(31 487)</b>	<b>(32 411)</b>	<b>(33 111)</b>	<b>(40 769)</b>	<b>(41 528)</b>	<b>(42 280)</b>	<b>(43 046)</b>	<b>(43 669)</b>	<b>(44 300)</b>
<b>External services</b>											
Transport, freight and business expenses	(340)	(352)	(437)	(460)	(475)	(490)	(500)	(510)	(521)	(526)	(531)
Utilities	(2 306)	(650)	(2 045)	(2 152)	(2 220)	(2 291)	(2 340)	(2 386)	(2 434)	(2 458)	(2 483)
Repairs and upkeep	(4 546)	(5 233)	(6 128)	(6 449)	(6 653)	(6 863)	(7 010)	(7 150)	(7 293)	(7 366)	(7 439)
Rent and fees	(3 680)	(2 190)	(3 875)	(4 078)	(4 207)	(4 340)	(4 433)	(4 522)	(4 612)	(4 658)	(4 705)
Insurance premiums	(433)	(394)	(418)	(423)	(429)	(436)	(443)	(451)	(458)	(466)	(474)
Independent professional services	(128)	(217)	(174)	(176)	(179)	(182)	(185)	(188)	(191)	(194)	(198)
Banking and similar services	(20)	(12)	(16)	(16)	(17)	(17)	(17)	(17)	(18)	(18)	(18)
Advertising, publicity and public relations	-	-	-	-	-	-	-	-	-	-	-
R&D	-	-	-	-	-	-	-	-	-	-	-
Other services	(13 599)	(1 244)	(10 688)	(10 821)	(10 974)	(11 146)	(11 336)	(11 529)	(11 725)	(11 925)	(12 128)
<b>Total external services</b>	<b>(25 052)</b>	<b>(10 292)</b>	<b>(23 782)</b>	<b>(24 577)</b>	<b>(25 153)</b>	<b>(25 764)</b>	<b>(26 263)</b>	<b>(26 753)</b>	<b>(27 252)</b>	<b>(27 612)</b>	<b>(27 977)</b>
Cost of sales/Energy production for spanish plants (€/MWh)	109	36	45	45	44	44	45	45	44	44	43
				-1%	-1%	-1%	-1%	-1%	-1%	-1%	-1%

Notes: Cost of sales for the energy business is forecasted by the company to be at 45€/MWh in the upcoming years and with small reductions of 1% due to small efficiency improvements  
Other external expenses, which are mainly fixed costs of production, are expected to grow at inflation rate

## Appendix 24 – Target capital structure

	2010	2011	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>EBITDA</b>	<b>178 260</b>	<b>139 147</b>	<b>139 309</b>	<b>147 672</b>	<b>1 686</b>	<b>191 785</b>	<b>216 745</b>	<b>213 448</b>	<b>201 426</b>	<b>214 061</b>	<b>238 081</b>	<b>253 246</b>	<b>259 056</b>	<b>266 074</b>	<b>272 698</b>
Hedging instruments	4 852	10 434	27 567	(12 102)	(39)	1 630									
Non recurrent personal expenses	1 268	6 809	4 694	5 369	19 314	3 722									
Provisions and other	17 601	(1 586)	(1 400)	5 783	3 463	494									
Other non-recurring items	(1 817)	(2 737)	5 149	11 281	34 057	1 894									
<b>Adjusted EBITDA</b>	<b>200 164</b>	<b>152 067</b>	<b>175 319</b>	<b>158 003</b>	<b>58 481</b>	<b>199 525</b>	<b>216 745</b>	<b>213 448</b>	<b>201 426</b>	<b>214 061</b>	<b>238 081</b>	<b>253 246</b>	<b>259 056</b>	<b>266 074</b>	<b>272 698</b>
<b>Adjusted EBITDA/Assets</b>	<b>15%</b>	<b>13%</b>	<b>15%</b>	<b>14%</b>	<b>5%</b>	<b>17%</b>	<b>18%</b>	<b>16%</b>	<b>14%</b>	<b>15%</b>	<b>16%</b>	<b>16%</b>	<b>17%</b>	<b>17%</b>	<b>16%</b>
<b>D/A</b>	<b>19%</b>	<b>22%</b>	<b>25%</b>	<b>27%</b>	<b>32%</b>	<b>34%</b>	<b>32%</b>	<b>31%</b>	<b>41%</b>	<b>38%</b>	<b>32%</b>	<b>31%</b>	<b>31%</b>	<b>30%</b>	<b>30%</b>
<b>D/EBITDA</b>	<b>1,4x</b>	<b>2,2x</b>	<b>2,5x</b>	<b>2,5x</b>	<b>217,3x</b>	<b>2,1x</b>	<b>1,7x</b>	<b>1,9x</b>	<b>2,9x</b>	<b>2,6x</b>	<b>2,0x</b>	<b>1,9x</b>	<b>1,9x</b>	<b>1,9x</b>	<b>2,0x</b>

Note: The ratio D/EBITDA in 2014 is highly abnormal due to the changes in Huelva which led to a low EBITDA and a high Debt level

The company has been able to maintain its D/EBITDA target ratio of between 2,2x and 2,5x even in pulp low cycle years such as 2012

	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
EBITDA pulp business	170 818	162 831	145 694	161 023	182 756	194 089	195 900	199 678	202 967
EBITDA energy business	45 927	50 617	55 732	53 038	55 326	59 157	63 155	66 396	69 732
Target Deb/EBITDA pulp business	1,8x	2x	2,1x	2x	1,7x	1,6x	1,6x	1,6x	1,6x
Target Debt/EBITDA energy business	1,1x	1,7x	5x	4,4x	2,9x	3x	3x	3x	3x
<b>Weighted average target Debt/EBITDA</b>	<b>1,7x</b>	<b>1,9x</b>	<b>2,9x</b>	<b>2,6x</b>	<b>2,0x</b>	<b>1,9x</b>	<b>2,0x</b>	<b>2,0x</b>	<b>2,0x</b>

## Appendix 25 – Shares outstanding and share capital

	2010	2011	2012	2013	2014	2015	2016	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Number of shares outstanding (Millions)	258,0	258,0	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3	250,3
Nominal Value (€/share)	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9	0,9
Share capital (M€)	232,2	232,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2	225,2
Average Annual Share Price (€/Share)	2,129	1,984	1,572	2,279	1,959	3,057	2,861								
Market Cap- yearly average (M€)	549,31	511,90	393,43	570,37	490,28	765,08	755,82								

## Appendix 26 – Existing debt and new debt issues and repayments

<b>Existing debt at year end</b>	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
High-yield bond	250 000	250 000	250 000	250 000	250 000	250 000	250 000	250 000	-	-	-
50-MW project finance facility (non recur	78 469	91 753	83 108	73 968	64 370	54 560	43 648	32 736	21 824	10 912	-
20-MW project finance facility (non recur	30 533	36 078	32 683	29 069	25 243	21 463	17 170	12 878	8 585	4 293	-
Other loans	700	30 300	30 000	30 000	30 000	15 000	15 000	15 000	-	-	-
Accrued interest payable and other	7 840	2 464	-	-	-	-	-	-	-	-	-
Arrangement fees	(11 135)	(9 155)	(9 155)	(7 878)	(6 590)	(5 289)	(4 231)	(3 173)	(2 115)	(1 057)	-
Other financial liabilities	9 917	8 053	6 697	5 485	4 231	2 977	1 985	992	-	-	-
<b>Total</b>	<b>356 407</b>	<b>401 440</b>	<b>393 333</b>	<b>380 644</b>	<b>367 254</b>	<b>338 711</b>	<b>323 572</b>	<b>308 433</b>	<b>28 294</b>	<b>14 148</b>	<b>-</b>

<b>Scheduled Repayments (existing debt)</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
High-yield bond	-	-	-	-	-	-	(250 000)	-	-
50-MW project finance facility (non recur	(8 645)	(9 140)	(9 598)	(9 810)	(10 912)	(10 912)	(10 912)	(10 912)	(10 912)
20-MW project finance facility (non recur	(3 395)	(3 614)	(3 826)	(3 780)	(4 293)	(4 293)	(4 293)	(4 293)	(4 293)
Other loans	(300)	-	-	(15 000)	-	-	(15 000)	-	-
Accrued interest payable and other	(2 464)	-	-	-	-	-	-	-	-
Arrangement fees	-	1 277	1 288	1 301	1 058	1 058	1 058	1 058	1 058
Other financial liabilities	(1 356)	(1 212)	(1 254)	(1 254)	(992)	(992)	(992)	-	-
<b>Total</b>	<b>(16 160)</b>	<b>(12 689)</b>	<b>(13 390)</b>	<b>(28 543)</b>	<b>(14 147)</b>	<b>(14 147)</b>	<b>(279 147)</b>	<b>(14 147)</b>	<b>(14 147)</b>

<b>New debt issues</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Bonds	-	-	-	-	-	-	150 000	-	-
Other loans	-	26 865	208 588	21 418	(54 599)	50 019	29 031	68 227	71 001
Other financial liabilities	-	4 201	1 254	1 254	992	992	992	-	-
<b>Total</b>	<b>-</b>	<b>31 067</b>	<b>209 842</b>	<b>22 672</b>	<b>(53 607)</b>	<b>51 011</b>	<b>180 023</b>	<b>68 227</b>	<b>71 001</b>

Note: Other financial liabilities are forecasted to remain the historical average due to attractive interest rates with repayments similar to the historical ones

<b>New debt repayments</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Bonds	-	-	-	-	-	-	-	-	-
Other loans	-	-	(23 319)	(21 853)	(12 892)	(16 878)	(49 517)	(52 809)	(56 045)
Other financial liabilities	-	-	-	-	-	-	-	-	-
<b>Total</b>	<b>-</b>	<b>-</b>	<b>(23 319)</b>	<b>(21 853)</b>	<b>(12 892)</b>	<b>(16 878)</b>	<b>(49 517)</b>	<b>(52 809)</b>	<b>(56 045)</b>

<b>Debt level forecast (New debt)</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Bonds	-	-	-	-	-	-	150 000	150 000	150 000
Other loans	-	34 798	209 869	196 675	116 031	151 900	445 654	475 277	504 401
Other financial liabilities	-	4 201	5 455	6 709	7 702	8 694	9 687	9 687	9 687
<b>Total</b>	<b>-</b>	<b>39 000</b>	<b>215 324</b>	<b>203 384</b>	<b>123 733</b>	<b>160 594</b>	<b>455 340</b>	<b>484 963</b>	<b>514 087</b>

Note: Repayments of debt levels are assumed to be on the same scale as the historical ones

## Appendix 27 – Debt level summary

<b>Total debt forecast (Existing debt + new debt)</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
High-yield bond	250 000	250 000	250 000	250 000	250 000	250 000	150 000	150 000	150 000
50-MW project finance facility (non recourse debt)	83 108	73 968	64 370	54 560	43 648	32 736	21 824	10 912	-
20-MW project finance facility (non recourse debt)	32 683	29 069	25 243	21 463	17 170	12 878	8 585	4 293	-
Other loans	30 000	56 865	241 908	224 994	154 855	185 887	314 926	344 838	374 255
Accrued interest payable and other	-	-	-	-	-	-	-	-	-
Arrangement fees	(9 155)	(7 878)	(6 590)	(5 289)	(4 231)	(3 173)	(2 115)	(1 057)	-
Other financial liabilities	6 697	9 687	9 687	9 687	9 687	9 687	9 687	9 687	9 687
<b>Total</b>	<b>393 333</b>	<b>411 711</b>	<b>584 618</b>	<b>555 414</b>	<b>471 129</b>	<b>488 014</b>	<b>502 906</b>	<b>518 672</b>	<b>533 942</b>

<b>Total debt forecast</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Debt level forecast (Existing debt at 2015)	393 333	380 644	367 254	338 711	323 572	308 433	28 294	14 148	-
Debt level forecast (New debt)	-	31 067	217 363	216 703	147 557	179 581	474 612	504 524	533 942
<b>Target debt level</b>	<b>357 992</b>	<b>411 711</b>	<b>584 618</b>	<b>555 414</b>	<b>471 129</b>	<b>488 014</b>	<b>502 906</b>	<b>518 672</b>	<b>533 942</b>

<b>Total debt repayments</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
	(16 160)	(12 689)	(36 935)	(51 876)	(29 686)	(33 134)	(314 138)	(52 462)	(55 730)

<b>Future minimum lease payments</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
	(2 405)	(1 790)	(1 790)	(1 790)	(1 790)	(2 599)	(2 599)	(2 599)	(2 599)

	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
<b>Total debt</b>	<b>366 325</b>	<b>409 493</b>	<b>393 333</b>	<b>411 711</b>	<b>584 618</b>	<b>555 414</b>	<b>471 129</b>	<b>488 014</b>	<b>502 906</b>	<b>518 672</b>	<b>533 942</b>
<b>Total cash</b>	<b>82 270</b>	<b>168 264</b>	<b>144 010</b>	<b>183 639</b>	<b>256 323</b>	<b>230 071</b>	<b>170 946</b>	<b>259 884</b>	<b>200 339</b>	<b>294 370</b>	<b>390 571</b>
<b>Total net debt</b>	<b>284 055</b>	<b>241 229</b>	<b>249 323</b>	<b>228 071</b>	<b>328 294</b>	<b>325 343</b>	<b>300 183</b>	<b>228 130</b>	<b>302 568</b>	<b>224 301</b>	<b>143 370</b>

## Appendix 28 – Risk free rate

	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
10-Year German Government Bonds	0,13%	0,13%	0,13%	0,13%	0,13%	0,13%	0,13%	0,13%	0,13%

## Appendix 29 – Cost of debt

<b>Interest Coverage Ratio</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
EBIT	73 379	16 614	(168 624)	133 235	146 140	141 769	118 757	119 338	129 342	142 315	145 531	147 373	149 760
Financial Expenses	(19 375)	(30 762)	(28 032)	(53 921)	(27 364)	(29 864)	(38 493)	(36 835)	(32 029)	(33 509)	(32 936)	(33 947)	(34 942)
Interest Coverage Ratio	3,79	0,54	-6,02	2,47	5,34	4,75	3,09	3,24	4,04	4,25	4,42	4,34	4,29
<b>Synthetic Rating</b>	<b>Ba1/BB+</b>	<b>C2/C</b>	<b>D2/D</b>	<b>B2/B</b>	<b>A3/A-</b>	<b>A3/A-</b>	<b>Ba2/BB</b>	<b>Ba2/BB</b>	<b>Baa2/BBB</b>	<b>Baa2/BBB</b>	<b>Baa2/BBB</b>	<b>Baa2/BBB</b>	<b>Baa2/BBB</b>
<b>Spread</b>	3,25%	16,00%	20,00%	6,50%	1,75%	1,75%	4,25%	4,25%	2,25%	2,25%	2,25%	2,25%	2,25%
Corporate Rating Moody's (28/09/2015)		Ba3											
Corporate Rating Standard & Poor's (30/09/2015)		BBB-											
Issue Rating Moody's (28/09/2015)		B1											
Issue Rating Standard & Poor's (30/09/2015)		BBB-											
<b>Spread Computations</b>		2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E			
<b>Spread through debt synthetic rating computations</b>		1,75%	1,75%	4,25%	4,25%	2,25%	2,25%	2,25%	2,25%	2,25%			
Spread through Moody's corporate rating		4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%			
Spread through Standard & Poor's corporate rating		4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%			
<b>Average corporate spread (Moody's and S&amp;P)</b>		<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>	<b>4,88%</b>			
Spread through Moody's bond issue rating		5,50%	5,50%	5,50%	5,50%	5,50%	5,50%	5,50%	5,50%	5,50%			
Spread through Standard & Poor's bond issue rating		4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%	4,88%			
<b>Average spread of bond issue rating (Moody's and S&amp;P)</b>		<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>	<b>5,19%</b>			
<b>Cost of Debt</b>		2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E			
Debt synthetic rating computations		1,88%	1,88%	4,38%	4,38%	2,38%	2,38%	2,38%	2,38%	2,38%			
Moody's rating		5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%			
Standard & Poor's rating		5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%			
Traded bond YTM		5,25%											

*Note: Ence's bond issue code number is AIHFMT and ISIN is XS0879841251.*

<b>Financial expenses (interest on debt)</b>	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Interest on bond	-	(16 615)	(18 125)	(17 348)	(13 438)	(13 438)	(13 438)	(13 438)	(13 438)	(13 438)	(8 063)	(8 063)	(8 063)
Interest on loans	(15 467)	(6 507)	(5 926)	(6 086)	(1 500)	(2 843)	(12 095)	(11 250)	(7 743)	(9 294)	(15 746)	(17 242)	(18 713)
Interest on non-recourse debt	(20)	(5 454)	(6 664)	(20 365)	(5 790)	(5 152)	(4 481)	(3 801)	(3 041)	(2 281)	(1 520)	(760)	-
Interest on factoring and reverse factoring lines	(1 719)	(2 796)	(1 499)	(1 107)	(1 801)	(1 823)	(1 849)	(1 878)	(1 910)	(1 943)	(1 976)	(2 009)	(2 044)
<b>Total interest payments</b>	<b>(17 205)</b>	<b>(31 373)</b>	<b>(32 214)</b>	<b>(44 906)</b>	<b>(22 528)</b>	<b>(23 256)</b>	<b>(31 863)</b>	<b>(30 366)</b>	<b>(26 131)</b>	<b>(26 955)</b>	<b>(27 305)</b>	<b>(28 074)</b>	<b>(28 819)</b>
Average interest rate on bond		6,6%	7,3%	6,9%	5,38%	5,38%	5,38%	5,38%	5,38%	5,38%	5,38%	5,38%	5,38%
Average interest rate on loans	6,5%	6,3%	5,8%	4,3%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%
Average interest rate on non-recourse debt	0,0%	5,1%	6,1%	15,9%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%	5,00%
Average interest rate on other financial liabilities	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%

*Notes: The interest rate on the bond was computed through the current YTM*  
*The interest rate on other financial liabilities was assumed to be the average of the historical values since these liabilities are short term and usually have interest rates close to 0%*  
*Interest rates for the remaining debt were computed by the spread given by the rating agencies Moody's and Standard & Poor's*

<b>Weighted average market cost of debt</b>	5,16%	5,12%	5,09%	5,09%	5,11%	5,11%	4,91%	4,91%	4,92%

## Appendix 30 – Dividends

	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Interim dividend (€)				0,04									
Regular dividend (€)	0,07	0,07	0,08	0,10	0,08	0,09	0,10	0,11	0,12	0,12	0,12	0,12	0,12
Special dividend (Treasury Stock)	(1x26)&(1x37)	1x25	1x32										
<b>Total interim dividend (k€)</b>	-	-	-	10 951	-	-	-	-	-	-	-	-	-
<b>Total regular dividend (k€)</b>	17 519	17 519	20 022	25 027	20 000	22 500	25 000	27 500	30 000	30 000	30 000	30 000	30 000
<b>Total special dividend (k€)</b>	27 530	22 525	19 893	-	21 209	21 209	21 209	21 209	21 209	21 209	21 209	21 209	21 209
<b>Total shareholder dividend remuneration</b>	<b>45 049</b>	<b>40 044</b>	<b>39 915</b>	<b>35 978</b>	<b>41 209</b>	<b>43 709</b>	<b>46 209</b>	<b>48 709</b>	<b>51 209</b>	<b>52 233</b>	<b>53 278</b>	<b>54 343</b>	<b>55 430</b>
<i>Shareholder dividend remuneration growth rate</i>		-11%	0%	-10%	15%	6%	6%	5%	5%	2%	2%	2%	2%
<b>Dividend yield</b>	4,0%	3,2%	3,6%	4,0%	4,1%	4,9%	5,2%	5,5%	5,7%	5,9%	6,0%	6,1%	6,2%

Note: Ence announced they want to pay regular dividends of 20M€ in 2016 steadily increasing until 30M€ in 2021 and maintain the special dividend policy.

Note: Due to future share price uncertainty, the future dividends were assumed to be of regular cash type only

## Appendix 31 – Consolidated FCFF

FCFF	2012	2013	2014	2015	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
EBIT	73 379	16 614	(168 624)	133 235	146 814	137 802	119 728	125 997	143 357	154 182	157 576	159 598	162 169
Tax on EBIT	(19 947)	(1 254)	64 802	(17 183)	(29 697)	(26 922)	(20 126)	(21 971)	(27 386)	(29 788)	(30 485)	(30 739)	(31 135)
<b>NOPLAT</b>	<b>53 432</b>	<b>15 360</b>	<b>(103 822)</b>	<b>116 052</b>	<b>117 117</b>	<b>110 880</b>	<b>99 603</b>	<b>104 026</b>	<b>115 971</b>	<b>124 394</b>	<b>127 092</b>	<b>128 859</b>	<b>131 034</b>
Depreciations, amortizations, forest depletion	72 259	93 542	69 135	67 162	66 339	72 054	78 106	84 472	91 133	95 473	97 887	102 883	106 937
Impairment of and gains/(losses) on disposals	(6 329)	37 516	101 175	(8 612)	3 592	3 592	3 592	3 592	3 592	3 592	3 592	3 592	3 592
Investment in WC	(34 212)	8 881	(1 453)	(476)	(2 136)	(1 131)	(6 723)	5 080	8 343	4 728	1 703	1 598	1 647
Capital Expenditures	113 000	113 169	59 998	65 106	134 289	134 460	134 661	134 888	135 142	100 649	102 338	104 055	105 801
<b>FCF from Operations</b>	<b>40 574</b>	<b>24 368</b>	<b>7 943</b>	<b>109 972</b>	<b>54 895</b>	<b>53 198</b>	<b>53 363</b>	<b>52 122</b>	<b>67 209</b>	<b>118 081</b>	<b>124 531</b>	<b>129 682</b>	<b>134 115</b>
CF from Non-Op Activities	2 038	1 065	343	1 143	1 158	1 174	1 192	1 213	1 233	1 254	1 276	1 298	-
<b>FCFF</b>	<b>42 612</b>	<b>25 433</b>	<b>8 286</b>	<b>111 115</b>	<b>56 053</b>	<b>54 372</b>	<b>54 555</b>	<b>53 335</b>	<b>68 443</b>	<b>119 335</b>	<b>125 806</b>	<b>130 979</b>	<b>134 115</b>
<i>Growth rate FCFF</i>	6%	-40%	-67%	-1241%	-50%	-3%	0%	-2%	28%	74%	5%	4%	2%

## Appendix 32 – Return on invested capital

	2010	2011	2012	2013	2014	2015
EBIT	106 605	71 734	73 379	16 614	(168 624)	133 235
Sales	830 758	825 451	827 578	853 136	687 544	663 912
<b>Sales Margin</b>	12,8%	8,7%	8,9%	1,9%	-24,5%	20,1%
Sales	830 758	825 451	827 578	853 136	687 544	663 912
Total Assets	1 331 707	1 368 794	1 378 049	1 362 259	1 154 156	1 207 792
<b>Rotation</b>	62,4%	60,3%	60,1%	62,6%	59,6%	55,0%
Total Assets	1 331 707	1 368 794	1 378 049	1 362 259	1 154 156	1 207 792
Invested Capital	1 024 620	1 024 558	1 069 330	1 072 670	909 253	977 711
<b>Investment Rate</b>	76,9%	74,9%	77,6%	78,7%	78,8%	81,0%
NOPLAT	80 980	55 912	53 432	15 360	(103 822)	116 052
EBIT	106 605	71 734	73 379	16 614	(168 624)	133 235
<b>Fiscal Efficiency</b>	76,0%	77,9%	72,8%	92,5%	61,6%	87,1%
<b>After Tax ROIC</b>	<b>4,7%</b>	<b>3,1%</b>	<b>3,0%</b>	<b>0,9%</b>	<b>-7,1%</b>	<b>7,8%</b>
Debt	258 264	304 395	344 592	362 370	366 325	409 493
Total Equity	766 356	720 163	724 738	710 300	542 928	568 218
<b>Invested Capital</b>	<b>1 024 620</b>	<b>1 024 558</b>	<b>1 069 330</b>	<b>1 072 670</b>	<b>909 253</b>	<b>977 711</b>
Average historical Investment Rate	78,0%					
Average historical after tax ROIC	2,1%					
<b>Average historical growth rate</b>	<b>1,6%</b>					

## Appendix 33 – Peer group size, profitability, growth rate and leverage

	Size					Profitability				Growth rate		Leverage					
	Market Cap m US\$ (at March 29, 2016)	Revenue 2015 m US\$	Revenue 2016E m US\$	EBITDA 2015 m US\$	EBITDA 2016E m US\$	EBITDA margin 2015	Return on long term capital 2015	Earnings per share 2015 US\$	Earnings per share 2016E US\$	Dividend Yield 2016E (Next 12 months)	Revenues 5years CAGR (2010- 2015)	EBITDA 5years CAGR (2010- 2015)	Net Debt 2015 m US\$	Net Debt 2016E m US\$	ND/ EBITDA 2015	ND/ EBITDA 2016E	D/E 2015
<b>Pulp players</b>																	
ENCE Energia y Celulosa SA	839	721	756	213	212	29,5%	5,1%	0,31	0,34	4%	-4,5%	2,7%	262	205	1,23x	0,97x	72,1%
Altri SGPS SA	894	722	727	244	223	33,8%	14,1%	0,64	0,54	3%	5,6%	7,0%	478	407	1,96x	1,83x	212,0%
Fibria Celulose SA	4 916	2546	3219	1 289	1 694	50,6%	1,4%	0,06	1,11	2%	9,9%	21,1%	2582	3827	2,00x	2,26x	99,2%
Mercer International Inc*	592	1033	1021	234	213	22,6%	6,7%	1,17	1,04	5%	-2,9%	-4,6%	551	469	2,35x	2,20x	169,8%
Weyerhaeuser Co*	24 231	7082	8002	1 495	1 824	21,1%	4,2%	0,95	1,25	4%	3,5%	9,1%	4404	4936	2,95x	2,71x	110,9%
<b>Integrated players</b>																	
Suzano Papel e Celulosa SA	2 711	2711	3346	1 134	1 555	43,9%	-3,7%	-0,21	0,49	4%	17,8%	29,3%	3097	3458	2,73x	2,22x	160,0%
The Navigator Company (former Portucel)	2 823	2823	1895	435	436	24,2%	9,4%	0,29	0,32	8%	3,3%	-0,2%	720	625	1,66x	1,43x	60,3%
Klabin SA	6 641	6641	N/A	484	N/A	33,7%	-6,0%	-0,43	N/A	N/A	9,2%	26,3%	3135	N/A	6,47x	N/A	336,7%
CMPC SA	5 768	5768	5453	1 019	1 343	21,0%	0,0%	0,01	0,16	N/A	2,8%	-2,1%	3436	3687	3,37x	2,75x	50,4%
International Paper Co	16 997	16997	21387	3 667	3 713	16,4%	3,2%	3,08	3,34	4%	-2,3%	2,4%	8301	7924	2,26x	2,13x	240,1%
Metsa Board	2 277	2277	N/A	244	N/A	11,2%	8,1%	0,38	N/A	N/A	-5,8%	-2,9%	363	N/A	1,49x	N/A	63,7%
Mondi Plc	9 147	9147	7792	1 443	1 548	19,5%	13,6%	1,45	1,61	3%	4,0%	9,8%	1941	1353	1,34x	0,87x	54,0%
Sappi Limited	2 441	2441	5189	687	763	12,7%	4,1%	0,26	0,56	2%	-3,9%	-1,0%	1771	1468	2,58x	1,92x	219,4%
Stora Enso Oyj	6 991	6991	11475	1 761	1 597	16,2%	8,2%	1,88	0,86	5%	-0,5%	10,9%	3671	3747	2,08x	2,35x	75,4%
UPM-Kymmene	9 708	9708	11375	1 562	1 644	14,2%	7,5%	1,21	1,52	5%	2,6%	1,8%	2439	2238	1,56x	1,36x	36,1%
Marubeni Corp	8 838	8838	117046	2 387	2 711	3,7%	2,4%	1,14	0,93	4%	19,0%	8,2%	25368	26162	10,63x	9,65x	221,9%
Oji Holdings Corp	4 307	4307	12948	1 003	1 326	8,9%	1,7%	0,25	0,22	2%	3,3%	-5,6%	7848	6512	7,82x	4,91x	130,9%
Nippon Paper Industries Co., Ltd	2 083	2083	8969	727	729	8,3%	2,3%	1,21	0,06	3%	0,0%		5406	5113	7,43x	7,02x	150,2%
Verso Corp	2	2	N/A	51	N/A	3,9%	-49,2%	-4,98	N/A	N/A	-1,0%	-15,1%	1329	N/A	26,23x	N/A	N/A
Resolute Forest Products Inc.	485	485	3724	199	262	5,5%	-6,3%	-1,51	-0,28	0%	-5,1%	-8,7%	546	812	2,74x	3,10x	30,6%
Domtar Corp	2 378	2378	5221	710	666	13,5%	2,8%	3,19	2,85	4%	-2,1%	-8,7%	1134	1081	1,60x	1,62x	47,5%
Powerflute OYJ*	330	330	399	58	59	14,9%	14,0%	0,09	0,11	N/A	27,6%	24,1%	49	27	0,84x	0,45x	102,2%
Billerud Korsnas*	3 388	3388	2702	475	494	18,4%	10,2%	1,03	1,12	3%	19,6%	19,5%	518	490	1,09x	0,99x	35,9%

\*Players specialized in softwood

Note: Estimates for the values of 2016 are the Eikon Thomson Reuters Smart Estimates®

## Appendix 34 – Peer group multiples and cluster allocation

	Cluster	5-year monthly Beta	Enterprise Value Multiples				Equity Value Multiples	
			EV/EBITDA 2015	EV/EBITDA 2016E (Next 12 months)	EV/EBIT 2015	EV/EBIT 2016E (Next 12 months)	P/E 2015	P/E 2016E (Next 12 months)
Weyerhaeuser Co*	1	1,42	19,15	15,36	19,40	22,36	33,72	24,86
Mondi Plc	1	1,82	7,49	5,24	11,05	9,91	14,63	11,79
Stora Enso Oyj	1	1,28	5,93	6,73	9,09	10,18	8,21	10,24
UPM-Kymmene	1	1,49	7,59	7,14	12,46	11,37	10,04	12,07
ENCE Energia y Celulosa SA	2	1,28	5,03	5,16	8,12	7,97	17,55	10,06
Altri SGPS SA	2	1,24	5,51	6,18	8,25	8,21	8,32	8,07
Mercer International Inc*	2	1,52	4,88	4,94	6,85	8,37	7,76	8,82
The Navigator Company (former Portucel SA)	2	1,11	7,96	7,61	11,41	11,70	13,13	11,73
CMPC SA	2	1,25	9,03	(a)	14	12	17	15
Metsa Board	2	1,32	10,53	(a)	23	11	18	(a)
Sappi Limited	2	0,56	6,13	4,94	9,36	8,36	9,77	8,22
Oji Holdings Corp	2	1,04	11,85	7,62	30,60	(a)	28,07	18,52
Nippon Paper Industries Co., Ltd	2	1,54	10,12	9,24	36,29	(a)	15,32	13,28
Resolute Forest Products Inc.	2	1,64	5,18	4,86	(a)	(a)	(a)	(a)
Domtar Corp	2	1,06	4,95	5,10	10,08	10,61	16,51	13,43
Powerflute OYJ*	2	1,25	6,40	(a)	9	8	14	11
Billerud Korsnas*	2	1,18	8,09	7,79	14,24	12,15	18,01	14,62
Fibria Celulose SA	3	0,82	5,50	5,17	12,13	6,70	83,95	7,94
Suzano Papel e Celulose SA	3	0,20	4,92	3,83	10,62	5,14	(a)	7,47
Klabin SA	3	1,13	19,03	(a)	17	14	(a)	(a)
International Paper Co	4	1,59	6,90	6,63	10,05	10,63	16,90	12,36
Marubeni Corp	5	1,15	14,10	12,95	25,25	14,36	11,44	5,49
Verso Corp	N/A	1,23	26,28	(a)	(a)	(a)	(a)	(a)
<b>Peer group average for Ence's cluster (excluding Ence)</b>		<b>1,25</b>	<b>7,55</b>	<b>6,48</b>	<b>15,71</b>	<b>10,01</b>	<b>15,09</b>	<b>12,20</b>
<b>Ence relative valuation price per share</b>			<b>4,79</b>	<b>4,59</b>	<b>7,36</b>	<b>4,85</b>	<b>3,01</b>	<b>4,32</b>

(a) Data not available

Notes: Sales multiples were only computed for pulp producers and not integrated producers

The data collection point was on March 29, 2016

## Appendix 35 – DCF valuation

Inputs	Pulp business	Energy business
Risk-free rate	0,125%	0,125%
Market risk premium	5,5%	5,5%
Country risk premium	3,4%	3,4%
Tax rate	25,0%	25,0%
Raw beta	1,43	0,70
Adjusted beta	1,29	0,80
Prepetuity growth rate	1,7%	1,5%

<b>Cost of capital - Pulp business</b>	2016E	2017E	2018E	2019E	2020E	2021E
Cost of equity (CAPM)	10,60%	10,60%	10,60%	10,60%	10,60%	10,60%
Cost of debt	5,16%	5,12%	5,08%	5,09%	5,11%	5,10%
D/V	32%	31%	41%	38%	32%	31%
E/V	68%	69%	59%	62%	68%	69%
<b>WACC</b>	<b>8,46%</b>	<b>8,50%</b>	<b>7,84%</b>	<b>8,02%</b>	<b>8,41%</b>	<b>8,47%</b>

<b>Discounted cash flows - Pulp business</b>	2016E	2017E	2018E	2019E	2020E	2021E
FCFF Pulp business	89 482	82 954	76 349	78 528	91 694	1 251 486
PVFCFF from pulp business @ 2016	89 482	76 636	66 070	63 546	69 137	878 709

*Note: The cash flow in perpetuity is the average cash flow of one full cycle (from the high point in 2015 until the forecasted next high point in 2020).*

<b>Cost of capital - Energy business</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
Cost of equity (CAPM)	7,93%	7,93%	7,93%	7,93%	7,93%	7,93%	7,93%	7,93%	7,93%
Cost of debt	5,16%	5,12%	5,08%	5,09%	5,11%	5,10%	5,03%	5,02%	5,02%
D/V	32%	31%	41%	38%	32%	31%	34%	33%	32%
E/V	68%	69%	59%	62%	68%	69%	66%	67%	68%
<b>WACC</b>	<b>6,64%</b>	<b>6,65%</b>	<b>6,25%</b>	<b>6,36%</b>	<b>6,60%</b>	<b>6,64%</b>	<b>6,53%</b>	<b>6,57%</b>	<b>6,61%</b>

<b>Discounted cash flows - Energy business</b>	2016E	2017E	2018E	2019E	2020E	2021E	2022E	2023E	2024E
FCFF Energy business	(33 429)	(28 583)	(21 794)	(25 194)	(23 251)	8 546	11 756	14 389	331 716
PVFCFF from energy business @ 2016	(33 429)	(26 799)	(19 232)	(20 903)	(18 097)	6 238	8 054	9 251	200 028

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