

In how much is REN worth, indeed?

Equity Research

Redes Energéticas Nacionais, SPGS, SA

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"Don't gamble. Take all your money, buy a good stock and hold it until it goes up, then sell it. If it doesn't go up, don't buy it"- Will Rogers

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Abstract

For the last years, different authors and scholars have been focusing their studies on firm valuation. Despite the fact that this subject is, to a somewhat large extent, a matter of some controversy, almost all of the discussions agree on the point that valuing a company is an art.

Hereupon, this dissertation aims to present an equity valuation anchored on this idea, for which purpose attempting to combine the review of significant literature and studies with the valuation of a Portuguese operator of electricity and natural gas networks, Redes Energéticas Nacionais, S.A. (REN).

Hence, this study proposes a price target for the company's stock between 3.14 and 3.39 Euros, the 31st of March 2014 being the reference date for such valuation. Banco Português de Investimento's research is additionally offered as a basis for comparison, both as to methodologies followed and results obtained.

Acknowledgments

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Finally, I would like to convey my profound gratitude and love to my family, for everything that I will never be able to express in words, friends and to Frederico Carvalho. A distinctive recognition to my mother, Ana Casqueiro, who provided a great support during all my studies, principally in the most difficult times.

A special word, however, is due to my father, Carlos Casqueiro, to whom I dedicate this dissertation, because of his unlimited help, his invaluable knowledge and the expertise he conveyed. Thank you for all the financial knowledge given and the patience demonstrated. I will always remember it fondly and I will always be in your debt for teaching me that "Valuing a company is an art".

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A. Executive Summary



I. Object of the Thesis

The object of this thesis is to determine the share value of REN - Redes Energéticas Nacionais SGPS, SA (**REN** or the **Company** and jointly with its subsidiaries designated by **REN Group** or **Group**) as reported on December 31st 2013.

II. Organization of the Work

According to the object of this thesis, the work is divided into the following stages:

1. A succinct description of the companies' evaluation methodologies, its main characteristics and its main merits and fragilities (Chapter B). This stage of the work concludes with the presentation of the methodologies which were applied in the evaluation of **REN Group** and of a series of parameters essential to its achievement;
2. A short characterization of **REN Group**, essential for analyzing its projected business and also for selecting the evaluation methods to be applied (Chapter C); and
3. Evaluation of **REN Group**, taking into account all the available information and conclusions drawn from the analysis carried out (Chapter D).

This document finishes with the presentation of the main bibliography sources used in the elaboration of this thesis.

III. Main Conclusions

The analysis shows that **REN Group** is the major entity in the national electricity and natural gas market, where it operates under concession contracts granted by the Portuguese state, and subject to economic regulation models, the aim of which is to mitigate market flaws associated with activities of great capital intensity, which are therefore performed in non-competitive conditions.

Additionally, **REN Group** also operates in the telecommunications sector, renting the fiber installed in its electrical gas system infrastructures.

The analysis of **REN Group**'s recent evolution enables to conclude:

1. That its shareholder basis is quite concentrated, with a free-float below 19%;
2. That its business is relatively small when compared with its European peers, with a firm market value of 4,012 million Euros, according to Bloomberg;
3. That in the last three years, its levels of returns (average ROE of 11.8%) were markedly less than its peers (18.4% of sector average);
4. That it has an aggressive capital structure and a lower financial flexibility level than all its peers, and thus the reason for being given a non-investment grade rating notation; and
5. That it is subject not only to significant regulatory risks, as regulation periods only have a 3-year duration, but also to political risks as seen in 2014 with the levying of an extraordinary contribution rate on the energy sector.

Based on these circumstances, **REN**'s stocks have been traded with a discount, in relation to its European peers: around 13%, based on firm values to EBITDA ratios; and close to 3%, based on PE multiples.

With the aim of determining the value of **REN Group** based on discounted cash flows methods and market multiples, a projection of its estimated business was carried out and the following scenario was assumed:

	Electricity	Natural Gas
1. End of concession period (year)	2057	2046
2. Regulated Asset Base		
a. Value (31 December 2013)	2,419 Mn €	1,112 Mn €
b. Annual average Capex (2013 prices)	213 Mn €	51 Mn €
c. Annual average depreciations (2013 prices)	268 Mn €	77 Mn €

	Electricity	Natural Gas
3. Operating expenses		
a. Value (2013)	67 Mn €	38 Mn €
b. Real Variation(Annual average ↔ Δ consumption)	1.0%	2.2%
4. Operating Income		
a. Average rate of return of remuneration of the RAB	5.8%	6.0%
b. Annual average depreciations (2013 prices)	268 Mn €	77 Mn €
c. Other revenues (weight on capital revenue)	1.1%	2.3%
d. Own Works (weight on Capex)	9.5%	9.1%

The evaluation undertaken with basis on the market information reported at March 31st 2014, showed that the value of the stocks of **REN Group** are the following:



The current price of **REN Group**'s stocks embodies a discount of around 13% in relation to the central point of the interval of value inferred for its stocks (3.27 Euros) and market analysts' average price target (2.56 Euros) have an underlying discount of around 12%.

The reason for these differentials lies apparently in three fundamental factors:

1. Firstly, investors and analysts' fear that the extraordinary tax levied on the energy sector in 2014 will continue in the future;

-
2. Secondly, the minute share free-float (limited to 18.9%) that leads them to apply an illiquidity discount; and
 3. Thirdly, the existing pressure on the share price as result of the privatization operation involving 11% of its capital still held by the State, planned for the summer 2014.

The Government has already said that it will not keep the extraordinary tax on energy, beyond 2014, and that the sale of an additional 11% of **REN's** capital will determine an increase of its free-float to roughly 30% and consequently to an increase in the liquidity level of its shares.

In this context, taking into account the prevailing conditions in the capital markets, the characteristics of **REN Group** and all the available information, it is reasonable to consider that the current value of its shares is somewhere between 3.14 and 3.39 Euros.

B. Valuation Methodologies



I. Firms' Value and Valuation Models

1. Firms' Value

The value of a company, also referred to as enterprise value or firm value, may be defined as the amount by which the net assets of the company (or the capitals invested in the company) may be traded between independent entities who are reasonably informed about the characteristics of that company

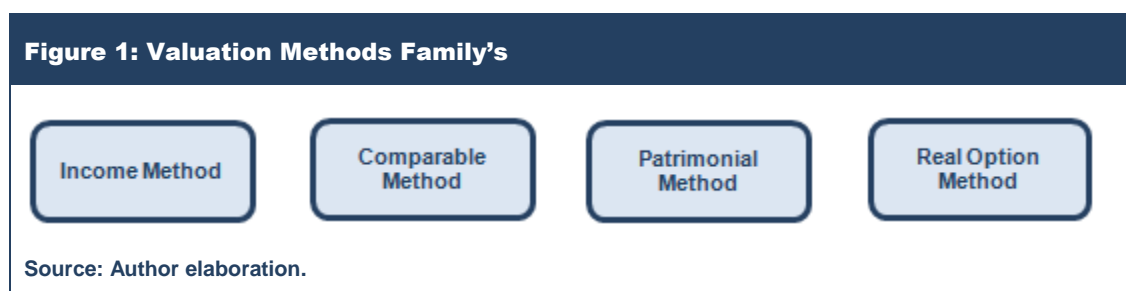
$$V_L = E + D \tag{1}$$

As such, the value of a company (V_L) may be defined as the sum of the market values of its equity capital or equity value (E) and that of its net debt (D), in the case where the net assets are financed only with equity capital and debt.

The lenders or financial creditors become holders of the value of the loans granted to the company while equity holders are granted the residual value, i.e., the difference between the market value of the firm and the value of its net debt.

2. Valuation Model Families

Company valuation models can be classified into four major families.



The most widely used valuation models are the ones grouped within the income method and the comparable method. The patrimonial approach has its field of action relatively limited to the determination of companies' liquidation value and the real options method, notwithstanding its technical merits, is still not very widely used.

Each of the aforementioned methods may be applied with the objective of determining the value of a firm or the value of its equity.

II. Income Method

1. Introduction

The income method is based on the principle that the value of a financial asset is equivalent to the value of future returns expected to be generated, discounted with reference to the evaluation date at a rate that adequately reflects the prevailing financial market conditions and the level of risk associated with those future returns.

According to this method of valuation, the value of a company can be determined in various alternative ways, namely:

1. The present value approach or the adjusted rate of return approach;
2. The adjusted present value approach;
3. The capital cash flow approach;
4. The economic value added approach;
5. The dividend discount model approach;
6. The flow to equity approach;
7. The residual income approach.

The objective of the approaches indicated in the first four paragraphs above is to firstly to determine the value of companies and then, the value of their equity capital. As for the last three above-mentioned approaches, their purpose is to directly identify the value of a company's equity capital.

2. Present Value Approach

2.1. Conceptualization

In the present value approach the company's value is determined through the update, with regard to the reference valuation date, (i) of the expected free cash flow series (FCF) at (ii) a discount rate usually

referred to as weighted average cost of capital (R_W), which can also be referred to as adjusted rate of return.

$$V_L = \sum_{t=1}^n \frac{FCF_t}{(1+R_W)^t} \quad (2)$$

In accordance with this approach, the company value is calculated with basis on the expression contained in (2) above, in which the variable n represents the economic life of the company.

2.2. Expected Free Cash Flows

Free cash flows are a measure that translates the firms' assets' (or businesses) expected fund generating capacity and, consequently, the capacity of the available funds to remunerate every capital provider.

One way of determining the company's free cash flows is the following:

$$FCF = EBIT \times (1 - T_C) + D\&A - Capex - \Delta WK \quad (3)$$

In which:

- EBIT = Earnings before interest and taxes;
- T_C = Marginal tax rate on the income of the company;
- D&A = Depreciations and amortizations;
- Capex = Investments in fixed assets;
- ΔWK = Variation in working capital.

The product between operational results (EBIT) and the additional value to the marginal tax rate on corporate income ($1-T_C$) corresponds to the operational results after taxes, usually referred to as NOPLAT.

The difference between depreciations and amortizations (D&A) and investment in fixed assets (Capex) and in net working capital (ΔWK) corresponds to the variation of the invested capital in the businesses of the firm and this measure can be designated as ΔK .

Accordingly, free cash flows may also be expressed in the following manner:

$$FCF = NOPLAT - \Delta K \quad (4)$$

At this point it is important to emphasize that the free cash flows are future flows, not observable, and as such, constitute an expected amount (uncertain) and is associated with a certain risk level.

2.3. Weighted Average Cost of Capital

The weighted average cost of capital (R_W) is a rate of return that intends to translate the net return that the assets (or businesses) of a company should generate, so that the company can adequately remunerate all capital invested in it.

So, in its broader formulation, the weighted average cost of capital can be expressed in the following manner:

$$R_W = \sum_{i=1}^n R_i \times W_i \quad (5)$$

In which:

R_i = Net rate of return demanded by investors who provide class i capital used by the company;

W_i = Class i capital weight in the company's funding structure; and

n = Number of capital classes used by the company.

In a more restrictive formulation, in which the companies' businesses are financed only through debt and own capitals, the weighted average cost of capital can be expressed in the following manner:

$$R_W = R_D \times (1 - T_C) \times L + R_E \times (1 - L) \quad (6)$$

In which:

-
- R_D = Expected cost of debt of the company;
 - R_E = Expected cost of equity of the company;
 - L = Debt burden of the company in its funding structure.

The weight of each financing source (or of class of capital) used by the company is quantified in market values and not in book values.

The weighted average cost of capital is an adjusted return rate, insofar as it does not reflect the return that should be generated by the company's assets but the profitability rate that those assets can generate, taking into account the way they are financed.

3. Adjusted Present Value Approach

3.1. Conceptualization

In the adjusted present value approach it is explicitly recognized that a company's value is not only a function of the income flows generated by the assets (free cash flows) but also a function of the benefits and drawbacks determined by the debt used in its financing.

Accordingly, a company's value (V_L) is calculated with basis on the sum of the value that such company would hold if it was entirely financed by equity capitals (V_U) and the difference between the benefit values (B_D) and the drawbacks (M_D) induced by the debt:

$$V_L = V_U + B_D - M_D \quad (7)$$

Hence, according to the adjusted present value approach, in order to determine a company's value it is necessary to identify three relevant income flows and three relevant return rates.

3.2. Base Value of the Assets

The first relevant income flow corresponds to the expected free cash flows and the current value of this series of flows (base value of the assets) is determined by discounting it at a return rate designated by opportunity cost of capital (R_U):

$$V_U = \sum_{t=1}^n \frac{FCF_t}{(1+R_U)^t} \quad (8)$$

Conventionally, companies will only become indebted as long as that decision creates value and, because of that, the value of a company which is not in debt will always tend to be equal or inferior to the value of that company with debt, and thus the reason why the capital's opportunity cost is higher than or equal to the capital weighted average cost of capital ($R_U \geq R_W$)¹.

3.3. Value of the Debt-Induced Benefits

The main benefit induced by the use of debt in the funding of companies' businesses, lies among others in tax savings (or tax shields) which can be obtained from loan interests².

The tax shields value (T_{SD}) corresponds to the product between the amounts of contracted debt (D), the gross cost of that debt (R_D) and the marginal tax rate on the company's income (T_C):

$$T_{SD} = D \times R_D \times T_C \quad (9)$$

The return rate (R_{TSD}) at which the tax shields may be discounted in order to determine their present value is quite a controversial issue among financial experts, lying somewhere between the gross debt cost (R_D) and the capital's opportunity cost (R_U).

In general, it is normal to consider that, if the amount of debt owned by a company is independent from its businesses' values, then the tax shields' risk is equally independent from the *free cash flows*' risk and tends to be equivalent to the debt's risk. In this case, the appropriate discount rate to ascertain the present value of the benefits induced by debt corresponds to the gross cost of debt:

$$B_D = \sum_{t=1}^n \frac{T_{SDt}}{(1+R_D)^t} \quad (10.a)$$

¹ Capital opportunity cost equals the weighted average cost of capital in cases where the company does not resort to debt to finance its business.

² Among the remaining benefits induced by the use of debt, the most relevant is probably the adoption of a more rigorous management.

In the event that the amount of debt held by a company is periodically defined according to its businesses' value, then the risk associated with the tax shields is equivalent to that of the free cash flows and, consequently, the appropriate rate to determine its present value is, in the first period, the gross debt cost and, in the subsequent periods, the capital opportunity cost.

In this case, the value of the benefits induced by the use of debt is determined using the following formula:

$$B_D = \sum_{t=1}^n \frac{T_{SDt}}{(1+R_U)^t} \times \frac{1+R_U}{1+R_D} \quad (10.b)$$

3.4. Value of Debt-related Drawbacks

If it is true that indebtedness generates economic benefits for companies, it is likewise true that resorting to debt also causes problems in terms of: (i) bankruptcy costs; (ii) agency costs (between shareholders and debt holders); and (iii) loss of financial flexibility.

Focusing the analysis on bankruptcy cost (or of financial distress), it is possible to observe that these encumbrances involve two different aspects: (i) one respecting direct costs (namely, legal and administrative costs); and (ii) another relating to indirect costs, resulting from the perception that bankruptcy is likely, whether by clients, suppliers' employees, or by the funding entities themselves.

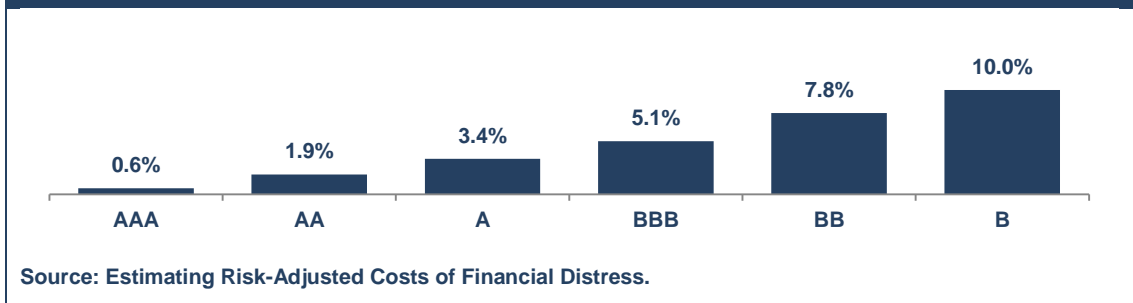
Conceptually, the *ex-ante* value of the financial distress costs is equivalent to the product between the default probability (PD) and the *ex-post* value of the financial distress costs.

Unfortunately, neither the bankruptcy's probability nor the *ex-post* value of the bankruptcy's costs are parameters subject to direct estimate, reason why the estimate concerning the value of the damage induced by indebtedness constitutes a field of intense debate among financial specialists and in relation to which sufficiently reliable and robust conclusions are yet to be reached.

In any event, taking a study³ published in the *Journal of Applied Corporate Finance* into account, the *ex-ante* value of the bankruptcy's costs tends to represent the following percentages of companies' market values:

³ "Estimating Risk-Adjusted Costs of Financial Distress" (vide <http://business.illinois.edu/halmeida/FDJACF.pdf>).

Chart 1: EX-Ante Value of Bankruptcy Costs by Rating Classes



As should be expected, the lower the credit qualities of the company and, therefore, their *rating* notations, the higher the expected values of the financial distress costs.

4. Other Alternative Approaches

4.1. Capital Cash Flow Approach

In the capital cash flow approach, the relevant variables in determining the company's value are: (i) the expected capital cash flows; and (ii) the weighted average cost of capital before taxes.

The capital cash flows (CCF) correspond to the sum of the free cash flows with the tax shields:

$$\text{CCF} = \text{EBIT} \times (1 - T_c) + \text{D\&A} - \text{Capex} - \Delta \text{WK} + \text{D} \times R_D \times T_C \quad (11)$$

In its turn, the weighted average cost of capital before taxes (R_{WST}) is represented by the following expression:

$$R_{WBT} = R_D \times L + R_E \times (1 - L) \quad (12)$$

4.2. Economic Value Added Approach

The economic value added (EVA) is a measure that quantifies the additional return that the company's business generates in relation to the weighted average cost of capital:

$$EVA = NOPLAT - K \times R_W \Leftrightarrow EVA = K \times (ROIC^4 - R_W) \quad (13)$$

Thus, according to the economic value added approach, a company's value can be determined using the following expression:

$$V_L = K + \sum_{t=1}^n \frac{EVA_t}{(1+R_W)^t} \quad (14)$$

4.3. Dividends Approach

According to the dividends approach, the value of the equity capital of a company is determined by discounting, to the reference valuation date, the expected flow of dividends of that company (DIV) at a rate which reflects the costs of its equity capital (R_E):

$$E = \sum_{t=1}^n \frac{DIV_t}{(1+R_E)^t} \quad (15)$$

If, afterwards, ascertaining the company's value is intended, then it is only necessary to add the equity value to the company's debt value, as shown in the expression (1) above.

4.4. Flow to Equity Approach

In the flow to equity approach, the relevant variables for determining the equity value are the equity cash flows (ECF) and the cost of the equity capital (R_E).

The equity cash flows correspond to the difference between the cash flows and the debt cash flows (DCF), which represent the portion of the free cash flows subject to appropriation by lenders:

$$DCF = D \times R_D \times (1 - T_C) - \Delta D \quad (16)$$

Thereby, the equity cash flows are obtained using the following expression:

$$ECF = FCF - DCF = EBIT \times (1 - T_C) + D\&A - Capex - \Delta WK - D \times R_D \times (1 - T_C) + \Delta D \quad (17)$$

⁴ The ROIC (return on invested capital) is given by the coefficient between the NOPLAT and the invested capital (K).

In the long run, the value of the dividend series and the value of the equity cash flows generated by the companies have to be, necessarily, identical.

4.5. Residual Income Approach

The residual income (RI) is a measure that quantifies the extra return that the equity capitals (CP) of a company generate in relation to its cost of capital:

$$RI = \text{Net Income} - CP \times R_E \Leftrightarrow RI = CP \times (ROE^5 - R_E) \quad (18)$$

This way, according to the residual income approach, a company's equity value can be determined by the following expression:

$$E = CP + \sum_{t=1}^n \frac{R_t}{1+R_E)^t} \quad (19)$$

5. Cost of Capital

5.1. Conceptualization

The cost of capital of a financial asset corresponds to the rate of returns (R) presumably demanded by investors for acquiring that title. And, according to the financial theory, investors establish that expected return rate basing their expectations on: (i) the remuneration rate offered by risk free financial assets (R_F); and (ii) the level of risk associated with the asset (P_R).

In these terms, the return rate that the rational economic agents will tend to demand to invest on a financial asset can be expressed as the sum of the two above-mentioned measures:

$$R = R_F + P_R \quad (20)$$

This is the basic notion of capital cost, common to all the developed models with the purpose of determining this referential: the cost of capital is the function of the rate of return offered by the risk free

⁵ The ROE (return on equity) is given by the coefficient between the net income and the equity capital.

assets and the investors' perception of the risk level subjacent to the specific asset in which they are planning to invest.

5.2. Capital Asset Pricing Model

There are several models used to determine the cost of capital of financial assets. The most used one, however, is the Capital Asset Pricing Model (CAPM)⁶, originally proposed by Sharpe (1964), Lintner (1965) and Mossin (1966). In fact, around 95% of the most renowned North-American companies and 100% of investment banks use this model⁷.

CAPM is, in essence, an extension of Markowitz's (1952) and Tobin's (1958) Modern Theory of Portfolio, and postulates that the expected risk premium of an asset (P_R) is the function of two measures: (i) the market price of the risk; and (ii) the amount of risk which the asset contributes to the market portfolio, that is, its coefficient of systematic or non-diversifiable risk.

According to CAPM, the market price of the risk (MRP) corresponds to the difference between the expected return offered by the market (R_M) and the interest rate without risk, as expressed below:

$$\text{MRP} = R_M - R_F \quad (21)$$

The systematic or non-diversifiable risk coefficient of an asset, also designated as the asset's beta coefficient (β), is statistically measured through the quotient between: (i) the covariance between the asset's profitability and the market's profitability (σ_{AM}); and (ii) the variance of the market's profitability (σ_M^2):

$$\beta = \frac{\sigma_{AM}}{\sigma_M^2} \quad (22)$$

Thus, under the terms of CAPM, the capital cost of a financial asset is expressed as follows:

$$R = R_F + (R_M - R_F) \times \beta \quad (23)$$

⁶ The Fama-French Three-Factor Model and the Arbitrage Price Theory (APT) are the main competing models.

⁷ "Best Practices" in Estimating the Cost of Capital: An Update" (Journal of Applied Finance – N°. 1, 2013).

The verification of the relation of proportionality between risk and the expected risk premiums proposed by CAPM, which determines the equilibrium rates of return of the financial assets, demands the consideration of a set of hypothesis that simplify reality in relation to investors' behavior, market functioning and investment opportunities. In particular, CAPM is based on the following assumptions:

1. Every investor intends to maximize the utility of his wealth by choosing efficient portfolios that offer average returns and risk at the end of a given investment period, and defined in exactly the same terms for all of them regardless of their respective utility function;
2. Investors are risk averse and make investment decisions concerning the choice of alternative portfolios looking only to the expected values and the standard-deviations of the returns of those portfolios, which follow a normal distribution;
3. All Investors have identical expectations in what concerns averages, variances and covariances of the returns of different assets at the end of the period, i.e., have homogenous expectations concerning the joint distribution of the returns;
4. All investors are price-takers, that is, they compete with one another on prices and search for the best assets in terms of returns and risk;
5. Every investor can lend or borrow an unlimited amount of funds at an interest rate exogenously determined, equal to the interest rate for risk-free assets ;
6. The market is completely efficient and therefore: *(i)* there are no transaction costs, taxes on income, regulations or restrictions on short-selling any asset; and *(ii)* the information is free and it is simultaneously available for every investor; and
7. The quantity of assets is fixed and these are perfectly divisible and subject to trading in the market.

Some of the grounds on which CAPM stands are clearly insufficient. Therefore, the financial researchers have been developing alternative theories. Unfortunately, none of these theories has proved to be more robust than CAPM or to have an effective practical application, reason why CAPM clearly continues to be the predominant model for the quantification of companies' cost of equity capital.

5.3. Risk Free Rate

Conceptual Considerations. The risk free interest rate corresponds to the remuneration offered for an asset free of risk, that is, upon which:

1. There is no risk of default (or bankruptcy), which implies that we are talking about a title issued by the state;
2. There is the certainty that the rate of remuneration promised on the date of issue will be exactly identical to the one offered, whether in nominal terms or in real terms; and
3. There is no uncertainty concerning the reinvestment rate, which implies the non-existence of any type of cash inflow before the time horizon of the investment (if that happened, that would imply not knowing the rate at which it would be possible to reinvest that cash flow).

In fact, there is no financial title that is entirely risk free, reason why investors have to assume a proxy for the risk free rate, the choice of that proxy generally based on the profitability offered by public debt titles.

The types of financial assets with the least risk exposure levels are naturally short-term government titles: due to their short maturity, the returns, in a nominal basis and in a real basis, tend not to be materially distinct from the promised ones.

However, this characteristic is not verified in long-term public debt titles, since: *(i)* their nominal return is only certain if investors keep the title until maturity; and *(ii)* their real return, even if the investor keeps the bonds until maturity, can differ from the promised one depending on inflation.

Even though the level of risk associated with short-term public debt titles is lower than the one underlying long-term ones, the maturity of those titles is much lower than a company's business and stocks, whose economic useful life can be infinite. And, in this context, it is not correct to take the remuneration offered by short-term public debt titles as a proxy of the interest rate without risk, when it is necessary to determine the cost of capital of a company.

One way of overcoming this insufficiency consists in determining a "normalized" risk free interest rate, deducting from the current yield of long-term public debt titles the risk premium that such titles will tend to offer in the long-term in relation to their short-term counterparts.

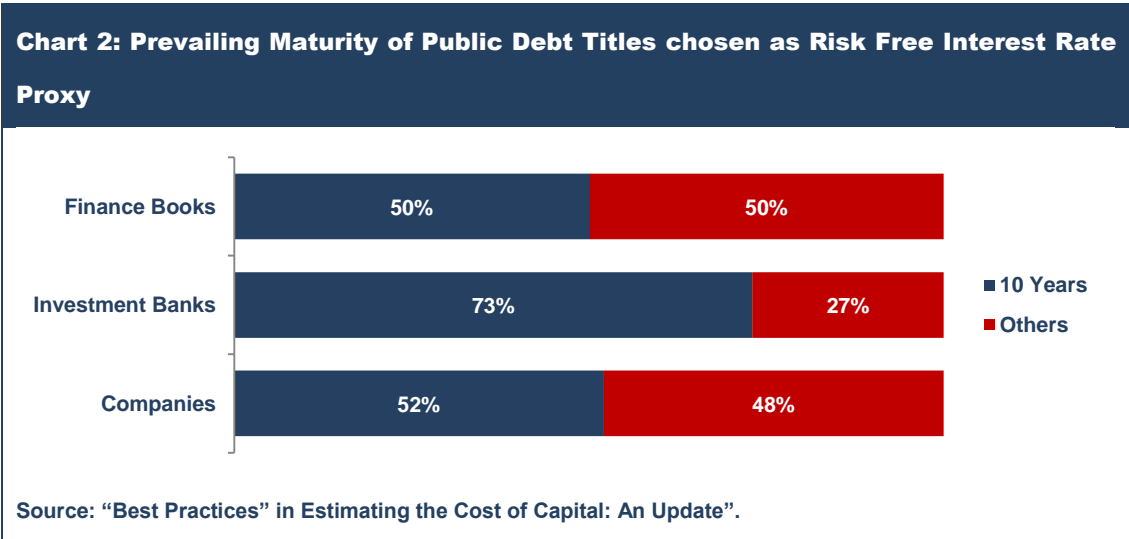
Another way of overcoming this situation is to consider that the returns generated long-term public debt titles constitutes, in fact, a reasonable proxy of the risk free interest rate.

Although this second option is conceptually less correct, it is the one which prevails among investors and financial analysts, because it allows the settling of calculations based on market rates, eliminating possible errors in risk premium evaluation which economic agents demand in order to stop investing in short-term public debt titles and instead acquire long-term public debt titles.

In any case, the potential error that the selection of the risk free rate's proxy determines upon the calculation of the cost of capital of a company is small, provided that the market risk premium is calculated based on a consistent risk free rate: the variation between the values of the risk free rate is compensated by the variation of the market risk premium; the potential error is thus limited to the product between the variation of the market risk premium and the beta coefficient, thus constituting a measure which can be considered insignificant.

In this context and considering the above-mentioned aspects, it may be reasonable to assume that the return offered by long-term public debt titles constitutes a reasonable proxy of the risk free interest rate.

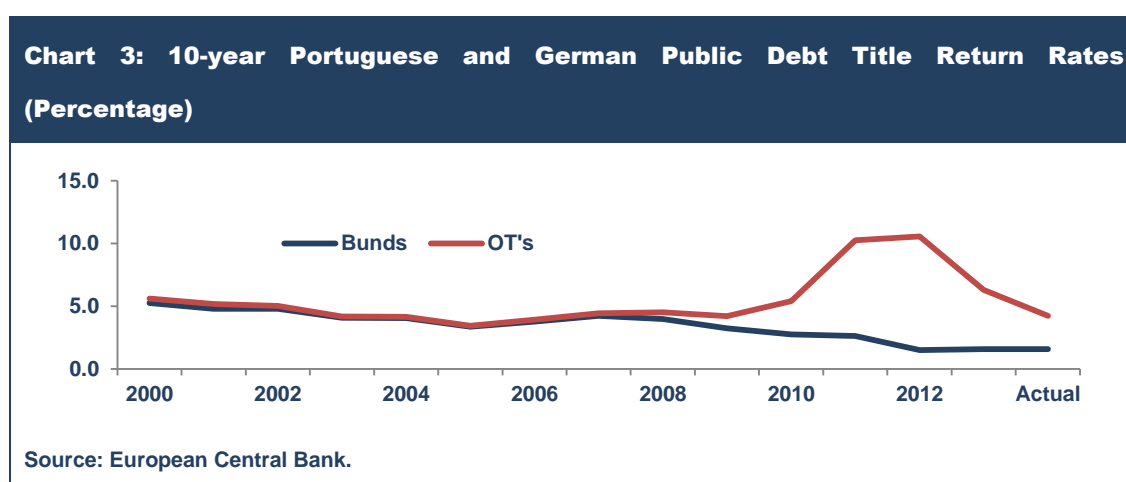
On the other hand and taking into account that public debt titles with a residual maturity of ten years tend to be more easily settled than those with other maturities, namely those with longer maturities, it is considered that the yield offered by these financial assets is, among the other available options, the best proxy for the risk free interest rate.



The solution herein presented is the one that prevails among most financial experts.

Risk free interest rate in Portugal. The Portuguese Republic is currently not seen as an issuer with good credit quality, according to the rating notations given to the national public debt by the main international agencies: BB by S&P's; Ba3 by Moody's; and BB+ by Fitch.

Thus, the returns offered by Portuguese public debt titles (OT's) currently represent a very significant sovereign risk premium in relation to the yields of Germany's public debt titles (Bunds).



In this context, it is reasonable to admit that the risk free rate corresponds to the return offered by Germany's treasury bonds, with a residual maturity of 10 years, currently of around 1,57%.

In addition, considering that REN's rating is better than the Portuguese Republic rating notation, namely BB+ according to S&P's, Ba1 according to Moody's and BBB according to Fitch, it is plausible to consider that the risk free rate which REN is subject to is effectively given by the 10 years Germany treasury bonds.

5.6. Cost of Corporate Debt

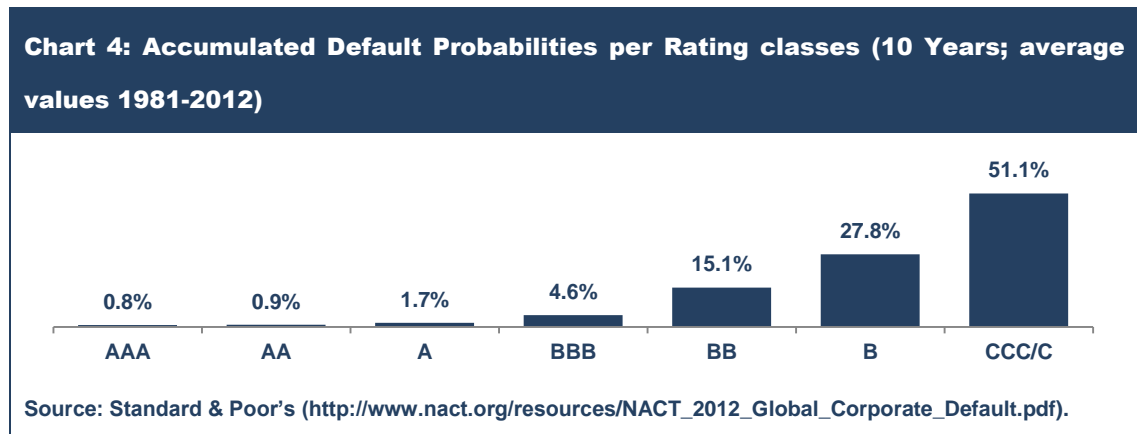
Introductory considerations. The most widely used form of estimating the debt costs of a company (R_D) consists on adding to the free risk interest rate a premium (or spread) that compensates investors for the risk to which they are exposed for giving a loan to a certain company. This spread is usually known by debt premium (D_P).

$$R_D = R_F + D_P$$

(24)

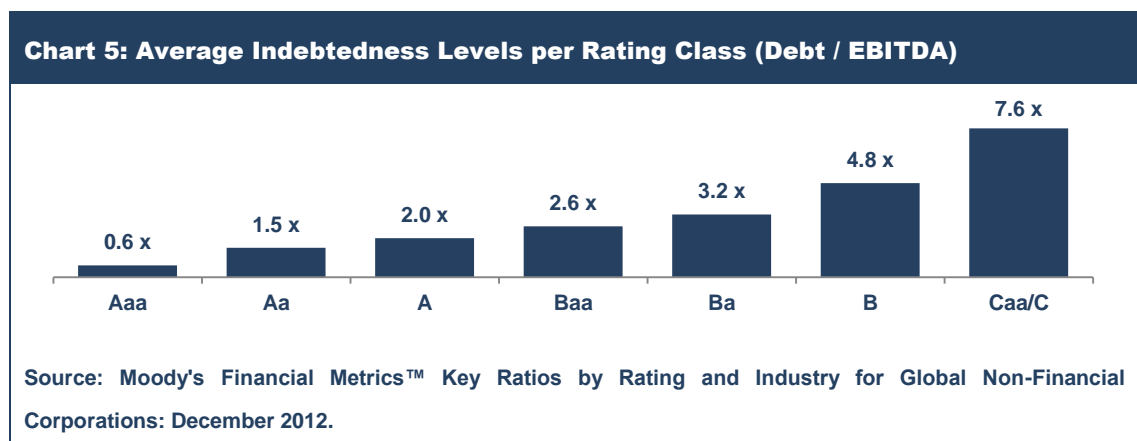
Debt premiums depend on the conditions which prevail in the financial markets and on the company's credit quality, which rating agencies (and investors) translate into credit notations (classifications).

Rating notations and default probabilities. Every agency has a scale used to rate companies' credit quality, which reflect the probabilities of a company entering a default situation, in other words, of its probability of failing to comply with its debt service within the agreed times.



The probabilities of default by companies with rating notations of investment grade (AAA to BBB) are relatively small, while companies with classifications of speculative grade (equal or below BB) present a significantly higher chance of non-compliance.

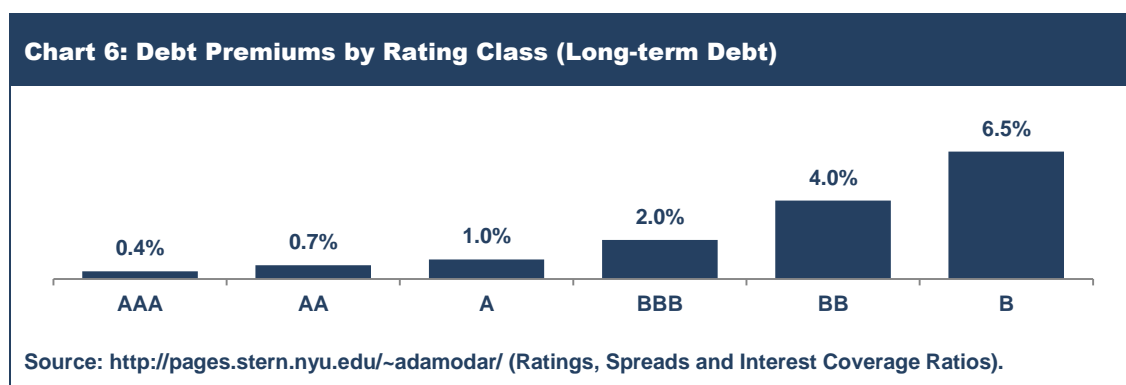
Levels of indebtedness and rating notations. One of the main factors which determine the rating notations given to companies is their respective level of indebtedness, which can be determined with basis on the ratio between the amount of debt and EBITDA.



As shown in the above table, the higher the indebtedness level of a company the worse is its credit quality, i.e. its *rating* notation.

Rating notations and debt premiums. The higher the probability of default by a company the higher is the level of risk supported by moneylenders and consequently, the higher the debt premiums demanded when granting loans to companies.

Considering the current market conditions, the debt premiums which are being demanded by investors when granting long-term loans are the following:



Yield to Maturity of Debt. According to Bloomberg, the yield to maturity to which **REN** is subject to with a duration of a 9 years is equal to 3.83%. Hereupon, this value will be considered as the company cost of debt. By decomposing this rate, it is perceptible that 1.57% is the average yield of the bunds, which allows to conclude that the debt premium is equal to 2.26%. Hence, despite the fact that just one of the main rating agencies is giving an investment grade notation to **REN**, in reality this entity has a debt premium of an investment grade company.

5.7. Market Risk Premium

Introduction. As previously indicated, the market risk premium (MRP) corresponds to the additional return that an asset market portfolio is expected to generate in relation to the risk free rate to compensate the stock market's higher returns' volatility in relation to the risk free titles market's returns volatility.

Hence, market risk premium does not consist of an observable referential but instead of an expected value, reason why there controversy as to how it should be estimated and, by consequence, about its value.

In practical terms, the main alternative approaches used to determine market risk premium are: (i) the historical risk premium; (ii) the forecasted risk premium; and (iii) the risk premium obtained in surveys.

Historical Risk Premium. This is the most used approach by investors and its development implies:

1. The structuring of long historical series on stock market and public debt titles returns;
2. The determination of differentials between the average returns offered by the two classes of financial assets, corresponding to the historical value of the MRP; and
3. The consideration of factors which may possibly lead to the conclusion that the future volatility levels in stock market returns and public debt titles will tend to veer from historically observed levels.

Taking in account a study undertaken by three professors from London Business School (Elroy Dimson, Paul Marsh and Mike Staunton)⁸ one can see that, between 1900 and 2010, the arithmetical average returns offered by the worldwide stock market (19 markets), European (13 markets) and of the Euro area (8 markets) exceeded the returns offered by long-term public debt titles by 6.1%, 5.7% and 6.3%⁹, respectively.

Some financial researchers advocate that the above-mentioned differentials, constituting *ex-post* measures of risk premium of stock markets, do not correspond to the additional returns that investors expected to secure when they took their investment decisions, namely because, in the time horizon under analysis (111 years), economic and prosperity development reported unprecedented results, hardly sustainable in the future.

⁸ "Equity Premia Around the World": 19 July 2011 (Revised: 7 October 2011).

⁹ When measured in relation to the average short-term debt returns, historic risk premiums rise to 7.0% (world market), 6.8% (European market) and 7.6% (Euro-zone market).

In this context, these researchers defend that the stock market premium risk, in an *ex-ante* gauging of the investors' expectations, would have a value below the one indicated in the analysis of the available series.

Forecasted risk premium. This approach used for determining the risk premium is based on the models of stock valuation, in general in variants of the Gordon's model, whereby, and in its simplest version, the price of a stock at the initial moment (P_0) is equivalent to the quotient between the dividend that is expected to be offered by the stock in the subsequent period (DIV_1) and the difference between the equity cost (R_E) and the average growth rate of the dividends (g):

$$P_0 = DIV_1 / (R_E - g) \quad (25)$$

Solving the expression (25) where the equity cost and given that this measure corresponds to the sum of risk free rate and market risk premium, we have:

$$MRP = DIV_1 / P_0 + g - R_F \quad (26)$$

Using a more elaborate variant of the previously succinctly mentioned model, according to a study conducted by Barclays, on February 21, 2013 the worldwide historical risk premium value corresponded to a range between 500 and 600 base points.

As it can be observed, it does not seem that the opinion of the financial researchers that advocate the risk premium *ex-ante* (expected) of the market tends to be inferior to the risk premium *ex-post* (historical) can be confirmed, at least in the current existing conditions in major financial markets.

Survey risk premium. An alternative way of benchmarking market risk premium is by inquiring an informed population on the value that it gives this issue.

In June 2013, three finance professors from IESE Business School (Pablo Fernandez, Javier Aguirreamalloa and Pablo Linares) published the results of an inquiry addressed to finance professors, financial analysts and financial managers¹⁰.

¹⁰ "Market Risk Premium and Risk Free Rate used for 51 countries in 2013: a survey with 6,237 answers". See http://www.netcoag.com/archivos/pablo_fernandez_mrp2013.pdf.

According to this survey, the average value¹¹ of world, European and Euro-zone risk premiums all stand at around 5.9%, a value that is not materially distant from the reference 6.2% determined by Ivo Welch (2009) in a survey completed by scholars¹².

Conclusion. The information suggests that the stock market risk premium stands, when quantified in relation to the returns generated by the long-term public debt titles, at around 6%.

This 6% reference seems equally reasonable for the Portuguese stock market, namely because the 52 Portuguese financial specialists that answered the survey prepared by the three professors from IESE Business School indicated an average value (median) for the market risk premium of 6.1% (5.9%).

5.8. Systematic Risk Coefficients

Introductory note. As mentioned before, the coefficient of systematic or non-diversifiable risk of a financial asset corresponds to the quantity of risk with which that title contributes to the market portfolio.

In terms of the CAPM, the coefficient of systematic risk: (i) of a risk free financial asset is, by definition, equal to zero (the profitability of this asset does not vary according to variations in market returns); and (ii) of the market, as a whole, is necessarily equal to 1.00.

Titles whose returns vary more than the average profitability of the market have beta coefficients that are above 1.00, meaning that their systematic risk is higher than the market's average. In their turn, securities with revenues varying below market average have beta coefficients under 1.00.

Beta coefficients of equity capital. The coefficient of systematic risk of the equity capital of a company is quantified by its beta coefficient (β_L or β_E) and constitutes an average of the stocks' return variation of that company in relation to the market's variation of return.

The calculation of these coefficients (levered betas) is done by the structuring of a linear regression between a series of observations of the stock market's returns variations and a series of observations of the profitability of a stock whose systematic risk is to be determined¹³.

¹¹ Averages based on obtained answers (risk premium medians stand at 6.5% in the world market and at 6% both in the European and Euro-zone markets).

¹² "Short Academic Equity Premium Survey for January 2009". See <http://welch.econ.brown.edu/academics/equpdate-results2009.html>.

In this context, to estimate the systematic risk of a security it is necessary to start by defining: (i) the relevant periods of calculation of the market's revenue and of the company stock; and (ii) a reasonable time line for the series of observations to examine.

The calculation of daily returns enables the structuring of series with an elevated level of observations but influenced by somewhat erratic movements. And, in this perspective, it is usual to choose the calculation of weekly or monthly returns.

When calculating weekly returns, it is usual to consider a calculus horizon of 2 years. When calculating monthly revenues, the tendency is to consider a 5 year horizon, which consists of 60 observations.

For statistical reasons it is preferable to measure the beta coefficient in extended time periods, whenever possible, the estimation of this indicator being performed with basis on 60 observations of monthly returns.

Another precaution needed when calculating the beta coefficient consists in the selection of the market's index to be used to determine its profitability. This index should: (i) provide the best possible portrait of the economy; (ii) present high levels of liquidity; and (iii) reflect the total profitability offered by the market, incorporating prices variations and distributed dividends.

On the other hand, as the level of reliability of the beta coefficient of an individual stock does not tend to be particularly high, it is not usual to estimate only the systematic risk of the company's equity capitals intended to evaluate but structure a sample of peer companies and estimate the beta of that group of companies.

Anyway, the beta coefficients thus inferred constitute an *ex-post* measure of their systematic risk and not an expected value (*ex-ante*) of that risk, and as result of this it is common to adjust references which were directly determined.

As, over the long term, the beta coefficients tend to converge with the market's average (1.00) it is normal to estimate their expected value in the following manner:

¹³ The degree of trustworthiness of the estimate thus obtained is calculated by the R^2 regression: if this indicator shows a low value (high), the explanatory power of the return offered by the market in relation to the returns offered by the company is minute (expressive).

$$\beta_{\text{ex-ante}} = \beta_{\text{ex-post}} \times 0.67 + 1.00 \times 0.33 \quad (27)$$

In practical terms, the determination of these beta coefficients is facilitated by the fact that there are information services, like Bloomberg, that provide them.

As the return of the companies' equity capitals and, by consequence, the markets' is influenced by the return of its assets and its capitals structure, levered betas are measures that capture not only the coefficient of systematic risk of the assets (businesses) of the companies (β_U) but also their financial risk level.

In most evaluation exercises it is necessary to separate these two classes of risk, both for conceptual¹⁴ reasons and practical¹⁵ reasons.

Beta coefficient of the businesses. The coefficient of systematic risk of the assets or businesses (β_U) of a company, also designated as unlevered beta, is a measure that is not subject to direct quantification, since it is not the companies' assets that are quoted, but its stocks. Hereupon, the unlevered betas are estimated with basis on the corresponding levered betas.

The relation between unlevered betas and levered betas, i.e., between the systematic risk of the assets and the shares of a company, depends, among other factors, on their funding strategies.

When the companies decide to maintain a fixed debt quantity (regardless of the evolution of their enterprise value), the relation between the coefficient of systematic risk of their shares and their assets may be expressed in the following manner:

$$\beta_L = \beta_U \times \frac{1-L \times T_C}{1-L} - \beta_D \times \frac{L-L \times T_C}{1-L} \quad (28)$$

Or, solving the previously expression in order to the unlevered beta:

$$\beta_U = \beta_L \times \frac{1-L}{1-L \times T_C} + \beta_D \times \frac{L}{1-L \times T_C} \quad (29)$$

¹⁴ Financial risk is determined by financing decisions while the risk of assets (or business) depends on investment decisions.

¹⁵ Companies' capital structures can be altered. This alteration has no impact on the company's business risk but alters its financial risk profile and consequently of its equity systematic risk.

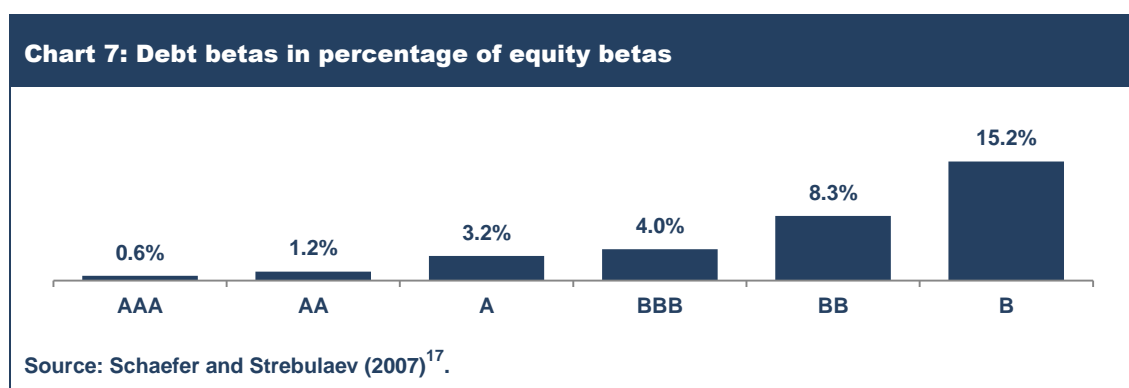
When companies decide to rebalance the value of their debt depending on the value of their assets, the expressions that enable to relate the systematic risk of their equity capital and their businesses has to be modified.

The expression corresponding to the formula (28) is the following:

$$\beta_L = \beta_U \times \frac{L}{1-L} \times (\beta_U - \beta_D) \times \left(1 - \frac{R_D \times T_C}{1+R_D}\right) \quad (30)$$

The coefficients of systematic risk of the debt (β_D) tend to be negligible¹⁶ ($\beta_D \approx 0$), reason why the formulas formerly presented are usually simplified, especially when considering companies with a rating notation of investment grade.

Corporate debt beta coefficient. Studies carried out on corporate debt systematic risk coefficients confirm the previously presented data.



It is therefore reasonable to accept that corporate debt beta coefficients are in fact insignificant, especially in the case of companies whose businesses present reduced systematic risk levels as in the case of regulated utilities.

¹⁶ "In practice the debt beta is very low, so often the assumption is made that the beta of debt is zero (Ross & Westerfield (2005); (p. 329)).

¹⁷ [http://faculty-gsb.stanford.edu/strebulaev/research/Papers/Schaefer,%20Strebulaev%20\(2008\).pdf](http://faculty-gsb.stanford.edu/strebulaev/research/Papers/Schaefer,%20Strebulaev%20(2008).pdf).

III. Market Comparable Method

1. Introductory Note

The valuation of a company according to the income method is highly attractive: the company is studied; a set of assumptions is defined based on a wider or narrower group of variables, the company's activity is forecasted, its expected cash flows are quantified, the appropriate discount rates are computed, value referential are established and... an opinion is given. All this based on financial theory.

Nevertheless, even for the most rigorous of evaluators, the development of the income method, independently of the selected approach, is based on the establishment of a broad set of assumptions about the future that is, by definition, uncertain. And, in this context, the grounds on which a company is evaluated are always questionable.

If the grounds on which a company's valuation is based are questionable, then the same applies to the determined results. The question then is how can these legitimate doubts be mitigated?

Asset prices arise from the market where they are traded, dictated by demand and supply.

Since markets are liquid and composed of informed investors, the best asset price referential is the price by which it is transacted, i.e., its quote: it is exactly on these premises that the comparable or market multiples method is based.

In order to value an asset one may either consider its quote and/or:

1. Observe the prices by which the asset of peer companies are being traded;
2. Find a set of metrics (multiples) underlying the prices at which comparable assets are being traded;
3. Apply these multiples to the appropriate economic measures of the asset to be valued; and
4. Determine the value of the asset.

2. Peer Companies

In order for two assets (two companies) to be considered as peer companies a series of conditions must be fulfilled, namely:

1. The markets where both companies operate must be the same or, at least, offer the same opportunities and challenges to said companies;
2. Institutional frameworks, both from a legal and fiscal point of view, to which companies are subject must be similar;
3. The companies' characteristics must be identical, namely in terms of: *(i)* business model; *(ii)* development strategy; *(iii)* competitive position; *(iv)* dimension; *(v)* profitability; *(vi)* capital structure; and *(vii)* investment cycles;
4. The respective management teams and staff's skills cannot be materially distinct; and
5. The companies' reference financial markets must also have similar characteristics.

Unfortunately, the conditions required for two companies to be considered as peer companies, with all that this implies, does not happen in practice, not least because companies seek to develop strategies that differentiate them from competition, therefore enabling them to maximize the value of their owners' assets.

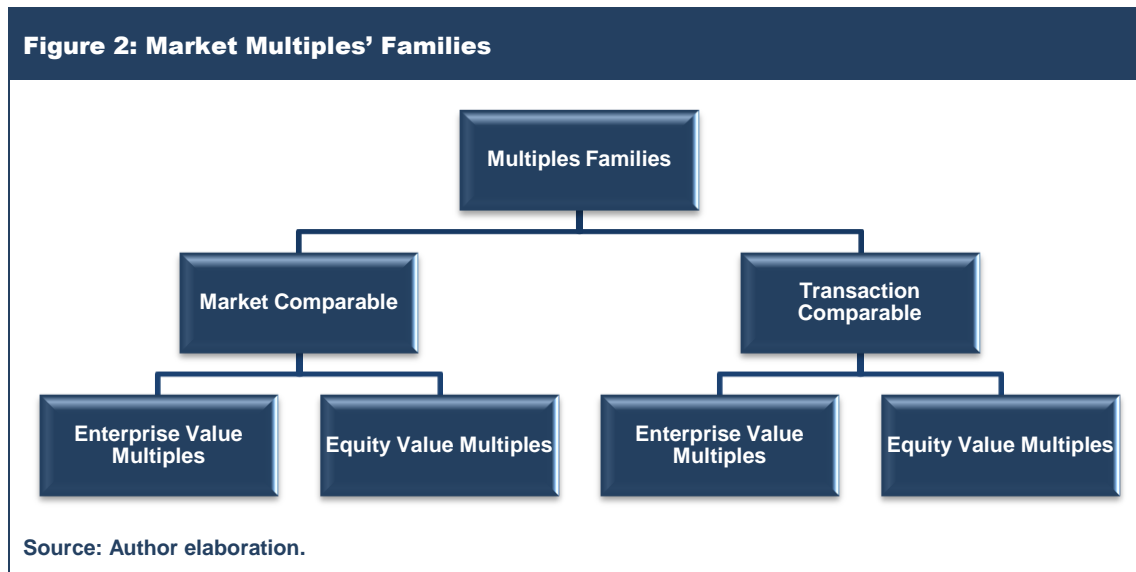
In fact, as there are no peer companies (exact copies of one another) and the best that can be found is samples of similar companies, it seems reasonable to conclude that the market comparable method also contains shortcomings.

3. Market Multiples

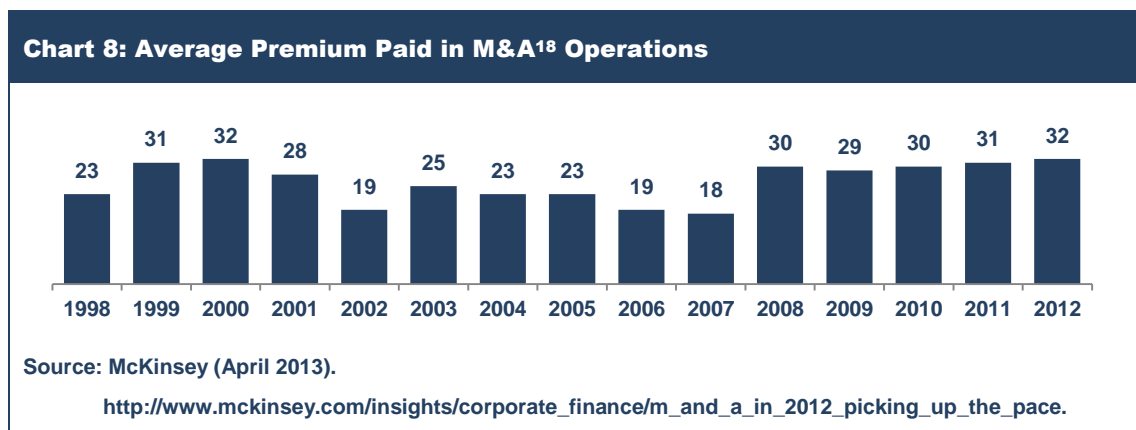
3.1. Market Multiples' Families

When market multiples are inferred based on peer companies' quotes it is usual to designate this approach as market comparable. When the evaluation referential used to determine these multiples

corresponds to the prices paid in M&A operations, this approach is usually designated as transaction comparable.



The value referential determined with basis on the transaction comparable method tends to be superior to the ones calculated with basis on the companies' quotes, since the prices paid in M&A operations normally embody significant premiums compared to the current prices:



Apart from the value referential used to determine the market multiples, these ratios can be calculated based on the companies' values or in the values of their equity capital.

In the first case, the multiple denominators should correspond to the economical measure that constitutes proxies of the companies' free cash flows. In the second case, the denominators of the ratios should constitute proxies of their equity cash flows.

¹⁸ Weekly premiums = Announced price / quote one week prior to transaction announcement date.

3.2. Enterprise Value Multiples

The best possible proxy of the companies' value would naturally consist in the structuring of multiples whose denominators corresponded to the normalized free cash flows of peer companies.

Unfortunately, in most cases, there is no available information that enables to determine peer companies' normalized free cash flows. Hence, this multiple is not generally applied.

Regarding the components used to calculate free cash flows and considering that, in the long term, the variation of the companies' working capital does not tend to be expressive and the costs with amortizations are approximately equivalent to the expenditures with investment, a second reasonable proxy of the free cash flows corresponds to the NOPLAT.

Nevertheless, market analysts do not tend to present values for this measure, reason why it is hard to reach a consensus.

Most market analysts present, nonetheless, estimates for the companies' operational (EBIT) results. This way, and assuming that tax rates to which companies are subject do not differ significantly, the multiple which is most widely used to determine the companies' value is the result of the division between the peer companies' firm value and the consensus estimates of its operational results (M_{EBIT}).

$$M_{\text{EBIT}} = \frac{V_L}{\text{EBIT}} \quad (31)$$

This multiple can, however, be influenced by the accounting practices adopted by the companies in what concerns the amortization basis. And, because of that, many investors prefer to utilize the multiple that compares the companies' market value with its operational cash flows (M_{EBITDA}):

$$M_{\text{EBITDA}} = \frac{V_L}{\text{EBITDA}} \quad (32)$$

However, this last multiple, contrary to what happens in those with EBIT as the denominator, does not clearly reflect the intensity of the companies' capital: two companies from the same sector of activity can present extremely different levels of capital intensity if, for example, one has its own facilities and the other opts for renting facilities.

There are, still, other multiples that can be estimated to develop this evaluation methodology, such as the ones which compare the values of peer companies based on their respective sales, accounting value of the invested capital or productive capacities and, sometimes, their client number. However, these multiples do not reflect the return levels of companies, and therefore their relative quality is clearly inferior to the previously mentioned ones.

In the specific case of companies subject to economic regulations it is usual to resort to market-to-asset ratios (MAR) which compare these companies assets' market value (firm value) with the book value of their regulated asset base (RAB).

3.3. Equity Value Multiples

Equity multiples are calculated with basis on ratios which have as numerator the value of the peer companies' equity capital and as denominator those companies' equity cash flows' proxies, namely their dividends, net income, net cash flows or equity book value.

As the measures that can be used as denominators of these multiples can be influenced by the companies' accounting practices and/or by its capital structure, the relative quality of these multiples tends to be inferior to that of the companies' value multiples.

4. Development of Multiples Valuation

The development of a valuation based on market multiples requires:

1. The structuring of a sample of companies which develop their activity in the same sector as the one object of the valuation;
2. The identification of possible factors which differentiate peer companies from the one to be evaluated, as, for example: *(i)* accounting rules; *(ii)* return and risk exposure levels; or *(iii)* levels of capital's intensity;
3. Processing of all collected information on peer companies so as to make it compatible with the information on the company to be evaluated;
4. Calculation of the multiples underlying the quotes or those companies' transaction value; and

-
5. The application of determined multiples to the relevant economic variables of the company which will be subject to valuation.

Anyway, a company's evaluation using the method of the market comparable is not a particularly rigorous or reliable exercise.

Firstly, because, for the reasons already mentioned, it is not easy to identify companies that meet the necessary conditions that enable to classify them as a peer company of the one which will be subject to valuation. And, secondly, because multiples only serve as proxies of a relation between the companies' value or its equity capital with the variable which determines those value referential: the estimated future income series.

In this context, investors do not tend to elect the comparable method as the main valuation methodology when making their investment decisions, namely when these decisions are relevant, basically only using it to assess the conclusions obtained with the application of more reliable evaluation methods, such as the income method.

IV. Other Valuation Methods

1. Patrimonial Method

The use of the patrimonial method requires the conversion of the accounting balances of the companies' assets and liabilities into their respective market values, the main differences between these two value metric criteria normally being in terms of medium and long-term assets and liabilities.

This valuation method does not tend to be particularly used by investors when intending to assess the value of a company considering the optical continuity of operations (going concern), since the patrimony historically accumulated by the companies does not tend to be representative of its capacity to generate future income.

In these circumstances, the patrimonial value method tends to be used in the determination of the net value of companies.

2. Real Options Method

Finally, there is the contingent claim valuation, also known as option theory, which is used to value flexibility. This method is especially significant when valuing individual businesses or projects.

The option theory is not frequently used when valuing the whole company, but it can be used in very concrete cases such as firms in a commodity-based industry, firms with a single product or firms facing financial distress (Koller et al. 2005).

Regarding the real option valuation, the Black and Scholes model (1972) can be applied, because managers can easily convert the financial variables into the project's characteristics.

Hereupon, this approach is majorly used when it is necessary to decide whether to explore or not an opportunity (Luehrman 1997), i.e., in deciding if it is beneficial to exploit natural resources, R&D investments and new technology projects. In these cases, this methodology is more appropriate, since traditional DCF will lead to results of under or overinvestment.

Given that the fundamentals of this method do not fit with those of REN, the option theory will not be applied.

V. REN Group Valuation Methods and Parameters

1. Valuation Methods

Taking into account the characteristics of the different valuation methods and **REN Group's** profile (briefly described in the following chapter), it was decided to use the discounted free cash flows method (based on the present value or adjusted rate of return) and market multiples to proceed to the estimation of the value of the **Group**.

To determine the final value to be assigned to **REN Group's** shares the recent evolution of the respective quotes and price targets which market analysts assign them have also been taken into account.

2. Sample of Peer Companies

The sample of selected peer companies includes: *(i)* Elia; *(ii)* Enagás; *(iii)* National Grid; *(iv)* REE; *(v)* Snam; and *(vi)* Terna.

These companies are described by Reuters in the following manner:

1. *“Elia System Operator SA is a Belgium-based electricity high-voltage transmission system operator. The Company transmits electricity over its high-voltage network from generators to large industrial consumers as well as to distributors, which in turn feed Belgian households and businesses. Elia has been assigned the Belgian electricity transmission system operator under licenses issued by the federal government and the regional governments. Elia’s grid forms are connection between France and the markets of Northern Europe. The Company operates through numerous subsidiaries and affiliated companies in Belgium, Germany, Luxemburg, The Netherlands and France, among others”;*
2. *“Enagás SA is a Spain-based company active in the energy sector. The Company is engaged in the transport and underground storage of natural gas, as well as in the re-gasification of natural gas to the National Pipeline Network. The Company operates a network of nearly 10,000 kilometers of high-pressure gas pipelines located in the Spanish territory that have international connections with France, Portugal and Morocco. Its facilities also include three re-gasification plants operating in Barcelona, Huelva, Cartagena and Gijon, and three underground natural gas storage units established in Huesca, Vizcaya and Yela. In addition, the Company offers such services as offloading liquefied natural gas (LNG) from ships to re-gasification terminals; LNG, carbon dioxide, hydrogen and biogas tank loading; development of direct gas pipelines; laboratory certification services and other services related to infrastructure”;*
3. *“National Grid Plc is an electricity and gas utility company. The Company operates in three segments: UK Transmission, UK Gas Distribution and US Regulated. UK Transmission includes high voltage electricity transmission networks, the gas transmission network in Great Britain, UK liquefied natural gas (LNG) storage activities and the French electricity interconnector. Its UK Gas Distribution includes four of the eight regional networks of Great Britain’s gas distribution system. US Regulated includes gas distribution networks, electricity distribution networks and high voltage electricity transmission networks in New York and New England and electricity generation facilities in New York and Massachusetts. Other activities primarily relate to non-regulated businesses and other commercial operations, including United Kingdom based gas and electricity metering activities; UK property management; a UK LNG import terminal; other LNG operations, and US unregulated transmission pipelines”;*

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4. *“Red Eléctrica Corporación SA is a Spain-based company active in the energy sector. The Company specializes in the transmission of electric energy, as well as in the operation of electric systems. The Company manages the Spanish high-voltage transmission grid and is responsible for its development, maintenance and improvement of the network’s installations. The Company’s activities also include the coordination between the generation, transmission and distribution of electric energy. The Company’s transmission grid is composed of more than 41,100 kilometers of high voltage electricity lines and more than 4,800 substation bays. The Company is operations through its subsidiaries in Spain, the Netherlands, Luxembourg and Peru”;*

 5. *“Snam SpA is an Italy-based company engaged in the management of natural gas services. The Company is diversified into four operating segments. The Transportation segment covers transportation-related gas services, including capacity management and transportation of the gas at the entry points of the gas network to the redelivery points. It owns transportation infrastructures of gas pipelines. The Re-gasification segment is focused on extraction activities of natural gas, its liquefaction for transport by ship and subsequent re-gasification. The Storage segment covers deposits, gas treatment plants, compression plants and the operational dispatching system. The Distribution segment engages gas distribution through local transportation networks from delivery points at the metering and reduction stations to the gas distribution network redelivery points at the end customers. Additionally, Snam SpA as the parent company, focuses on planning, management, coordination and control of the group”;* and

 6. *“Terna Rete Elettrica Nazionale SpA is an Italy-based company engaged in the utility sector. It is an independent grid operator for the transmission of electricity. It deals with the management of electrical systems through the operation of the grid, efficiency of infrastructures and their maintenance through engineering and management of plants and grid developments. It ensures a balance of deliveries and withdrawals between the supply of energy and consumption by end users. The Company is diversified into two operating segments. The Core Business includes the development, operation and maintenance of the National Transmission Grid (NTG) in addition to dispatching. The Non-Core Business includes specialized services provided to third parties mainly relating to systems engineering services, the operation and maintenance of high voltage plants and the housing of telecommunications equipment and optic fibre grid maintenance services”.*

Based on the compounded average growth rate (CAGR) of the peer group’s companies, it is noticeable that in terms of revenues, EBITDA and EBIT growth, during both periods, **REN** is always on the average of its peer companies, except in the 2013-2015 periods when considering the EBIT growth. Nevertheless

considering the last mentioned measure, it is visible that **REN Group** does not deviate significantly from its peer companies. Thus, this group of companies may be considered a good cluster of peer companies.

Table 1: CAGR of Peers Group between 2013-2015E

Companies	2013-2014E			2013-2015E		
	Revenues	EBITDA	EBIT	Revenues	EBITDA	EBIT
Eia	-38.1%	-32.0%	-35.9%	-20.6%	-16.8%	-20.0%
Enagás	-7.6%	-8.0%	-7.9%	-3.2%	-3.6%	-2.9%
National Grid	0.1%	2.3%	1.7%	0.3%	4.2%	3.4%
REE	6.4%	7.0%	6.1%	6.3%	6.6%	5.7%
Snam	-1.2%	-0.2%	-1.1%	0.6%	1.4%	0.8%
Terna	-1.0%	-1.5%	-3.3%	1.5%	1.6%	1.0%
Utilities Averages	-6.9%	-5.4%	-6.7%	-2.5%	-1.1%	-2.0%
REN	0.0%	-2.4%	-6.7%	0.9%	0.1%	-2.3%

Sources: Goldman Sachs Database

The market value of this set of companies is, in average terms, significantly higher than **REN's** which, in addition to this, has been sustaining a more aggressive capital structure, and therefore has lower quality rating notation.

Table 2: Market Values (Mn Eur), Leverages and Ratings

Companies	Last 5 Years Averages			Actual (31/03/2014)			Ratings (S&P's)
	M. Cap.	F. Value	Leverage	M. Cap.	F. Value	Leverage	
Eia	1,681	4,290	60.8%	2,223	4,957	55.2%	A-
Enagás	3,648	6,930	47.4%	5,312	9,155	42.0%	BBB
National Grid	23,291	49,875	53.3%	30,962	53,128	41.7%	A-
REE	4,915	9,210	46.6%	7,967	13,424	40.7%	BBB
Snam	11,526	22,707	49.2%	14,345	27,672	48.2%	BBB+
Terna	6,144	11,209	45.2%	7,755	14,571	46.8%	BBB+
Totals and Averages	51,205	104,220	50.9%	68,563	122,907	44.2%	n.a.
REN	1,290	3,550	63.6%	1,522	4,012	62.1%	BB+

Sources: Bloomberg and Companies reports.

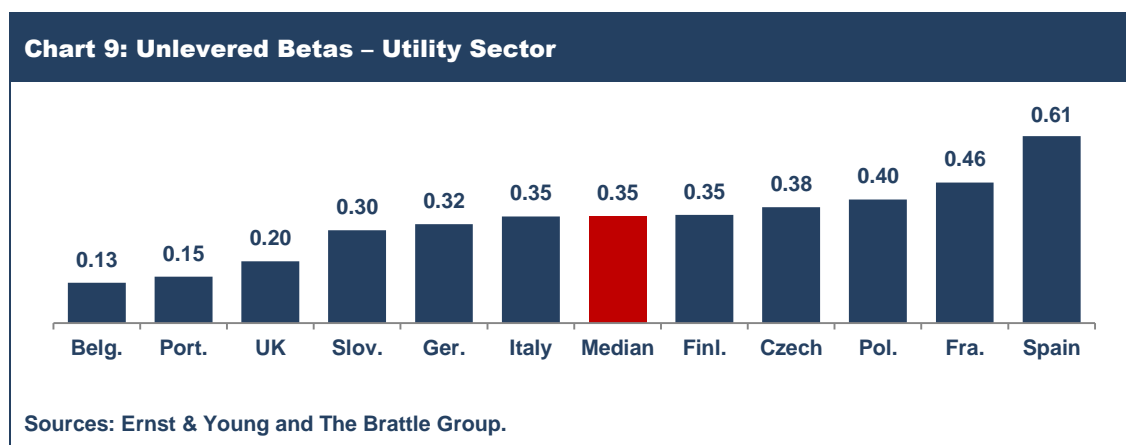
REN's stocks have also been traded at a discount in comparison to its peer companies. Assuming firm value to EBITDA as a reference multiple, the average discount historically observed is around 12.6%

(7.6x versus 8.6x). Nonetheless, the level of relative discount of **REN's** stocks drops to approximately 2.9%, when PE's (10.8x versus 11.1x) are used as the basis of comparison.

Companies	Free Float	Betas (60 Months)				Firm value to EBITDA*	PE's*
		Levered	Leverage	T. Rates	Unlevered		
Eia	52%	0.26	60.8%	20.0%	0.12	10.1 x	12.4 x
Enagás	95%	0.73	47.4%	29.5%	0.45	8.0 x	10.3 x
National Grid	100%	0.74	53.3%	22.6%	0.39	8.5 x	9.7 x
REE	80%	0.72	46.6%	29.4%	0.45	8.1 x	11.2 x
Snam	62%	0.38	49.2%	40.8%	0.24	9.0 x	13.3 x
Terna	65%	0.48	45.2%	43.1%	0.33	8.9 x	14.5 x
Totals and Averages	n.a.	0.61	50.9%	30.2%	0.35	8.6 x	11.1 x
REN	19%	0.50	63.6%	31.4%	0.23	7.6 x	10.8 x

Sources: Bloomberg, Reuters and Companies reports. *Last 5 years averages.

REN peer companies' unlevered beta is 0.35, this being a more reliable indicator than the **Group's** (0.23), as its free-float and thus its liquidity level are much lower.



Based on the information collected from two analyses undertaken in 2013 by Ernst & Young¹⁹ and by Brattle Group²⁰, it is also possible to conclude that the unlevered beta median of the utilities committed to electricity and natural gas transportation does not significantly deviate from 0.35.

¹⁹ Mapping power and utilities regulation in Europe.

²⁰ The WACC for the Dutch TSOs, DSOs, water companies and the Dutch Pilotage Organisation.

3. Parameters of Computation of the Cost of Capital

Based on the previously presented information, the main parameters used to calculate the weighted average cost of capital of **REN Group** are the following:

1. Risk free rate of 1.57%;
2. Market Risk Premium of 6.0%;
3. Unlevered beta of 0.35;
4. Leverage according the evolution of the capital structure of the **Group**;
5. Debt spread of 226 basis points in relation to the risk free rate; and
6. Income tax rate of 31.5%.

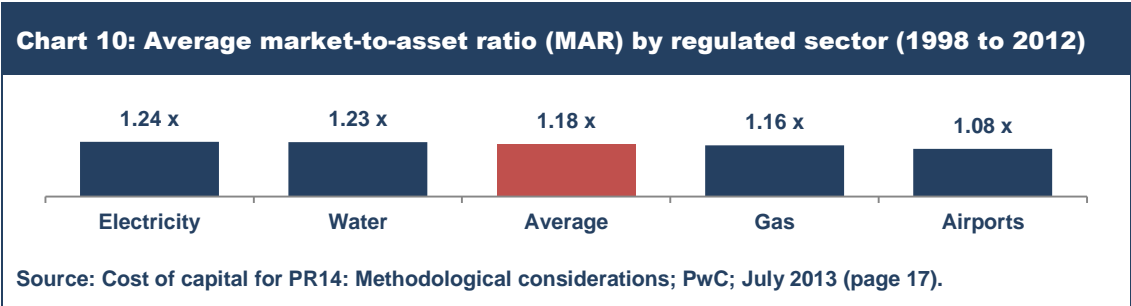
4. Market Multiples

Looking ahead, market analysts estimate that the multiples implicit in the current prices of **REN's** peer companies are the following:

Table 4: Market Multiples						
Companies	Firm Value / EBITDA			PE		
	2013	2014 F	2015 F	2013	2014 F	2015 F
Elia	10.2 x	9.7 x	9.7 x	12.6 x	14.3 x	14.8 x
Enagás	8.9 x	9.2 x	9.0 x	13.2 x	13.7 x	12.2 x
National Grid	8.8 x	8.6 x	8.0 x	12.2 x	13.6 x	11.9 x
REE	10.2 x	9.8 x	9.6 x	15.6 x	14.3 x	13.7 x
Snam	9.9 x	10.0 x	9.7 x	15.7 x	14.2 x	13.9 x
Terna	9.9 x	10.0 x	9.3 x	15.1 x	15.0 x	13.8 x
Totals and Averages	9.4 x	9.3 x	8.8 x	13.6 x	14.0 x	12.8 x

Sources: Bloomberg and Companies reports.

Concerning the market-to-asset ratios (MAR), the following indicators were used:



C. Brief Description of REN Group



I. Information about REN Group

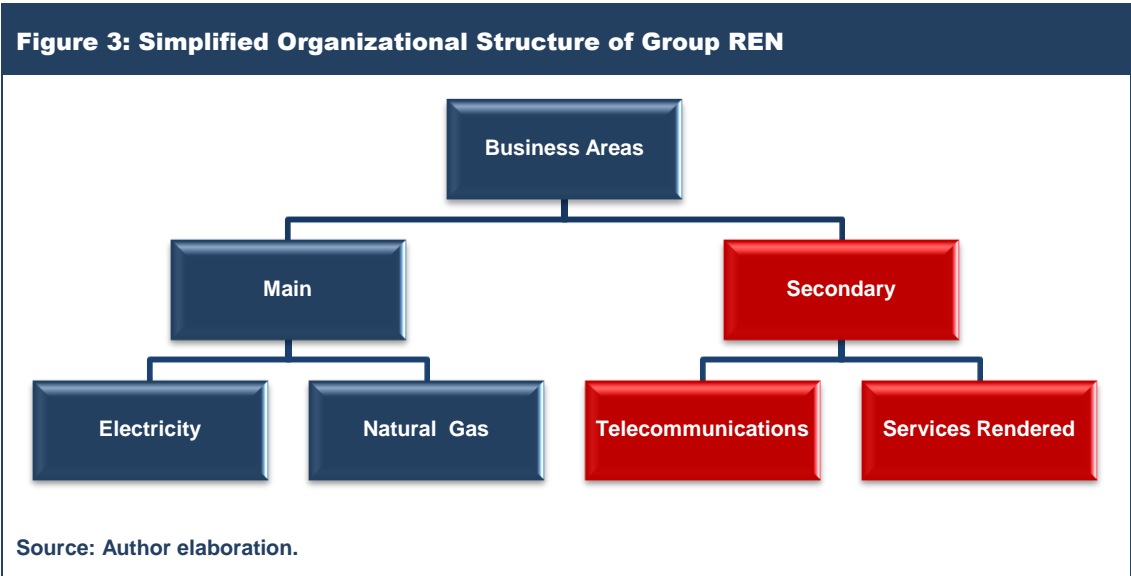
1. Identification Information

REN – Redes Energéticas Nacionais SGPS, SA (**REN** or the **Company**) and jointly with its subsidiaries referred to as **REN Group** or **Group**, with head office in Avenida Estados Unidos da América, 55 – Lisbon, single registration and corporate tax payer number 503 264 032, resulted from the spinoff of the EDP Group, in accordance with Decree-Laws no. 7/91, of January 8 and no. 131/94, of May 19, approved by the General Meeting held on August 18, 1994, with the aim of ensuring the global management of the public electricity supply network (SEP).

REN Group focused on the electricity business through REN – Rede Eléctrica Nacional, SA, until September 26, 2006, on which date, following the natural gas business unbundling, underwent a significant alteration with the purchase of the assets associated with the transport, storage and re-gasification of natural gas.

At the beginning of 2007, the **Company** was converted into the **Group's** holding, changing its name after the transfer of the electricity business to a new company, initially named REN – Serviços de Rede, SA and later changing to REN – Rede Eléctrica Nacional, SA.

Currently, the **Group** operates in the electricity, natural gas, telecommunications and services' areas:



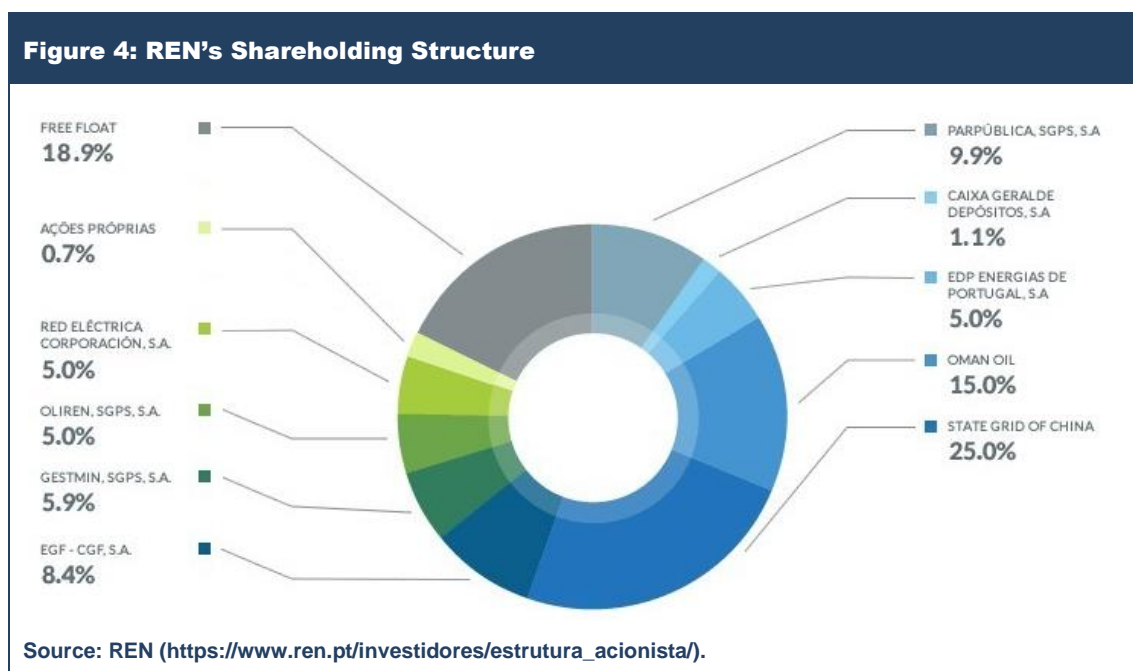
The activities carried out by **REN Group** in the electricity and natural gas sectors are operated on a public service concession regime and are subject to economic regulations as detailed further along this document, established by the Portuguese state and enforced by the Energy Services Regulating Entity (ERSE).

Pursuant to the agreement between the Portuguese Republic and the Kingdom of Spain concerning the creation of an Iberian electricity market, **REN** has a 40% shareholding in OMIP, SGPS, SA (OMIP) and a 10% shareholding in Operador del Mercado Ibérico de Energía, Polo Español, SA (OMEL), the company incorporated under Spanish law and OMIP's counterpart.

REN also has shareholdings: (i) of 1.0% in REE and Enagás, whose shares have been admitted to trading; (ii) of 5.26% in Medgrid SAS (Medgrid), whose business focuses on the promotion and development of interconnection systems in the Mediterranean, providing the transportation of renewable energy produced in Africa to Europe; and (iii) of 7.5% in Hidroeléctrica de Cahora Bassa, SA (HCB), a company incorporated under Mozambican law.

2. Share Capital and Shareholding Structure

The fully paid-up capital of **REN**, in the amount of 534,000,000 Euros, is represented by 534,000,000 shares, with a nominal value of 1 Euro each, 475,260,000 of which are Class A (corresponding to 89% of the share capital) and 58,740,000 are Class B (corresponding to 11% of the share capital).



Class A shares are ordinary shares that grant no special rights to their holders, other than the ones inherent to an ordinary shareholder as required by the law. Class B shares are intended for re-privatization and benefit from a single special right that enables shareholders exemption from the 25% voting rights limitation as provided in article 12, no. 3 of the Articles of Association.

At December 31, 2013, **REN** had 3, 881, 374 own shares equivalent to approximately 0.73% of its share capital, meaning that the number of shares in circulation now totals 530, 118, 626.

REN's current shareholding structure results from the two re-privatization operations undertaken in July 2007 and February 2012. In the last operation, carried out through Parpública, the Portuguese State sold the following shares: (i) 133 500 000 representing 25% of the **Company's** share capital to State Grid of China for a total price of 387150 000 Euros, corresponding to a price of 2.90 Euros per share; and (ii) 80 100 000 shares representing 15% of the **Company's** share capital to Oman Oil, for a total price of 205 056 000 Euros, corresponding to a price of 2.56 Euros per share.

According to Parpública: *“The difference between the premium paid by the purchasers for each of the respective share lots reflects the different dimension of the lots of shares to be purchased as well as the contribution and involvement in REN's strategic development, more significant in the case of State Grid considering its position as REN's main strategic industrial partner and given the nature of long-term financial partner Oman Oil”*²¹.

II. Information on REN Group's Business Areas

1. Economic and Sector Framework

1.1. Economic Environment

Developing its business in Portugal, **REN Group's** performance has been conditioned by the national economy behavior, marked in the last few years, by a strong contraction in GDP, growing unemployment levels and public debt burden.

²¹ Source: State made by Parpública, February 2, 2012.

Table 5: Selected Macroeconomic Indicators

	2011	2012	2013
Real GDP change	-1.3%	-3.2%	-1.4%
GDP deflator	0.3%	-0.3%	1.7%
General government balance (% do GDP)	-4.3%	-6.5%	-5.1%
General government debt (% do GDP)	108.2%	124.1%	129.4%
Euribor, 3 months (AoP)	1.4%	0.6%	0.2%
Government bond rate, 10 years (AoP)	10.2%	10.6%	6.3%

Sources: INE, IMF and Bloomberg.

In this context, the Portuguese Republic's rating is now below the threshold of investment grade, with national economic agents having to face particularly unfavorable access conditions to financial markets.

Given the progress achieved in 2013, expectations of future development of the Portuguese economy are more positive, reason why sovereign risk premium has been decreasing and financing conditions of the Republic have been improving, both in terms of demand and price.

1.2. Sector Context

Over the last few years, the utilities sector has had to face various new challenges and of big impact, which altered the very nature of a sector that was considered to be defensive and now presents much more cyclical characteristics, resulting from the conjugation of several interconnected realities.

Firstly, the continuing drop in domestic demand for energy products, currently close to the same levels reached half way into the first decade of this century, giving rise to an excess in installed capacity.

Table 6: Evolution in Electric Power and Natural Gas Demand

	2011	2012	2013
Electric energy demand change	-3.3%	-2.8%	0.2%
Natural gas demand change	-0.5%	-14.1%	-5.0%

Sources: REN Annual Reports.

Secondly, the increasingly uncertain applicable regulatory framework, affecting the required stability inherent to a capital intensive sector with long project-development periods, enabling to anticipate structural problems in various business segments.

Thirdly, the increasingly difficult and cost of accessing capital markets, especially for companies in the periphery of Europe, originated by the sovereign debt crisis.

Table 7: Net Returns			
	2011	2012	2013
MSCI Europe Index	-8.1%	17.3%	19.8%
MSCI Europe Utilities Index	-13.0%	5.0%	12.6%

Sources: www.msci.com.

This set of policies and developments causes strong pressure on the utilities' sector, penalizing companies through increased risk in the respective activity, whose impact is shown in the difference between cumulative valuations of the European stock market (29.2%) and the utilities sector (2.9%) as reported since 2011.

It is in this context that **REN** distinguishes itself from most of its European peer companies, given that it has the stable profile of its assets, a business model based essentially on regulated activities, which consequently reduces its sensitivity to energy markets.

2. Electricity Business

2.1. Pursued Businesses

The electricity business is operated by:

1. REN – Rede Eléctrica Nacional, SA (**REN Electricidade**), incorporated September 26, 2006, whose activities are undertaken in the scope of a 50-year concession agreement, which started June 15, 2007, and are mainly focused on SEP's global management;
2. Ren Trading, SA (**REN Trading**), incorporated June 13, 2007, which is responsible for managing the energy purchase contracts (CAE) of Turbogás and Tejo Energia not expired until June 30,

2007, the date when the new Maintenance of Contractual Equilibrium contracts (CMEC) came into force; and

3. Enondas, Energia das Ondas, SA (**Enondas**), incorporated October 14, 2010, is responsible for managing the 45-year concession awarded for the operation of a pilot area allocated to electricity generation by ocean waves.

The electricity businesses are the ones with the greatest weight in **REN Group**, representing in 2013: (i) 68% of its fixed assets' base; (ii) 70% of its revenues; and (iii) 72% of its operational results.

Table 8: Electricity Business Indicators				
	Units	2011	2012	2013
RAB and Invested Capital (AoP)				
RAB (including fixed assets in progress)	Mn €	2,306	2,388	2,403
Invested capital	Mn €	n.a.	2,279	2,293
Economic Performance				
Revenues	Mn €	379	435	423
EBITDA	Mn €	296	351	359
EBIT	Mn €	179	226	230
Rates of Return				
Allowed return on RAB	-	7.4%	9.2%	8.0%
Return on invested capital	-	n.a.	9.9%	10.0%
Sources: REN and author calculations.				

Given that invested capital has been lower than the regulated asset base (RAB), the return levels obtained by **REN Group** in this business segment have clearly surpassed the rate of return determined by the economic regulator.

2.2. Electricity Concession Contract

The object of the concession contract of **REN Electricity** comprises: (i) the purchase and sale of electricity; (ii) the transmission of electricity; and (iii) the system's global management.

On the date of expiry of the concession contract of **REN Electricity** (2057), the goods assigned to **REN** revert to the State, for a price equivalent to its net book value, i.e., the company will have the obligation of transferring the assets to the Portuguese State.

Whenever justified by reasons of public interest, the State may also redeem the concession, provided that at least 15 years have elapsed since the inception of respective contract. Should the concession be redeemed, the concessionaire shall be entitled to compensation to be determined with basis on the reverted assets' book value and value of damages resulting from any loss of profits.

2.3. Economic Regulation Model

Broadly speaking, the economic regulation model to which **REN Electricity** is subject is expressed as follows:

$$PP = RoR \times RAB + (D\&A - RS) + OPEX$$

Where:

PP = Allowed Income;

RoR = Rate of return of the regulated asset base;

RAB = Regulated asset base;

D&A = Depreciations and Amortizations;

RS = Recognition of subsidies;

OPEX = Allowed operating expenses.

The product between the remuneration rate and the average remunerated asset base corresponds to the operational results (EBIT = RoR x RAB) which **REN Electricity** may obtain, based on the efficiency level established by ERSE.

The sum of the EBIT with the depreciations and net amortizations of subsidies recognized as profits will correspond to the EBITDA of **REN Electricity** (EBITDA = EBIT + D&A – RS).

Lastly, **REN Electricity**'s allowed income will result from the sum of EBITDA with the allowed operating expenses ($PP = EBITDA + OPEX$).

Most of this regulation model's parameters are revised every three years (regulation period). Exceptionally, in the current regulatory period (2012-2014), the cost of capital (RoR) has been revised semi-annually, with a spread indexed to the risk free rate fixed initially (3.41%) to be established with basis on the average daily quotes for the 5-year CDS(credit default swaps) of the Portuguese Republic.

The economic regulation model which applies to the electricity transport business is regulated by incentives: *(i)* stimulus to efficient investments in the energy transport network; *(ii)* stimulus to efficiency operating costs by defining a maximum cost ceiling plus an additional component based on the company's activity level; *(iii)* stimulus to the maintenance of end-of-life equipment; and *(iv)* stimulus to increase National Transmission Network (RNT) elements' availability, in order to encourage a more efficient operation and maintenance of the grid's infrastructure.

Nevertheless any efficiency gains will always be passed on to consumers, only being held by the **Group** in a transitory way, given that if **REN** shows efficiency gains on a given year, ERSE will adjust its efficiency plan to the levels effectively attained by the company in subsequent years, allowing **Group REN** to benefit only from the gains attained in the mentioned year. Therefore, the consumers are those who take advantage of high efficiency levels.

In the current regulatory period, which ends at the end of 2014, limits of 7.5% to 10.5% were applied to the asset base remuneration rate.

3. Natural Gas Business

3.1. Pursued Businesses

The natural gas businesses are operated by:

1. REN Gás, SA, incorporated March 29, 2011, with the object of ensuring the promotion, development and assistance in projects and undertakings in the natural gas sector as well as of defining the global strategy and coordination of companies where it has shareholdings;

2. REN Gasodutos, SA, incorporated September 26, 2006, whose share capital was paid up through the integration of gas transportation infrastructures (network, connections and compression);
3. REN Armazenagem, SA, incorporated September 26, 2006, whose share capital was paid up through the integration of underground gas storage assets; and
4. REN Atlântico, Terminal de GNL, SA, acquired in the scope of the gas business purchase, formerly known by "SGNL – Sociedade Portuguesa de Gás Natural Liquefeito". This company's business focuses on the provision of liquefied natural gas (LNG) reception, storage and re-gasification services through the LNG sea terminal, being also responsible for the construction, operation and maintenance of the necessary infrastructures.

The activities of the companies mentioned in paragraphs 2 to 4 above are developed in the scope of three concession contracts granted separately for a 40-year period, which started in 2006, where REN Gás, SA (**REN Gás**) is the concessionaires' parent company.

Table 9: Natural Gas Business Indicators				
	Units	2011	2012	2013
RAB and Invested Capital (AoP)				
RAB (including fixed assets in progress)	Mn €	1,126.0	1,131.4	1,127.6
Invested capital	Mn €	n.a.	1,105.8	1,087.5
Economic Performance				
Revenues	Mn €	185.6	177.1	176.8
EBITDA	Mn €	147.9	139.5	140.2
EBIT	Mn €	101.2	86.1	88.3
Rates of Return				
Allowed return on RAB	-	8.0%	8.0%	8.0%
Return on invested capital	-	n.a.	7.8%	8.1%
Sources: REN and author calculations.				

At the end of 2013, the regulated asset base of the natural gas business corresponded to 32% of the net fixed assets of **REN Group** and its contribution to the **Group's** revenues and EBIT was of 29% and 28%, respectively.

3.2. REN Gás Concession Contracts

The concessions operated by the companies which depend on **REN Gás** were granted according to Decree-Law 140/2006, of July 26, which grants them the right to operate the above-mentioned succinctly described activities and the assets that are assigned to them.

The concession agreements' model not only provides for balanced contractual conditions required for the efficient management of concessionaires, through the recognition of investment, operating and maintenance costs, but also to an adequate remuneration of the concession-assigned assets, to be reflected in the applicable tariffs.

On the date of the concession's expiry (2046), the goods assigned to **REN** shall revert to the State for a price equivalent to its net book value.

Whenever justified by reasons of public interest, the State may also redeem the concession, provided that at least 15 years have elapsed since the inception of respective contract. Should the concession be redeemed, the concessionaire shall be entitled to compensation to be determined with basis on the reverted assets' book value and value of damages resulting from any loss of profits.

3.3. Economic Regulation Model

A new 3-year regulatory period started in July 2013. The main modifications introduced by the regulator were:

1. Asset remuneration rate indexed to the evolution of the yield of Treasury Bonds of the Portuguese Republic with a 10-year maturity, and introduction of limits to remuneration rates between 7.33% and 11% for the period 2013-2016.
2. Implementation of a tariff adjustment mitigation mechanism at the LNG terminal de GNL, aimed at reducing the impact of said tariffs annually defined for this activity; and
3. Regulations extended to include incentives for underground storage activity in line with high pressure natural gas transport and LNG reception, storage and re-gasification.

4. The regulatory model applicable to the natural gas business is therefore not very different from the one applicable to the electricity business.

4. Telecommunications Business

Taking advantage of the optical fiber installed in the electricity and natural gas infra-structures, **REN Group** also develops its business in the telecommunications area.

Table 10: Telecommunications Business Indicators				
	<u>Units</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>
Fixed Assets and Invested Capital (AoP)				
Fixed assets	Mn €	0.1	0.1	0.0
Invested capital	Mn €	n.a.	0.6	-0.4
Economic Performance				
Revenues	Mn €	4.9	5.5	5.4
EBITDA	Mn €	3.3	2.7	2.8
EBIT	Mn €	3.3	2.7	2.8

Sources: REN and author calculations.

REN Group's telecommunications business has a significantly reduced weight in its performance and its residual economic life is directly linked with the residual deadlines of the concessions granted to the **Group** (44 years in the electricity segment, and 33 years in the natural gas segment).

III. Recent Performance of REN Group and Conclusions

1. Economic and Financial Performance

In the three year period of 2011-2013, **REN Group** operated with a relatively stable volume of invested capitals of around 3.4 billion Euros, obtaining an average return rate (pre-tax ROIC) of approximately 9.1%, exceeding by about 100 base points the RAB average remuneration rate (8.1%), essentially due to the fact that the Group's working capital was continuously in negative levels, which means that the values of current liabilities are superior to the value of current assets. Even so, this rubric is showing a stable behavior during the period of 2011 and 2013 and from thereafter.

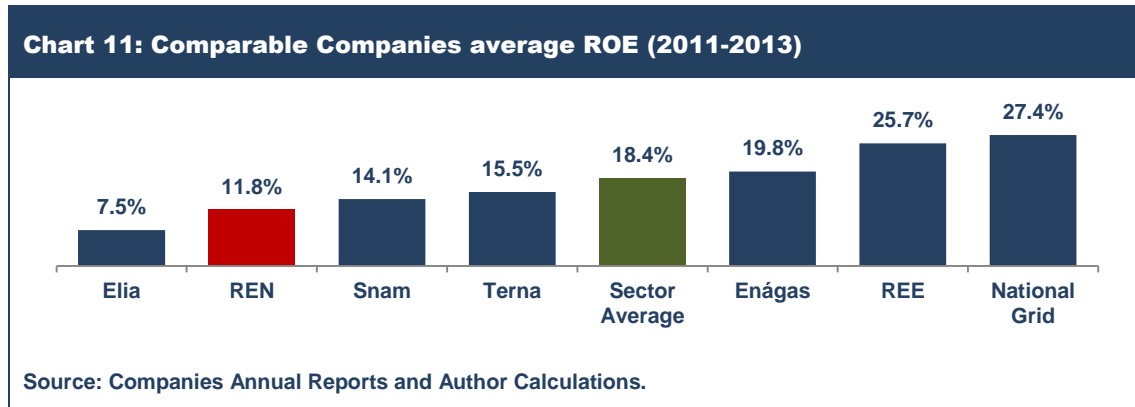
The book value of the financial investment portfolio of **REN Group** almost doubled between 2011 and 2013 following the investment made with the acquisition of the 7.5% shareholding in HCB and shareholding valuation in REE and Enagás.

Table 11: REN Group Performance Indicators

	Units	2011	2012	2013
Economic Performance				
Revenues	Mn €	584	620	607
EBITDA	Mn €	447	493	502
EBIT	Mn €	283	314	320
EBT	Mn €	180	178	178
Net Income	Mn €	121	124	121
Financial Performance				
Fixed assets	Mn €	3,527	3,548	3,546
(+) Working capital	Mn €	-156	-115	-186
(=) Invested Capital	Mn €	3,371	3,433	3,360
(+) Investments	Mn €	96	145	186
(=) Employed Capital	Mn €	3,468	3,578	3,546
(+) Net debt and provisions	Mn €	-2,434	-2,554	-2,470
(=) Equity	Mn €	1,034	1,024	1,076
Selected Ratios				
Pre-tax ROIC	-	8.7%	9.2%	9.4%
Post-tax ROIC	-	5.9%	6.4%	6.4%
Net debt* / EBITDA	x	5.2	4.9	4.5
Adjusted Financial Leverage*	-	69.3%	70.2%	68.0%
ROE	-	11.8%	12.0%	11.6%
Pay-out-ratio	-	74.8%	73.4%	75.3%
* Net debt and provisions deducted of investments.				
Sources: REN and author calculations.				

Although the volume of net indebtedness was relatively stable and the adjusted financial leverage did not register a particularly significant variation either, the weight of net debt in relation to the EBITDA dropped from 5.2x to 4.5x, between 2011 and 2013, reflecting the increase in **REN Group's** EBITDA.

In the last 3-year period, the average net return of **REN Group**'s equity capital (ROE) stood at 11.8%, a referential that compares with an average rate of return of comparable companies of approximately 18.4%.



In any case, it is essentially because of the high level of **REN Group**'s indebtedness ("aggressive financial profile") that its rating is not one of investment grade (BB+ by Standard & Poor's; Ba1 by Moody's; and BBB by Fitch) given that the rating agencies classify its business model as "Strong".

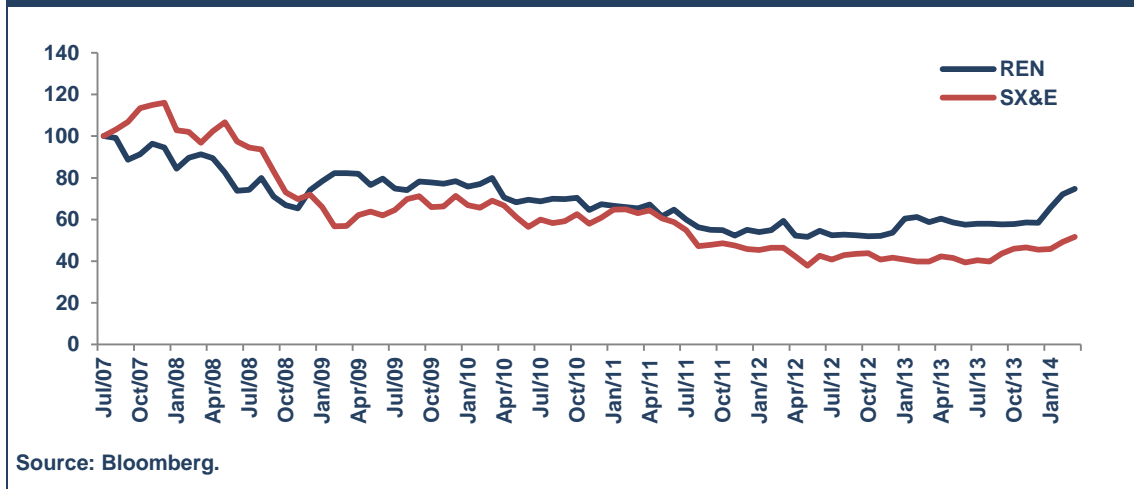
2. Stock Market Performance

2.1. Price Evolution

Between the date of admission to stock market trading and the current date, **REN**'s shares reported a devaluation of roughly 25%, while the European reference index in the utilities' sector (Dow Jones Euro Stoxx Utilities) reported a devaluation of around 48%.

Therefore, it is noticeable that **REN Group** is performing better than the index in the last few years. The reason behind this behavior is related to the fact that this index is considering both regulated and unregulated companies and the last mentioned companies are contributing negatively for the index performance.

Chart 12: REN & Dow Jones Euro Stoxx Utilities Stock Market Performance



Moreover, the improvements seen in the Portuguese market are contributing in a positive manner to the price evolution of **REN**.

2.2. REN Group's value evolution

Between the end of 2011 and end of 2013, **REN Group's** value did not register any particularly significant alterations. Its stock market capitalization oscillated between 1.1 billion Euros and 1.2 billion Euros and its firm value stood at around 3.5 billion Euros.

Table 12: REN Group's value evolution					
	Units	2011	2012	2013	Actual
REN shares closing price	€	2.11	2.06	2.24	2.86
(x) Outstanding shares	Mn	530	530	530	530
(=) Market Capitalization	Mn €	1,119	1,089	1,186	1,516
(+) Net debt and provisions	Mn €	2,434	2,554	2,470	2,432
(=) Total Assets Value	Mn €	3,553	3,644	3,656	3,948
(+) Investments	Mn €	-96	-145	-186	-186
(=) Firm Value	Mn €	3,456	3,499	3,471	3,762
Multiples					
PE	x	9.28	8.82	9.78	12.50
PBV	x	1.08	1.06	1.10	1.41
Firm value / EBITDA	x	7.72	7.09	6.91	7.49
Firm value / Invested capital	x	1.03	1.02	1.03	1.12

Sources: REN and Bloomberg.

However, since the end of 2013, **REN Group's** stock market capitalization increased 27.79% and its firm value increased by 8.26%, surely influenced by more favorable perspectives about the Portuguese economy and appreciation in the European utilities sector of regulated companies.

REN's price targets oscillate between a minimum value of 2.22 Euros and a maximum value of 2.90 Euros standing on average at around 2.60 Euros, a referential that indicates an appreciation potential of 10%, in relation to its current value.

3. Conclusions

REN Group is the holder of a number of concessions that constitute it as a central entity in the Portuguese energy sector, namely in electricity transportation and natural gas storage, transportation and re-gasification, granting it monopoly positions in these market segments.

In this context, **REN Group**'s activities are subject to economic regulations, according to models which seek, on one hand, to protect consumers from its great market power and, on the other hand, secure its capacity to mobilize the necessary funds to carry out its assigned duties, which requires that its operating assets generate profitability levels that are adequate to the underlying risks.

Since the regulator is responsible for ensuring that operating assets generate adequate profitability levels in the medium and long-term, the remuneration rate which ERSE will establish should not deviate from the pre-tax weighted average cost of capital, which is why the book and market value of the regulated asset base of **REN Group** should not significantly differ.

$$FV_{RAB} = \frac{RAB \times RoR}{WACC_{PT}}; RoR \Leftrightarrow WACC_{PT}; FV_{RAB} = RAB \quad (33)$$

Hence, as **REN Group** operates with negative working capital (between 2011 and 2013, the average volume of invested capitals was equivalent to 95.7% of the average RAB), the profitability of the invested capitals will tend to be higher than its opportunity cost.

Therefore, **REN Group**'s firm value should embody a premium for the accounting value of invested capitals and because of its businesses' significant indebtedness capacity, that premium should be even more expressive in terms of its equity value.

D. REN Group Valuation



I. Valuation Preparation

1. Pro-forma Balance Sheet

For **REN Group**'s evaluation purposes, and considering that about 60% of its financial investment portfolio value corresponds to shareholdings in listed companies, its balance sheet has been simplified as reported at December 31 2013, the value of that asset portfolio offset by net debt.

Thus, for the purpose of evaluating **REN Group** it was admitted that the accounting value of invested capitals and employed capitals (invested capitals + financial investments) would be exactly identical and that, on December 31, 2013, **REN Group**'s net indebtedness would amount to 2,278.3 million Euros.

A set of additional adjustments was also prepared as well as a reclassification and aggregations of assets and liabilities items in **REN Group**'s balance sheet, all with the aim of simplifying the projection of its provisional financial statements.

These adjustments, reclassifications and aggregations are attached hereto as an annex.

2. Economic Regulation Models

The economic regulation models to which **REN Group** is subject reveal, unless better opinion, some "artificialisms", among which are the following:

1. Firstly, the electricity segment regulated asset breakdown into three parts and the establishment of different remuneration rates for each one of them, when the average level of risk associated to the RAB does not change as a result of that RAB²² breakdown;
2. Secondly, the institution of an incentive to use fully amortized assets does not seem compatible with the economic regulation principles, since it is not necessary to encourage what constitutes an obligation for management teams: only making investments which add value to the companies and, consequently, to their owners; and

²² See, for instance, "Comment on the split cost of capital proposal of Professor Helm, submitted by BA", available in <http://www.caa.co.uk/docs/5/baasplitcoc.pdf>.

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3. Thirdly, since the natural gas tariffs smoothing mechanism is nothing more than a transfer of costs between current and future generations, it should not be borne by the companies' stock holders.

These “artificialisms” not only distort the objectives of regulatory models (suppressing market flaws in sectors with a monopoly nature), but also determine an absurd increase in the cost of economic regulation²³, consequently not contributing to minimization of tariffs supported by consumers.

Considering that, over the medium and long-term, these “artificial” mechanisms will not be sustainable, for evaluation purposes it was decided to simplify the economic regulation models to which **REN Group** is subject, not considering the regulated asset base breakdown and incentive mechanisms which have been in force.

II. REN’s Prefiguration of Provisional Activity

1. General Assumptions

According to IMF’s latest forecasts, the Portuguese economy will tend to record a real growth of around 1.8% and a nominal growth of about 3.6% (1.8% of average value for GDP’s deflator) in the long-term.

It was considered that the aggregate corporate tax rate should remain somewhere around 31.5%.

With regards to the evolution of demand in electricity and natural gas, the scenarios presented by **REN** to ERSE have been taken into account in the scope of their investment projects for the next decade (2014-2023), which indicate average growth levels of 0.95% and 2.2%, respectively.

2. Investment Expenses

According to the documents provided by **REN** to ERSE, these show that the annual average volume of investment expenses (Capex) would be around: (i) 213 million Euros, between 2014 and 2018, in the electricity segment²⁴; and (ii) 50.7 million Euros, between 2014 and 2023, in the natural gas segment²⁵.

²³ In 2013, ERSE’s financing costs borne by **REN** totaled almost 8.8 million Euros, representing approximately 8.3% of its total operating expenses!

²⁴ www.erse.pt/pt/consultaspublicas/consultas/Documents/46_1/PDIRT-E%202013.pdf.

It was decided that the same investment patterns, corrected with basis on the price index, would be kept for the following years.

3. Depreciations Net of Subsidies

The depreciations (net of subsidies) of the regulated asset base detained by **REN Group**, at the end of 2013, were determined with basis on their residual economic useful lives (18.7 years, in the electricity case, and 21 years, in the natural gas case).

Concerning the investment expenses, the depreciations were calculated based on the residual terms of the concessions (44 years, in the electricity case and 33 years, in the natural gas case).

Note that the amortization plan was done according to the scheme given by the **REN Group**.

4. Asset Base

The regulated asset base (RAB) is the set of assets essential to provide regulated services. The regulated assets are majorly composed by tangible assets and consequently this is the reason why it is possible to assume that those are **REN**'s main stream of value.

The regulated asset bases were determined by deducting the amortization amount to the sum of initial asset base with the investment expenses ($RAB_n = RAB_{n-1} + Capex_n - Depreciation_n$).

5. Operating Expenses

The operating expenses (Opex) were calculated based on the following expression:

$$Opex_n = Opex_{n-1} \times (1 + GDP\ Deflator_n) \times (1 + \Delta\ Consumption_n) \quad (34)$$

No efficiency gains were thus considered as the available information indicates that the efficiency levels of **REN Group** are high.

In any case, according to the economic regulation model to which **REN Group** is subject, its operating expenses are reflected under income. In this context, any efficiency gains will always be passed on to consumers, only being held by the **Group** in a transitory way.

6. Regulated Income

REN Group's regulated revenues were determined using the following expression:

$$\text{Regulated revenues} = \text{capital revenues} + \text{Opex's recovery revenues} + \text{other revenues} \quad (35)$$

On the other hand, capital revenues were determined using the following expression:

$$\text{Capital revenues} = \text{average RAB} \times \text{remuneration rate} + \text{depreciations net of subsidies} \quad (36)$$

Opex's recovery revenues correspond to the operating expenses.

The other revenues were determined by keeping the average weights of such revenues, observed between 2011 and 2013, in capital revenues: 1.1% in the electricity segment; and 2.3% in the natural gas segment.

To determine the operating income, works for the company were added to the operating revenues, whose value was determined with basis on the average contributions observed between 2011 and 2013, for the investment expenses: 9.5% in the electricity business; and 9.1% in the natural gas business.

No revenues from tariff deviations were calculated as the net balances at the end of 2013 were deducted from **REN Group's** remunerated debt, and no incentive-linked revenues were also considered.

7. Regulated Assets' Remuneration Rate

For the ongoing regulation periods, the following remuneration rates determined by ERSE were considered: 7.6% for electricity, in 2014; and 8.0% for natural gas until 2016.

For the remaining years, it was considered that the regulated asset base remuneration rates would be equivalent to the **Group's** pre-tax weighted average cost of capital, because in economies characterized

by the existence of scarce resources, the return on invested capital shall be economically efficient, i.e., the capital's remuneration and its opportunity cost shall coincide.

Defining the cost of capital as the minimum rate of return required to attract funds for a certain investment, one easily concludes that the optimal rate of return on capital allows not only to attract, but also to maintain the required capital to correctly carry out the company's activities. Given this, the market agents' perception of the cost of capital of a regulated entity shall therefore be in line with the return of its assets, so that the company's activities are able to retain the required financing resources. This condition implies on the one hand that there is no shift of resources to other sectors of the economy, which leads to negative consequences on the quality of the provided service, as well as on the company's financial and economical balance and on the other hand that its activities' returns are not excessive, in detriment to other sectors of the economy, namely the consumers.

In short, ERSE regulated activities' assets, net of amortizations, rate of return should match the rate at which economical agents value the best alternative to the use of this resources. This rate is named cost of capital.

8. Telecommunications' Business

Regarding the telecommunications' business, it was admitted that the revenues continued to represent, as observed in the three-year period 2011-2013, about 0.9% of **REN Group's** regulated income and that operating expenses, as historically verified, would be equivalent to around 44% of the revenues.

9. Other Assumptions

With regards to working capital, the average collection and payment periods underlying the 2013 financial statements were maintained.

For 2014 and as established in the state budget, an extraordinary contribution will be levied on the energy sector, in an amount equivalent to 0.85% of **REN Group's** regulated asset base, in other words, around 30.3 million Euros.

As provided for in the 2014 State Budget, the expense which this extraordinary contribution represents is not reflected in the **Group's** regulated income and it also decided that it would not be considered as taxable income.

Concerning the dividend distribution policy, it was considered that **REN Group** would annually distribute about 70% of its net results earned in the previous year, as long as its indebtedness level was not less than to 4x the EBITDA. A 100% pay-out ratio was considered for the following years.

10. Debt Amortization

The debt amortization implicit in this model is based on the principle that: every time **REN** generates funds for which there is no immediate application, **REN** can amortize debt beforehand or repurchase, in secondary market, a parcel of that debt. Thus, the company is able to reduce its financial burdens and adjust to the debt its real financial needs.

11. Provisional Financial Statements

The maps on the following pages show the forecasted provisional financial statements for **REN Group**, based on the previously mentioned premises.

Table 13-A: Projected Financial Statements (Mn Eur)								
Profit and Loss	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Net operating income	607	607	566	577	560	572	583	595
(+) Net operating expenses	-105	-142	-114	-117	-121	-125	-129	-133
(=) EBITDA	502	465	452	459	439	447	454	462
(+) Depreciations	-182	-184	-186	-189	-191	-194	-197	-200
(=) EBIT	320	280	266	271	248	253	257	262
(+) Net financial income	-142	-86	-87	-90	-91	-93	-95	-96
(=) EBT	178	194	179	181	157	160	163	166
(+) Tax expense	-57	-71	-56	-57	-49	-50	-51	-52
(=) Net profit	121	123	122	124	107	110	112	114
Balance Sheet	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Fixed assets	3,546	3,626	3,704	3,779	3,852	3,922	3,993	4,065
(+) Working capital	-186	-277	-244	-244	-256	-256	-261	-266
(=) Invested Capital	3,360	3,349	3,460	3,535	3,596	3,666	3,732	3,798
Equity	1,076	1,108	1,137	1,168	1,181	1,209	1,238	1,267
(+) Net debt and provisions	2,284	2,241	2,323	2,367	2,415	2,457	2,494	2,531
(=) Invested Capital	3,360	3,349	3,460	3,535	3,596	3,666	3,732	3,798
Cash Flow	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
EBIT	n.a.	280	266	271	248	253	257	262
(+) Tax on EBIT	n.a.	-98	-84	-85	-78	-80	-81	-82
(+) Δ in invested capital	n.a.	11	-111	-75	-61	-70	-66	-66
(=) Free Cash Flow	n.a.	194	71	110	109	103	111	113
(+) Net financial income	n.a.	-59	-60	-61	-63	-64	-65	-66
(+) Dividends	n.a.	-91	-94	-93	-94	-81	-83	-85
(=) Retained Cash Flow	n.a.	43	-82	-44	-48	-42	-37	-37
Selected Indicators	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Net returns on:								
RAB	5.4%	4.9%	4.4%	4.4%	3.9%	3.9%	3.9%	3.9%
Invested capital	6.4%	5.3%	5.4%	5.3%	4.8%	4.8%	4.8%	4.8%
Equity	11.6%	11.3%	10.9%	10.8%	9.1%	9.2%	9.1%	9.1%
Capital Structure								
Leverage	68.0%	66.9%	67.1%	67.0%	67.2%	67.0%	66.8%	66.6%
Net debt / EBITDA	4.5 x	4.8 x	5.1 x	5.2 x	5.5 x	5.5 x	5.5 x	5.5 x
Sources: Author assumptions and calculations.								

Table 13-B: Forecasted Financial Statements (Mn Eur)								
Profit and Loss	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Net operating income	607	620	634	648	663	678	695	712
(+) Net operating expenses	-137	-142	-146	-151	-156	-161	-166	-171
(=) EBITDA	470	479	488	497	507	518	529	540
(+) Depreciations	-204	-208	-212	-217	-222	-228	-234	-241
(=) EBIT	266	271	275	280	285	289	294	299
(+) Net financial income	-97	-99	-100	-102	-103	-104	-105	-106
(=) EBT	169	172	175	179	182	185	189	192
(+) Tax expense	-53	-54	-55	-56	-57	-58	-59	-61
(=) Net profit	116	118	120	122	125	127	129	132
Balance Sheet	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Fixed assets	4,137	4,209	4,281	4,353	4,425	4,497	4,567	4,636
(+) Working capital	-272	-277	-282	-289	-296	-302	-309	-316
(=) Invested Capital	3,865	3,932	3,998	4,064	4,129	4,194	4,258	4,320
Equity	1,296	1,327	1,357	1,389	1,420	1,453	1,486	1,520
(+) Net debt and provisions	2,569	2,605	2,641	2,675	2,709	2,741	2,772	2,801
(=) Invested Capital	3,865	3,932	3,998	4,064	4,129	4,194	4,258	4,320
Cash Flow	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
EBIT	266	271	275	280	285	289	294	299
(+) Tax on EBIT	-84	-85	-87	-88	-90	-91	-93	-94
(+) Δ in invested capital	-67	-67	-66	-66	-65	-65	-64	-62
(=) Free Cash Flow	116	119	122	126	130	133	138	142
(+) Net financial income	-67	-68	-69	-70	-70	-71	-72	-73
(+) Dividends	-86	-88	-89	-91	-93	-94	-96	-98
(=) Retained Cash Flow	-37	-37	-36	-34	-34	-32	-31	-29
Selected Indicators	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Net returns on:								
RAB	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Invested capital	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Equity	9.0%	9.0%	8.9%	8.9%	8.9%	8.8%	8.8%	8.8%
Capital Structure								
Leverage	66.5%	66.3%	66.1%	65.8%	65.6%	65.4%	65.1%	64.8%
Net debt / EBITDA	5.5 x	5.4 x	5.4 x	5.4 x	5.3 x	5.3 x	5.2 x	5.2 x
Sources: Author assumptions and calculations.								

Table 13-C: Projected Financial Statements (Mn Eur)								
Profit and Loss	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Net operating income	730	748	768	788	810	833	857	880
(+) Net operating expenses	-177	-183	-189	-195	-201	-208	-215	-222
(=) EBITDA	553	565	579	593	609	625	642	658
(+) Depreciations	-249	-257	-267	-277	-288	-300	-313	-328
(=) EBIT	303	308	312	317	321	325	328	330
(+) Net financial income	-108	-108	-109	-110	-110	-110	-110	-110
(=) EBT	196	200	203	207	211	214	218	220
(+) Tax expense	-62	-63	-64	-65	-66	-68	-69	-69
(=) Net profit	134	137	139	142	144	147	149	151
Balance Sheet	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Fixed assets	4,703	4,767	4,828	4,885	4,937	4,982	5,020	5,050
(+) Working capital	-322	-329	-336	-343	-349	-356	-363	-370
(=) Invested Capital	4,381	4,438	4,492	4,542	4,587	4,626	4,658	4,680
Equity	1,554	1,589	1,624	1,661	1,697	1,735	1,773	1,810
(+) Net debt and provisions	2,827	2,849	2,868	2,882	2,890	2,891	2,885	2,870
(=) Invested Capital	4,381	4,438	4,492	4,542	4,587	4,626	4,658	4,680
Cash Flow	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
EBIT	303	308	312	317	321	325	328	330
(+) Tax on EBIT	-96	-97	-98	-100	-101	-102	-103	-104
(+) Δ in invested capital	-60	-58	-54	-50	-45	-39	-32	-23
(=) Free Cash Flow	148	153	160	167	175	184	193	203
(+) Net financial income	-74	-74	-75	-75	-76	-76	-76	-75
(+) Dividends	-100	-102	-104	-106	-107	-109	-111	-113
(=) Retained Cash Flow	-26	-23	-19	-14	-8	-1	6	15
Selected Indicators	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Net returns on:								
RAB	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Invested capital	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%	4.8%
Equity	8.7%	8.7%	8.7%	8.6%	8.6%	8.6%	8.5%	8.4%
Capital Structure								
Leverage	64.5%	64.2%	63.8%	63.4%	63.0%	62.5%	61.9%	61.3%
Net debt / EBITDA	5.1 x	5.0 x	5.0 x	4.9 x	4.7 x	4.6 x	4.5 x	4.4 x
Sources: Author assumptions and calculations.								

Table 13-D: Projected Financial Statements (Mn Eur)								
Profit and Loss	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Net operating income	907	935	963	994	993	1,021	1,069	1,123
(+) Net operating expenses	-229	-237	-245	-253	-261	-270	-279	-288
(=) EBITDA	677	698	718	741	732	752	790	835
(+) Depreciations	-344	-363	-383	-406	-398	-417	-455	-503
(=) EBIT	333	335	335	335	335	335	334	332
(+) Net financial income	-109	-108	-106	-105	-104	-103	-101	-99
(=) EBT	224	227	229	230	231	232	233	234
(+) Tax expense	-70	-72	-72	-72	-73	-73	-73	-74
(=) Net profit	153	156	157	158	158	159	160	160
Balance Sheet	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Fixed assets	5,071	5,079	5,074	5,052	5,046	5,028	4,979	4,889
(+) Working capital	-376	-382	-389	-395	-415	-423	-424	-422
(=) Invested Capital	4,694	4,697	4,685	4,657	4,632	4,605	4,555	4,467
Equity	1,849	1,889	1,928	1,928	1,929	1,930	1,931	1,931
(+) Net debt and provisions	2,845	2,808	2,757	2,729	2,703	2,675	2,624	2,536
(=) Invested Capital	4,694	4,697	4,685	4,657	4,632	4,605	4,555	4,467
Cash Flow	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
EBIT	333	335	335	335	335	335	334	332
(+) Tax on EBIT	-105	-106	-106	-105	-105	-106	-105	-105
(+) Δ in invested capital	-14	-2	12	28	26	26	50	88
(=) Free Cash Flow	214	227	242	257	255	256	279	315
(+) Net financial income	-75	-74	-73	-72	-71	-70	-69	-68
(+) Dividends	-114	-116	-118	-157	-158	-158	-159	-160
(=) Retained Cash Flow	25	37	51	28	26	27	51	88
Selected Indicators	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Net returns on:								
RAB	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Invested capital	4.9%	4.9%	4.9%	4.9%	4.9%	5.0%	5.0%	5.0%
Equity	8.4%	8.3%	8.2%	8.2%	8.2%	8.2%	8.3%	8.3%
Capital Structure								
Leverage	60.6%	59.8%	58.9%	58.6%	58.4%	58.1%	57.6%	56.8%
Net debt / EBITDA	4.2 x	4.0 x	3.8 x	3.7 x	3.7 x	3.6 x	3.3 x	3.0 x
Sources: Author assumptions and calculations.								

Table 13-E: Forecasted Financial Statements (Mn Eur)								
Profit and Loss	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Net operating income	1,192	1,299	891	929	970	1,015	1,064	1,123
(+) Net operating expenses	-298	-309	-173	-178	-183	-188	-193	-199
(=) EBITDA	894	990	718	751	787	827	871	924
(+) Depreciations	-565	-669	-420	-457	-498	-545	-600	-665
(=) EBIT	329	321	297	294	289	282	271	258
(+) Net financial income	-94	-87	-84	-83	-79	-74	-67	-58
(=) EBT	235	233	213	211	210	208	204	201
(+) Tax expense	-74	-73	-67	-67	-66	-65	-64	-63
(=) Net profit	161	160	146	145	144	142	140	138
Balance Sheet	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Fixed assets	4,744	4,503	4,441	4,348	4,221	4,053	3,837	3,563
(+) Working capital	-414	-392	-302	-300	-297	-293	-288	-279
(=) Invested Capital	4,330	4,111	4,139	4,048	3,923	3,760	3,550	3,285
Equity	1,931	1,931	1,917	1,916	1,914	1,913	1,911	1,908
(+) Net debt and provisions	2,399	2,181	2,222	2,133	2,009	1,847	1,639	1,376
(=) Invested Capital	4,330	4,111	4,139	4,048	3,923	3,760	3,550	3,285
Cash Flow	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
EBIT	329	321	297	294	289	282	271	258
(+) Tax on EBIT	-104	-101	-94	-93	-91	-89	-85	-81
(+) Δ in invested capital	137	219	-28	91	125	164	210	265
(=) Free Cash Flow	363	438	176	292	323	356	396	442
(+) Net financial income	-65	-60	-58	-57	-54	-50	-46	-39
(+) Dividends	-160	-161	-160	-146	-145	-144	-142	-140
(=) Retained Cash Flow	138	218	-41	89	124	162	208	263
Selected Indicators	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Net returns on:								
RAB	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%	3.9%
Invested capital	5.1%	5.2%	4.9%	4.9%	5.0%	5.0%	5.1%	5.2%
Equity	8.3%	8.3%	7.6%	7.6%	7.5%	7.4%	7.3%	7.2%
Capital Structure								
Leverage	55.4%	53.0%	53.7%	52.7%	51.2%	49.1%	46.2%	41.9%
Net debt / EBITDA	2.7 x	2.2 x	3.1 x	2.8 x	2.6 x	2.2 x	1.9 x	1.5 x
Sources: Author assumptions and calculations.								

Table 13-F: Forecasted Financial Statements (Mn Eur)					
Profit and Loss	2053 F	2054 F	2055 F	2056 F	2057 F
Net operating income	1,192	1,278	1,395	1,575	1,965
(+) Net operating expenses	-205	-211	-217	-224	-233
(=) EBITDA	987	1,067	1,178	1,351	1,732
(+) Depreciations	-745	-846	-984	-1,194	-1,622
(=) EBIT	242	221	194	157	110
(+) Net financial income	-46	-32	-14	10	43
(=) EBT	196	189	181	167	154
(+) Tax expense	-62	-60	-57	-53	-48
(=) Net profit	134	129	124	114	105
Balance Sheet	2053 F	2054 F	2055 F	2056 F	2057 F
Fixed assets	3,216	2,775	2,204	1,431	237
(+) Working capital	-266	-246	-213	-154	-8
(=) Invested Capital	2,951	2,530	1,992	1,277	229
Equity	1,905	1,900	1,895	1,885	1,876
(+) Net debt and provisions	1,046	630	97	-609	-1,647
(=) Invested Capital	2,951	2,530	1,992	1,277	229
Cash Flow	2053 F	2054 F	2055 F	2056 F	2057 F
EBIT	242	221	194	157	110
(+) Tax on EBIT	-76	-70	-61	-49	-35
(+) Δ in invested capital	334	421	538	715	1,047
(=) Free Cash Flow	499	572	671	823	1,123
(+) Net financial income	-32	-22	-9	7	30
(+) Dividends	-138	-134	-129	-124	-114
(=) Retained Cash Flow	330	416	533	706	1,038
Selected Indicators	2053 F	2054 F	2055 F	2056 F	2057 F
Net returns on:					
RAB	3.8%	3.8%	3.8%	3.7%	3.7%
Invested capital	5.3%	5.5%	5.9%	6.6%	10.0%
Equity	7.0%	6.8%	6.5%	6.1%	5.6%
Capital Structure					
Leverage	35.4%	24.9%	4.9%	0.0%	0.0%
Net debt / EBITDA	1.1 x	0.6 x	0.1 x	0.0 x	0.0 x
Sources: Author assumptions and calculations.					

Considering the admitted assumptions, the analysis of **REN Group's** provisional financial statements indicates that:

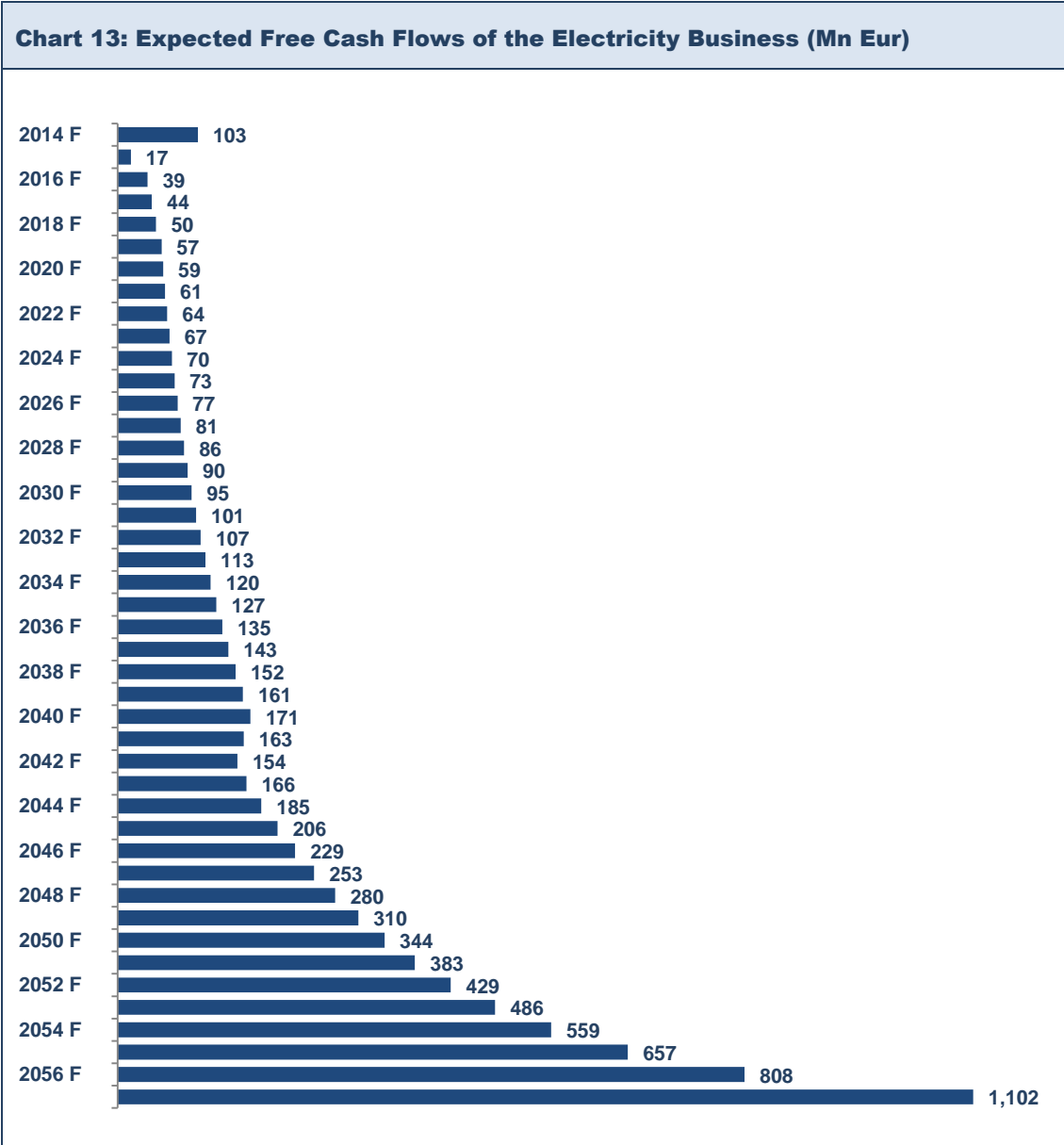
1. Between 2013 and 2046, the period during which all the concessions will still be in force, its revenues will tend to grow at an average nominal annual rate of 2.3% (0.5%, in real terms);
2. In average terms, its EBITDA margin will tend to stand at around 77%;
3. The average weight of the depreciations in its revenues will tend to increase up to 41%, reflecting the enormous capital intensity that characterizes the businesses operated under concession contracts by companies that are part of **REN Group**;
4. Its EBIT average margin will tend to remain close to 37%, an essential factor for the adequate remuneration of its asset base;
5. The financial burden will consume 33% of the EBIT, meaning that the results before taxes (EBT) represent, in average terms, around 25% of revenues;
6. The tax burden supported is equivalent to 31.5% of the EBT, meaning that **REN Group's** net margin should correspond to around 17% of revenues;
7. The volume of invested capital will tend to increase, almost uninterruptedly, until the end of 2041, after which it should record a progressive decrease as a result of the approaching concession expiry dates; and
8. On average, 7.1% of the fixed assets will be financed by working capital, reason why the return on invested capitals will tend to remain in superior levels compared to the remuneration rate of RAB.

Despite the high investment levels that it will have to support and the expressive dividends it will tend to distribute (average payout ratio of 86%, between 2014 and 2057), **REN Group** appears to have the capacity to respect its debt service, it being reasonable to admit that its rating notation will be subject to better revisions.

III. Discounted Cash Flow Method

1. Firm Value of the Electricity Business

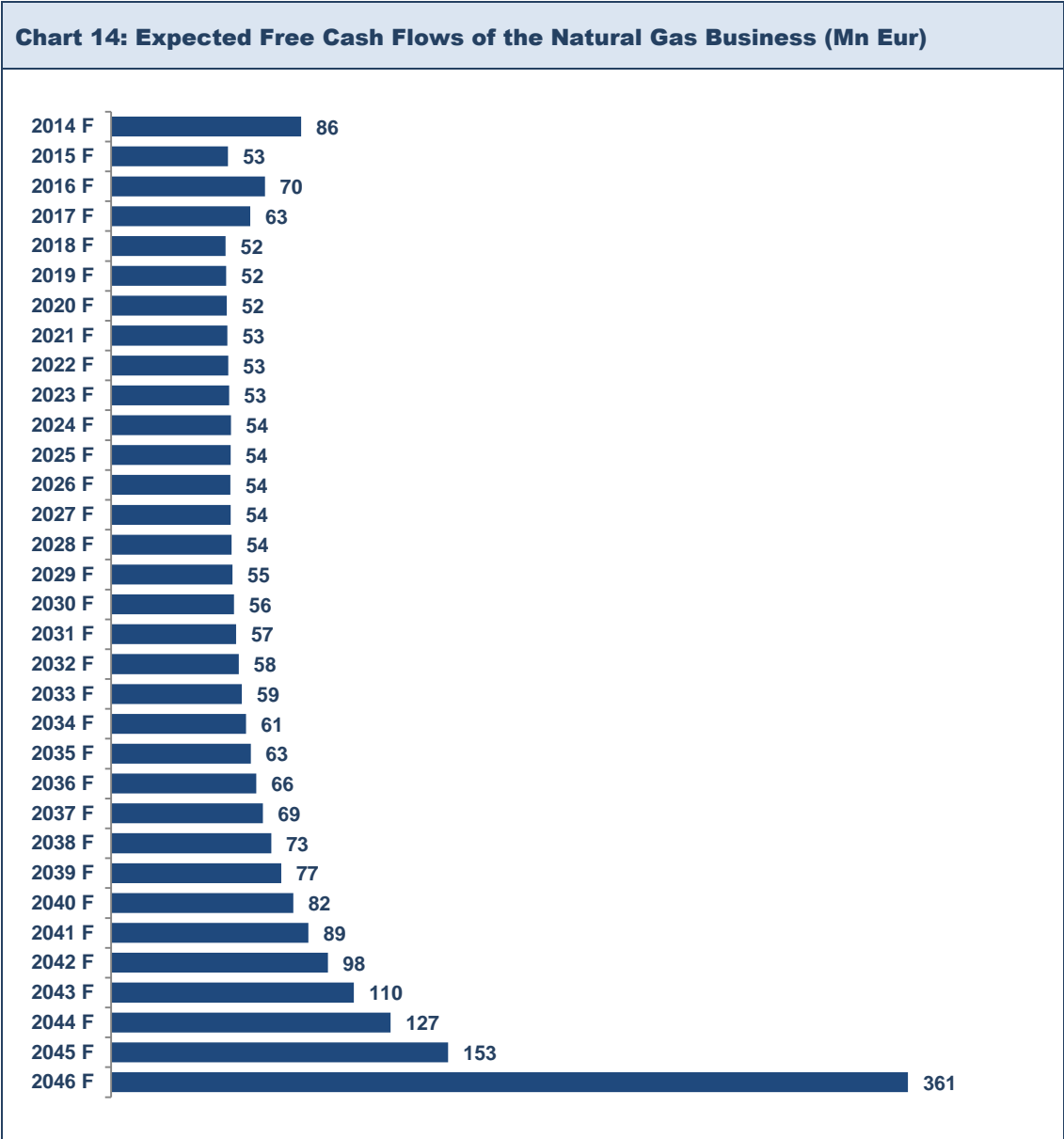
The following chart shows the expected evolutionary pattern of free cash flows related to the electricity business:



Discounting the expected series of free cash flows for the reference date of the valuation (December 31 2013), a value of about 2,907 million Euros has been determined, which: (i) includes a premium of around 20.2% in relation to the accounting base value of regulated assets regulated in the electricity businesses; and (ii) exceeds 8.5 times the recurrent expected EBITDA for 2014.

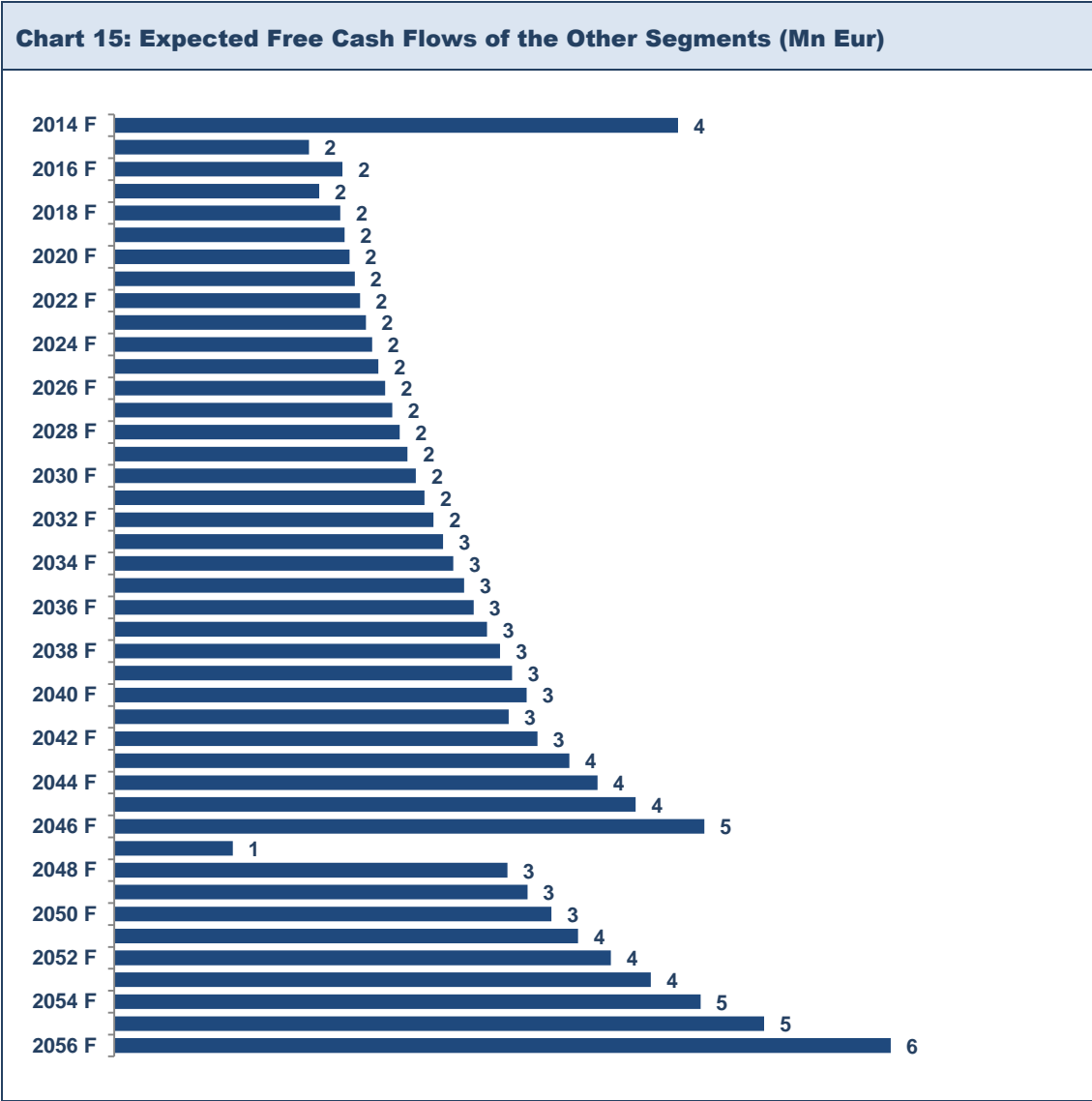
2. Firm Value of the Natural Gas Business

The expected series current value of free cash flows of the natural gas business is approximately 1,275 million Euros, a sum that exceeds around 14.7% the book value of the regulated asset base which is allocated to this business and 8.5 times the recurrent EBITDA expected to be generated by **REN Group** in this business segment in 2014.



3. Firm Value of Telecommunications and Central Services

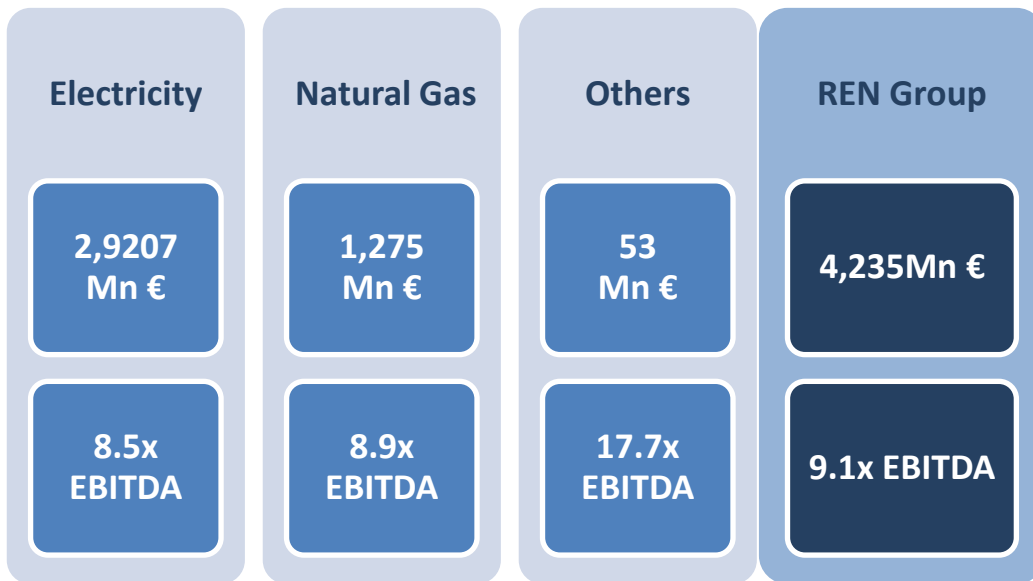
The expected series of free cash flows relevant for the valuation of the telecommunications business and the central services is the one shown in the following chart:



The firm value of this set of activities, reported at the end of 2013, is around 53 million Euros, which is equivalent to 17.7 times the expected EBITDA for 2014.

4. Firm Value and Equity Value of REN Group

Summing it all up, **REN Group's** firm corresponds to 4,235 million Euros, a sum that exceeds by 9.1 times the expected EBITDA for 2014.



Deducting from the firm value the net debt value existent at the end of 2013 (2,284 million Euros), it was inferred the equity value of **REN Group** of approximately 1.951 million Euros, to which corresponds a price of around 3.68 Euros for each of the 530,118,626 shares in circulation.

The share value of 3.68 Euros has an underlying price earnings ratio of 12.7x on the expected recurrent net income for 2014 and it is higher:

1. Than the current value of **REN's** shares 2.86 by around 22%;
2. Than the average price target forecasted by analysts which follow its titles (2.60 Euros) by around 29%; and
3. Than the average price of 2.77 Euros paid by State Grid of China and Oman Oil for the purchase of a 15.8% shareholding in **REN's** capital at the beginning of 2012.

Updating the average price paid by the two above-mentioned shareholders in **REN** in relation to the date of the transaction and the reference date of this evaluation, the value per share is now 3.10 Euros²⁶, in other words, around 15.7% below the sum currently determined for the **Company's** shares.

²⁶ $3.10 = [(2.77 - 0.169 \text{ of } 2012 \text{ dividends}) \times (1 + 14.5\% \text{ of } 2012 \text{ cost of equity}) - 0.170 \text{ of } 2013 \text{ dividend}] \times (1 + 10.3\% \text{ of } 2013 \text{ cost of equity}).$

5. Sensitivity Analysis and Conclusion

Since the aim of the economic regulation models subjacent to **REN Group** is to ensure adequate remuneration on invested capital, any oscillations in its operating and investment expenses should be compensated by equivalent oscillations in its expenses, with no material impact in its results and free cash flows and, consequently, in its value.

Thus, the main risks to which **REN Group** is apparently subject, in terms of its stock value are: (i) the economic regulations determining remuneration rates for the asset bases that do not correspond to its weighted average cost of capital; and (ii) the government's imposition that the Group must bear the costs with the extraordinary contribution on the energy sector, without the option of passing it on to consumers, as expected in 2014.

Considering that the second above-mentioned risk was already guaranteed by the State that is not going to happen, the focus of the analysis is on regulatory risk, seeking to assess the impact which the regulator may have throughout the residual terms of the concessions if he determines to increase or decrease the asset remuneration rates below and above 0.25% of the effective weighted average cost of **REN Group's** capital.

A negative difference of 1/4 percentage points between the asset base remuneration rate and the weighted average cost of capital would lead to a reduction in **REN Group** stocks' value from 3.68 Euros to 3.39 Euros (negative variation of -7.8%). On the contrary, a positive difference of 1/4 percentage points between the two measures in question would determine an increase in stocks' value to around 3.97 Euros (positive variation of 7.8%).

It is, thus, admitted that **REN Group's** stock value would tend to be, at the end of 2013, between 3.39 and 3.97 Euros, an interval whose central point corresponds to the initially determined 3.68 Euros.

IV. Valuation Comparison

Comparing the present valuation with the one made by the equity analyst Gonzalo Sanchez-Bordona from Banco Português de Investimento (BPI), which dates back to 30th January 2014, it is noticeable a big discrepancy between the price targets, namely 3.68 euros from this report versus 2.85 euros from the

bank analysis (around 29% below this valuation). These differences are mainly related with (i) the valuation methods used and (ii) the assumptions made.

	Present Report	Bank Report
1. Valuation Method		
a. Electricity Business	DCF	DCF
b. Natural Gas Business	DCF	DCF
c. Telecom & Central Services	DCF	Multiples
2. DCF Assumptions (2014 values)		
a. Cost of Equity (Electricity & Natural Gas)	5.4%	13.6%
b. Risk Free (Electricity & Natural Gas)	1.57%	3.25%
c. Beta Equity (Electricity & Natural Gas)	0.60	1.30
d. Country Risk Premium (Electricity & Natural Gas)	0.00%	2.35%
e. Market Risk Premium	6.00%	6.0%
f. Tax Rate (Electricity & Natural Gas)	31.50%	29.00%
g. D/EV (Electricity & Natural Gas)	53.80%	70.00%
h. Cost of Debt (Electricity & Natural Gas)	3.80%	5.50%
i. WACC	3.90%	6.80%
j. Explicit Period Electricity business(years)	50.00	10.00
k. Explicit Period Natural Gas business(years)	40.00	10.00

The results yielded by these two valuations, in a firm value perspective are relatively close, being this study above BPI's report only 0.42% (4,235 million Euros in the present valuation versus 4,253 million Euros in the analyst examination). Nevertheless, bearing in mind an equity perspective, these values differ around 15 % (1,951 million euros in the present valuation versus 1,700 million Euros in the bank report), majorly because of the value of net debt and provisions, which is 2,418 million Euros in the bank valuation and 2,284 million Euros in this study.

Moreover, the discount factor, i.e., the weighted average cost of capital which the bank is using, is much higher than the one considered in the present report (factor that is increasing the share price in this analysis), essentially because:

1. The time horizon used by the bank for the forecasts is 10 years, while in this study a time horizon of 50 years and 40 years is used, for the electricity and natural gas segment, respectively;
2. The analyst is using the average German bond 10 year yield over the period of study plus a country risk premium and in this dissertation only the German 10 years bond is considered as the risk free, since **REN** is presenting a better rating notation than the Portuguese Republic. This fact will inflate the cost of equity used by the bank;
3. Lastly, the cost of debt used by the analyst is greater than the one used in this report, since the bank is considering the actual cost the company is expecting in a normalized situation, while on the present report the yield to maturity of debt is used, not only because it represents the market value, but also because the conditions to which the company is subject to have improved in the last months.

Furthermore, the bank's analyst used the multiples method to compute the enterprise value of the telecom and central services, getting a firm value around 44 million Euros, while this dissertation obtained an enterprise value of 53 million Euros, thus accounting for one the most remarkable differences.

Regarding the electricity and natural gas segment, the enterprise values attained are quite similar, being the firm value of electricity and natural gas segment in this report 7% and 4% higher than the one achieved by the analyst (it does not represent a big difference), respectively, which is somehow reasonable since this a regulated sector and therefore the same models were assumed to forecast revenues and costs.

Finally, the bank applied a discount of 10% (known as a small capitalization discount) to the fair value of **REN**'s shares. Given this, the price goes from 3.20 Euros to 2.85 Euros. Nonetheless, in this report, it was decided not to do that, since there is a lot of controversy around that practice.

V. Market Multiples Method

1. Market-to-Asset Ratios

By multiplying the average market-to-asset ratios (MAR) presented in chart 10 for **REN Group's** regulated asset bases, it is possible to determine that the average values for the firm values of the electricity and natural gas businesses correspond to 3,000 and 1,290 million Euros, respectively.

By adding to the firm values of the regulated businesses the value determined for **REN Group's** other activities, it is possible to determine a global firm value of approximately 4,342 million Euros, to which corresponds an equity value of around 2.058 million Euros and a value per share of around 3.88 Euros, about 5.5% above the estimated value based on the discounted free cash flows method.

The value thus inferred does not embody, however, the 12.6% discount historically underlying **REN Group's** firm value (see table 3).

Adjusting the relevant benchmarks to the above-mentioned discount, **REN Group's** firm value would be around 3,795 million Euros, which would mean that its equity value would be somewhere around 1,511 million Euros and the value of its shares would be around 2.85 Euros

2. Firm Value to EBITDA Ratios and PE Ratios

Recalling now the multiples already presented in table 4 and multiplying those indicators with **REN Group's** economical relevant measures, it is possible to infer the valuation benchmarks which are presented in the following table, in which the **Group's** underlying discounts in relation to its peer companies are already embodied.

Taking the average values of the firm value to EBITDA multiples as a reference it can be concluded that: (i) **REN Group's** firm value should be around 3.9 billion Euros; (ii) its equity value will tend to be around 1.6 billion Euros; and (iii) consequently its unitary share value will not significantly deviate from 2.99 Euros.

Using the same exercise and based on the net results multiples, it is possible to determine that: (i) **REN Group's** firm value will tend to stand at around 4.0 billion Euros; (ii) its equity value would be around 1.7 billion Euros; and (iii) consequently, the unitary value of its shares would tend to be around 3.27 Euros.

Table 14 : REN Valuation (Mn Eur)								
	Firm Value / EBITDA			PE			Value	
	2013	2014 F	2015 F	2013	2014 F	2015 F	Average	Median
Average sector multiples	9.4 x	9.3 x	8.8 x	13.6 x	14.0 x	12.8 x	n.a.	n.a.
REN Indicators								
EBITDA	502	495	452	n.a.	n.a.	n.a.	n.a.	n.a.
Net profit	n.a.	n.a.	n.a.	121	154	122	n.a.	n.a.
Historical discount	-12.6%	-12.6%	-12.6%	-2.9%	-2.9%	-2.9%	n.a.	n.a.
REN Valuation								
Equity value	1,833	1,728	1,193	1,598	2,083	1,521	1,659	1,663
Net debt	-2,284	-2,284	-2,284	-2,284	-2,284	-2,284	-2,284	-2,284
Firm value	4,117	4,012	3,477	3,882	4,367	3,805	3,943	3,947
Value per share	3.46 €	3.26 €	2.25 €	3.01 €	3.93 €	2.87 €	3.13 €	3.14 €
Sources: Bloomberg and Author Calculations.								

All things considered, the application of these multiples indicates that **REN Group's** firm value is around 3.9 billion Euros and that, consequently, its equity value will rise to around 1.7 billion Euros, corresponding to a unitary value per share between 3.13 and 3.14 Euros.

3. Conclusion

Taking into account, on the one hand, the market-to-asset ratios and, on the other hand, the multiples based on EBITDA and net income, it is deemed reasonable to conclude that the analyses indicate that, according to the method of market multiples, the current value of **REN Group's** stocks is between 2.85 and 3.14 Euros.

VI. Final Assessment

The analyses carried out indicate that the value of **REN Group's** shares, reported at the end of 2013, is between 3.14 Euros and 3.39 Euros, which is substantially higher than the current price, as well as the price targets that market analysts attribute to the title (between 2.22 and 2.90 Euros). In order to define, a price target, an interval based on the second and third quartile was build, removing the extremes (outliers).



The current price of **REN Group**'s stocks embodies a discount of around 13% in relation to the central point of the interval of value inferred for its stocks (3.27 Euros) and market analysts' average price target (2.56 Euros) have an underlying discount of around 12%.

The reason for these differentials lies apparently in three fundamental factors:

4. Firstly, investors and analysts' fear that the extraordinary tax levied on the energy sector in 2014 will continue in the future;
5. Secondly, the minute share free-float (limited to 18.9%) that leads them to apply an illiquidity discount; and
6. Thirdly, the existing pressure on the share price as result of the privatization operation involving 11% of its capital still held by the State, planned for the summer 2014.

The Government has already said that it will not keep the extraordinary tax on energy, beyond 2014, and that the sale of an additional 11% of **REN's** capital will determine an increase of its free-float to roughly 30% and consequently to an increase in the liquidity level of its shares.

In this context, taking into account the prevailing conditions in the capital markets, the characteristics of **REN Group** and all the available information, it is reasonable to consider that the current value of its shares is somewhere between 3.14 and 3.39 Euros.

Annex I

Adjustments and Reclassifications to the 2013 he Balance Sheet (Mn Eur)

Accounts	Book Value	Adjustments and Reclassifications								Simplified Balance Sheet
		Goodwill	Subsidies	Tax Accounts	Financial Investments	Trade and Other receivables	Tariff Deviations	Cash and Equivalents	Retirement Benefits	
Goodwill	3.8	-3.8	-	-	-	-	-	-	-	0.0
Fixed assets	3,878.4	-	-331.9	-	-	-	-	-	-	3,546.5
Deferred tax assets	67.8	-	-	-67.8	-	-	-	-	-	0.0
Financial investments	294.0	-	-	-	-294.0	-	-	-	-	0.0
Trade and other receivables	649.4	-	-	67.8	-	-299.9	-156.1	-	-	261.2
Cash and equivalents	168.0	-	-	-	-	-	-	-168.0	-	0.0
Total Assets	5,061.3	-3.8	-331.9	0.0	-294.0	-299.9	-156.1	-168.0	0.0	3,807.7
Equity	1,079.6	-3.8	-	-	-	-	-	-	-	1,075.8
Borrowings and derivatives	2,717.5	-	-	-	-294.0	-	-103.3	-168.0	126.2	2,278.3
Deferred tax liabilities	74.0	-	-	-74.0	-	-	-	-	-	0.0
Retirement benefits	126.2	-	-	-	-	-	-	-	-126.2	0.0
Provisions	5.9	-	-	-	-	-	-	-	-	5.9
Trade and other payables	1,013.3	-	-331.9	118.9	-	-299.9	-52.7	-	-	447.6
Income tax payable	44.9	-	-	-44.9	-	-	-	-	-	0.0
Total Equity and Liabilities	5,061.3	-3.8	-331.9	0.0	-294.0	-299.9	-156.1	-168.0	0.0	3,807.7

Annex II

Electricity Data

	Units	2010	2011	2012	2013
Consumption Change	-	4.6%	-3.3%	-2.8%	0.2%
Capex	Mn €	293.9	267.9	155.5	157.6
Regulated Asset Base					
Beginning of period	Mn €	n.a.	2,032.6	2,249.2	2,338.0
(+) Transfers of the year	Mn €	n.a.	331.6	212.7	202.6
(+) Depreciation (net of subsidies)	Mn €	109.2	115.0	123.9	128.9
(=) End of period	Mn €	2,032.6	2,249.2	2,338.0	2,411.7
(+) Fixed assets in progress	Mn €	189.6	140.0	49.2	7.6
(=) Total RAB	Mn €	2,222.2	2,389.2	2,387.2	2,419.3
RAB Remuneration					
Average RAB	Mn €	1,957.6	2,140.9	2,293.6	2,374.9
(x) Allowed rate of return	-	6.4%	7.4%	9.2%	8.0%
(=) Remuneration	Mn €	124.8	158.7	210.2	189.1
Revenues					
Return on RAB	Mn €	124.8	158.7	210.2	189.1
(+) Recovery of depreciation (net from subsidies)	Mn €	109.2	115.0	123.9	128.9
(+) Remuneration of fully depreciated assets	Mn €	5.5	7.0	7.9	8.3
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	68.8	67.8	72.0	66.8
(+) Allowed incentives	Mn €	0.3	0.6	3.1	3.0
(+) Interest on tariff deviation	Mn €	3.7	1.7	-7.6	1.5
(+) Other revenues	Mn €	14.6	2.5	2.6	5.1
(+) Own works	Mn €	22.0	25.5	23.0	20.4
(=) Total revenues	Mn €	348.9	378.8	435.1	423.1
Operating Expenses					
Direct expenses	Mn €	69.3	61.6	61.7	46.3
(+) Allocated expenses	Mn €	13.1	21.0	22.2	17.3
(=) Total Opex	Mn €	82.4	82.6	83.9	63.6
Depreciations (net from subsidies)	Mn €	112.1	117.1	125.5	129.9

Sources: REN Annual Reports.

Natural Gas Data

	Units	2010	2011	2012	2013
Consumption Change	-	9.1%	-0.5%	-14.1%	-5.0%
Capex	Mn €	148.5	81.4	45.0	29.9
Regulated Asset Base					
Beginning of period	Mn €	n.a.	1,035.9	1,053.8	1,119.9
(+) Transfers of the year	Mn €	n.a.	64.6	119.4	41.1
(+) Depreciation (net of subsidies)	Mn €	43.7	46.7	53.3	52.8
(=) End of period	Mn €	1,035.9	1,053.8	1,119.9	1,108.2
(+) Fixed assets in progress	Mn €	96.6	65.6	23.6	3.5
(=) Total RAB	Mn €	1,132.5	1,119.4	1,143.5	1,111.7
RAB Remuneration					
Average RAB	Mn €	996.7	1,044.9	1,086.9	1,114.1
(x) Allowed rate of return	-	8.0%	8.0%	8.0%	8.0%
(=) Remuneration	Mn €	79.7	83.6	87.0	88.9
Revenues					
Return on RAB	Mn €	79.7	83.6	87.0	88.9
(+) Recovery of depreciation (net from subsidies)	Mn €	43.7	46.7	53.3	52.8
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	12.2	1.8	-7.5	-11.5
(+) Revenues of opex	Mn €	36.5	39.0	38.3	37.8
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.3	0.7	1.1	1.2
(+) Other revenues	Mn €	13.5	6.3	0.1	2.8
(+) Own works	Mn €	4.0	7.5	4.6	4.9
(=) Total revenues	Mn €	190.1	185.6	177.1	176.8
Operating Expenses					
Direct expenses	Mn €	51.5	28.2	27.7	26.7
(+) Allocated expenses	Mn €	9.7	9.6	10.0	10.0
(=) Total Opex	Mn €	61.2	37.7	37.6	36.7
Depreciations (net from subsidies)	Mn €	36.5	46.7	53.3	51.9

Sources: REN Annual Reports.

Telecom Data

	Units	2010	2011	2012	2013
Consumption Change	-	n.a.	n.a.	n.a.	n.a.
Capex	Mn €	0.0	0.0	0.0	0.0
Asset Base					
Beginning of period	Mn €				
(+) Transfers of the year	Mn €				
(+) Depreciation (net of subsidies)	Mn €				
(=) End of period	Mn €				
(+) Fixed assets in progress	Mn €				
(=) Total Asset Base	Mn €	0.1	0.1	0.0	0.0
RAB Remuneration					
Average RAB	Mn €				
(x) Allowed rate of return	-				
(=) Remuneration	Mn €				
Revenues					
Return on RAB	Mn €	0.0	0.0	0.0	0.0
(+) Recovery of depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	0.0	0.0	0.0	0.0
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.9	4.9	5.5	5.4
(+) Own works	Mn €	0.0	0.0	0.0	0.0
(=) Total revenues	Mn €	5.9	4.9	5.5	5.4
Operating Expenses					
Direct expenses	Mn €	1.5	1.2	2.0	1.9
(+) Allocated expenses	Mn €	0.3	0.4	0.7	0.7
(=) Total Opex	Mn €	1.8	1.6	2.8	2.6
Depreciations (net from subsidies)	Mn €	0.0	0.0	0.0	0.0

REN Group Consolidated Data

	Units	2010	2011	2012	2013
Consumption Change	-	n.a.	n.a.	n.a.	n.a.
Capex	Mn €	443.0	349.4	201.1	187.8
Asset Base					
Beginning of period	Mn €				
(+) Transfers of the year	Mn €				
(+) Depreciation (net of subsidies)	Mn €				
(=) End of period	Mn €				
(+) Fixed assets in progress	Mn €				
(=) Total Asset Base	Mn €	3,376.8	3,526.9	3,548.3	3,546.5
RAB Remuneration					
Average RAB	Mn €				
(x) Allowed rate of return	-				
(=) Remuneration	Mn €				
Revenues					
Return on RAB	Mn €	204.5	242.3	297.1	278.0
Recovery of depreciation (net from subsidies)	Mn €	152.9	161.7	177.2	181.7
Remuneration of fully depreciated assets	Mn €	5.5	7.0	7.9	8.3
Tariff smoothing effect	Mn €	12.2	1.8	-7.5	-11.5
Revenues of opex	Mn €	105.3	106.8	110.3	104.6
Allowed incentives	Mn €	0.3	0.6	3.1	3.0
Interest on tariff deviation	Mn €	4.0	2.4	-6.5	2.7
Other revenues	Mn €	48.1	27.9	10.7	15.4
Own works	Mn €	26.0	33.0	27.6	25.3
(=) Total revenues	Mn €	559.0	583.5	620.2	607.4
Operating Expenses					
Direct expenses	Mn €	159.6	136.1	126.9	105.0
(+) Allocated expenses	Mn €	0.0	0.0	0.0	0.0
(=) Total Opex	Mn €	159.6	136.1	126.9	105.0
Depreciations (net from subsidies)	Mn €	148.8	164.2	179.1	182.2

Annex III

Electricity: Revenues Assumptions

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Average RAB	Mn €	2,374.9	2,456.5	2,541.2	2,619.9	2,696.4	2,770.5	2,844.0	2,918.4
(x) Allowed rate of return	-	8.0%	7.6%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	189.1	186.8	143.7	148.4	152.4	157.3	161.4	165.5
(+) Recovery of depreciations	Mn €	128.9	131.0	133.1	135.3	137.7	140.1	142.8	145.8
(=) Capital Remuneration	Mn €	318.0	317.8	276.8	283.7	290.1	297.4	304.2	311.3
Remuneration of Fully Depreciated Assets									
Weight on capital remuneration	-	2.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	0.2%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.7%	0.9%	1.0%	1.7%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	-9.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	-7.2%	1.9%	2.0%	2.7%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	66.8	68.0	69.4	71.2	73.2	75.2	77.3	79.4
Revenues of Allowed Incentives									
Weight on capital remuneration	-	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Weight on capital remuneration	-	1.6%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	5.1	3.5	3.0	3.1	3.2	3.3	3.3	3.4
Own Works									
Weight on capex	-	10.1%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	20.4	21.0	20.3	20.3	20.3	20.3	20.7	21.0

Sources: REN (2011-2013) and Author.

Electricity: Revenues Assumptions

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Average RAB	Mn €	2,993.8	3,069.8	3,146.2	3,222.9	3,299.5	3,375.8	3,451.4	3,526.1
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	169.7	174.0	178.2	182.5	186.8	191.1	195.4	199.6
(+) Recovery of depreciations	Mn €	149.0	152.5	156.3	160.4	164.8	169.6	174.8	180.5
(=) Capital Remuneration	Mn €	318.7	326.4	334.5	342.9	351.6	360.7	370.2	380.0
Remuneration of Fully Depreciated Assets									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	81.6	83.9	86.2	88.6	91.1	93.6	96.2	98.8
Revenues of Allowed Incentives									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Weight on capital remuneration	-	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2
Own Works									
Weight on capex	-	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2

Sources: REN (2011-2013) and Author.

Electricity: Revenues Assumptions

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Average RAB	Mn €	3,599.5	3,671.2	3,740.8	3,807.8	3,871.7	3,932.0	3,988.1	4,039.2
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	203.7	207.8	211.8	215.8	219.5	223.2	226.7	228.4
(+) Recovery of depreciations	Mn €	186.5	193.1	200.2	207.8	216.1	225.0	234.7	245.2
(=) Capital Remuneration	Mn €	390.3	400.9	412.0	423.6	435.6	448.2	461.4	473.6
Remuneration of Fully Depreciated Assets									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	101.6	104.4	107.3	110.2	113.3	116.4	119.6	122.9
Revenues of Allowed Incentives									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Weight on capital remuneration	-	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	4.3	4.4	4.5	4.7	4.8	4.9	5.1	5.2
Own Works									
Weight on capex	-	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	24.7	25.1	25.6	26.0	26.5	27.0	27.5	28.0

Sources: REN (2011-2013) and Author.

Electricity: Revenues Assumptions

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Average RAB	Mn €	4,084.6	4,123.5	4,154.9	4,177.8	4,208.2	4,250.6	4,284.5	4,301.1
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.6%	5.6%	5.6%	5.6%	5.6%
(=) RAB remuneration	Mn €	231.5	234.3	235.2	235.7	237.4	239.8	241.6	242.8
(+) Recovery of depreciations	Mn €	256.6	268.9	282.4	297.0	278.5	284.8	307.0	331.1
(=) Capital Remuneration	Mn €	488.0	503.2	517.6	532.8	516.0	524.5	548.6	573.9
Remuneration of Fully Depreciated Assets									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	126.3	129.8	133.4	137.1	140.9	144.8	148.8	152.9
Revenues of Allowed Incentives									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Weight on capital remuneration	-	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	5.4	5.5	5.7	5.9	5.7	5.8	6.0	6.3
Own Works									
Weight on capex	-	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	28.5	29.0	29.5	30.0	30.6	31.1	31.7	32.3

Sources: REN (2011-2013) and Author.

Electricity: Revenues Assumptions

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Average RAB	Mn €	4,298.5	4,274.1	4,225.1	4,148.0	4,038.7	3,891.9	3,700.8	3,456.6
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.6%	5.6%
(=) RAB remuneration	Mn €	243.5	241.9	239.4	235.4	228.5	220.1	208.4	194.5
(+) Recovery of depreciations	Mn €	357.7	386.9	419.4	455.8	496.9	544.0	598.9	664.0
(=) Capital Remuneration	Mn €	601.1	628.8	658.8	691.2	725.4	764.2	807.2	858.5
Remuneration of Fully Depreciated Assets									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	157.2	161.5	166.0	170.6	175.3	180.2	185.1	190.3
Revenues of Allowed Incentives									
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Weight on capital remuneration	-	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	6.6	6.9	7.2	7.6	8.0	8.4	8.9	9.4
Own Works									
Weight on capex	-	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	32.8	33.4	34.0	34.6	35.3	35.9	36.5	37.2

Sources: REN (2011-2013) and Author.

Electricity: Revenues Assumptions

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Average RAB	Mn €	3,147.0	2,754.1	2,249.2	1,578.1	595.9
(x) Allowed rate of return	-	5.6%	5.6%	5.5%	5.4%	5.4%
(=) RAB remuneration	Mn €	176.4	153.5	124.6	84.6	31.9
(+) Recovery of depreciations	Mn €	743.5	844.7	982.1	1,191.9	1,619.0
(=) Capital Remuneration	Mn €	920.0	998.3	1,106.7	1,276.5	1,650.9
Remuneration of Fully Depreciated Assets						
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex						
Change in consumptions	-	1.0%	1.0%	1.0%	1.0%	1.0%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	2.8%	2.8%	2.8%	2.8%	2.8%
Revenues	Mn €	195.5	200.9	206.5	212.2	218.1
Revenues of Allowed Incentives						
Weight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0
Other Revenues						
Weight on capital remuneration	-	1.1%	1.1%	1.1%	1.1%	1.1%
Other revenues	Mn €	10.1	11.0	12.2	14.0	18.1
Own Works						
Weight on capex	-	9.5%	9.5%	9.5%	9.5%	9.5%
Own works	Mn €	37.9	38.6	39.3	40.0	40.7

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Average RAB	Mn €	1,114.1	1,108.9	1,108.4	1,106.1	1,103.8	1,101.2	1,098.5	1,095.4
(x) Allowed rate of return	-	8.0%	8.0%	8.0%	8.0%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	88.9	88.7	88.7	88.5	62.4	62.5	62.3	62.1
(+) Recovery of depreciations	Mn €	52.8	52.9	52.9	53.0	53.1	53.3	53.6	53.9
(=) Capital Remuneration	Mn €	141.7	141.6	141.6	141.5	115.5	115.9	115.9	116.0
Remuneration of Fully Depreciated Assets									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	-5.0%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.7%	0.9%	1.0%	1.7%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	-1.5%	3.1%	3.2%	3.9%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	37.8	39.0	40.2	41.8	43.5	45.2	47.1	49.0
Revenues of Allowed Incentives									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Wheight on capital remuneration	-	2.0%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Other revenues	Mn €	2.8	3.3	3.3	3.3	2.7	2.7	2.7	2.7
Own Works									
Wheight on capex	-	11.9%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Own works	Mn €	4.9	5.0	4.6	4.6	4.6	4.6	4.6	4.6

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Average RAB	Mn €	1,092.0	1,088.1	1,083.8	1,079.2	1,074.8	1,070.5	1,066.0	1,061.2
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	61.9	61.7	61.4	61.1	60.9	60.6	60.3	60.1
(+) Recovery of depreciations	Mn €	54.3	54.8	55.3	56.0	56.9	57.9	59.0	60.4
(=) Capital Remuneration	Mn €	116.2	116.5	116.7	117.2	117.7	118.5	119.4	120.5
Remuneration of Fully Depreciated Assets									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	50.9	53.0	55.1	57.4	59.7	62.1	64.6	67.2
Revenues of Allowed Incentives									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Wheight on capital remuneration	-	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Other revenues	Mn €	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8
Own Works									
Wheight on capex	-	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Own works	Mn €	4.6	4.6	4.6	4.7	4.8	4.9	5.0	5.1

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Average RAB	Mn €	1,055.9	1,050.0	1,043.1	1,035.0	1,025.3	1,013.8	999.9	983.1
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
(=) RAB remuneration	Mn €	59.8	59.4	59.1	58.6	58.1	57.5	56.8	55.6
(+) Recovery of depreciations	Mn €	62.0	63.8	65.9	68.3	71.1	74.3	78.0	82.2
(=) Capital Remuneration	Mn €	121.8	123.3	125.0	127.0	129.2	131.8	134.8	137.8
Remuneration of Fully Depreciated Assets									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	69.9	72.8	75.7	78.8	81.9	85.3	88.7	92.3
Revenues of Allowed Incentives									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Wheight on capital remuneration	-	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Other revenues	Mn €	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.2
Own Works									
Wheight on capex	-	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Own works	Mn €	5.2	5.2	5.3	5.4	5.5	5.6	5.7	5.8

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Average RAB	Mn €	962.9	938.5	908.9	872.9	829.0	775.0	707.6	621.7
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.6%	5.6%	5.6%	5.6%	5.6%
(=) RAB remuneration	Mn €	54.6	53.3	51.5	49.3	46.8	43.7	39.9	35.1
(+) Recovery of depreciations	Mn €	87.2	93.0	99.9	108.1	118.2	130.9	147.5	170.5
(=) Capital Remuneration	Mn €	141.8	146.3	151.3	157.4	165.0	174.6	187.4	205.6
Remuneration of Fully Depreciated Assets									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	96.0	99.9	103.9	108.1	112.5	117.0	121.8	126.7
Revenues of Allowed Incentives									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Wheight on capital remuneration	-	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%	2.3%
Other revenues	Mn €	3.3	3.4	3.5	3.6	3.8	4.0	4.3	4.7
Own Works									
Wheight on capex	-	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%	9.1%
Own works	Mn €	5.9	6.1	6.2	6.3	6.4	6.5	6.6	6.7

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Average RAB	Mn €	507.6	339.5	237.0	237.0	237.0	237.0	237.0	237.0
(x) Allowed rate of return	-	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.6%	5.6%
(=) RAB remuneration	Mn €	28.8	19.2	13.4	13.4	13.4	13.4	13.3	13.3
(+) Recovery of depreciations	Mn €	206.5	281.3	0.0	0.0	0.0	0.0	0.0	0.0
(=) Capital Remuneration	Mn €	235.2	300.6	13.4	13.4	13.4	13.4	13.3	13.3
Remuneration of Fully Depreciated Assets									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex									
Change in consumptions	-	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	131.8	137.1	0.0	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Incentives									
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other Revenues									
Wheight on capital remuneration	-	2.3%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other revenues	Mn €	5.4	6.9	0.0	0.0	0.0	0.0	0.0	0.0
Own Works									
Wheight on capex	-	9.1%	9.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Own works	Mn €	6.9	7.0	0.0	0.0	0.0	0.0	0.0	0.0

Sources: REN (2011-2013) and Author.

Natural Gas: Revenues Assumptions

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Average RAB	Mn €	237.0	237.0	237.0	237.0	237.0
(x) Allowed rate of return	-	5.6%	5.6%	5.5%	5.4%	5.4%
(=) RAB remuneration	Mn €	13.3	13.2	13.1	12.7	12.7
(+) Recovery of depreciations	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Capital Remuneration	Mn €	13.3	13.2	13.1	12.7	12.7
Remuneration of Fully Depreciated Assets						
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%
Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Opex						
Change in consumptions	-	2.2%	2.2%	2.2%	2.2%	2.2%
GDP deflator	-	1.8%	1.8%	1.8%	1.8%	1.8%
Efficiency gains	-	0.0%	0.0%	0.0%	0.0%	0.0%
Nominal change	-	4.0%	4.0%	4.0%	4.0%	4.0%
Revenues	Mn €	0.0	0.0	0.0	0.0	0.0
Revenues of Allowed Incentives						
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%
Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0
Other Revenues						
Wheight on capital remuneration	-	0.0%	0.0%	0.0%	0.0%	0.0%
Other revenues	Mn €	0.0	0.0	0.0	0.0	0.0
Own Works						
Wheight on capex	-	0.0%	0.0%	0.0%	0.0%	0.0%
Own works	Mn €	0.0	0.0	0.0	0.0	0.0

Sources: REN (2011-2013) and Author.

Annex IV

Electricity: Regulated Asset Base

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Beginning of period	Mn €	2,338.0	2,411.7	2,501.3	2,581.1	2,658.8	2,734.1	2,807.0	2,881.0
(+) Transfers of the year	Mn €	202.6	220.6	213.0	213.0	213.0	213.0	216.8	220.7
(+) Depreciation (net of subsidies)	Mn €	128.9	131.0	133.1	135.3	137.7	140.1	142.8	145.8
(=) End of period	Mn €	2,411.7	2,501.3	2,581.1	2,658.8	2,734.1	2,807.0	2,881.0	2,955.9
(+) Fixed assets in progress	Mn €	7.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	2,419.3	2,501.3	2,581.1	2,658.8	2,734.1	2,807.0	2,881.0	2,955.9

Sources: REN (2011-2013), ERSE and Author.

Electricity: Regulated Asset Base

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Beginning of period	Mn €	2,955.9	3,031.6	3,107.9	3,184.5	3,261.2	3,337.7	3,413.8	3,489.0
(+) Transfers of the year	Mn €	224.7	228.8	232.9	237.1	241.3	245.7	250.1	254.6
(+) Depreciation (net of subsidies)	Mn €	149.0	152.5	156.3	160.4	164.8	169.6	174.8	180.5
(=) End of period	Mn €	3,031.6	3,107.9	3,184.5	3,261.2	3,337.7	3,413.8	3,489.0	3,563.2
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	3,031.6	3,107.9	3,184.5	3,261.2	3,337.7	3,413.8	3,489.0	3,563.2

Sources: REN (2011-2013), ERSE and Author.

Electricity: Regulated Asset Base

	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Beginning of period	3,563.2	3,635.8	3,706.6	3,775.0	3,840.6	3,902.9	3,961.2	4,014.9
(+) Transfers of the year	259.2	263.8	268.6	273.4	278.4	283.4	288.5	293.7
(+) Depreciation (net of subsidies)	186.5	193.1	200.2	207.8	216.1	225.0	234.7	245.2
(=) End of period	3,635.8	3,706.6	3,775.0	3,840.6	3,902.9	3,961.2	4,014.9	4,063.4
(+) Fixed assets in progress	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	3,635.8	3,706.6	3,775.0	3,840.6	3,902.9	3,961.2	4,014.9	4,063.4

Sources: REN (2011-2013), ERSE and Author.

Electricity: Regulated Asset Base

	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Beginning of period	4,063.4	4,105.8	4,141.2	4,168.6	4,187.0	4,229.5	4,271.6	4,297.3
(+) Transfers of the year	298.9	304.3	309.8	315.4	321.1	326.8	332.7	338.7
(+) Depreciation (net of subsidies)	256.6	268.9	282.4	297.0	278.5	284.8	307.0	331.1
(=) End of period	4,105.8	4,141.2	4,168.6	4,187.0	4,229.5	4,271.6	4,297.3	4,304.9
(+) Fixed assets in progress	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	4,105.8	4,141.2	4,168.6	4,187.0	4,229.5	4,271.6	4,297.3	4,304.9

Sources: REN (2011-2013), ERSE and Author.

Electricity: Regulated Asset Base

	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Beginning of period	4,304.9	4,292.0	4,256.1	4,194.0	4,102.0	3,975.4	3,808.3	3,593.2
(+) Transfers of the year	344.8	351.0	357.3	363.8	370.3	377.0	383.8	390.7
(+) Depreciation (net of subsidies)	357.7	386.9	419.4	455.8	496.9	544.0	598.9	664.0
(=) End of period	4,292.0	4,256.1	4,194.0	4,102.0	3,975.4	3,808.3	3,593.2	3,319.9
(+) Fixed assets in progress	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	4,292.0	4,256.1	4,194.0	4,102.0	3,975.4	3,808.3	3,593.2	3,319.9

Sources: REN (2011-2013), ERSE and Author.

Electricity: Regulated Asset Base

	2053 F	2054 F	2055 F	2056 F	2057 F
Beginning of period	3,319.9	2,974.1	2,534.2	1,964.2	1,191.9
(+) Transfers of the year	397.7	404.9	412.1	419.6	427.1
(+) Depreciation (net of subsidies)	743.5	844.7	982.1	1,191.9	1,619.0
(=) End of period	2,974.1	2,534.2	1,964.2	1,191.9	0.0
(+) Fixed assets in progress	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	2,974.1	2,534.2	1,964.2	1,191.9	0.0

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Beginning of period	Mn €	1,119.9	1,108.2	1,109.5	1,107.3	1,105.0	1,102.5	1,099.9	1,097.0
(+) Transfers of the year	Mn €	41.1	54.2	50.7	50.7	50.7	50.7	50.7	50.7
(+) Depreciation (net of subsidies)	Mn €	52.8	52.9	52.9	53.0	53.1	53.3	53.6	53.9
(=) End of period	Mn €	1,108.2	1,109.5	1,107.3	1,105.0	1,102.5	1,099.9	1,097.0	1,093.8
(+) Fixed assets in progress	Mn €	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	1,111.7	1,109.5	1,107.3	1,105.0	1,102.5	1,099.9	1,097.0	1,093.8

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Beginning of period	Mn €	1,093.8	1,090.2	1,086.1	1,081.4	1,077.0	1,072.7	1,068.3	1,063.7
(+) Transfers of the year	Mn €	50.7	50.7	50.7	51.6	52.5	53.5	54.5	55.4
(+) Depreciation (net of subsidies)	Mn €	54.3	54.8	55.3	56.0	56.9	57.9	59.0	60.4
(=) End of period	Mn €	1,090.2	1,086.1	1,081.4	1,077.0	1,072.7	1,068.3	1,063.7	1,058.7
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	1,090.2	1,086.1	1,081.4	1,077.0	1,072.7	1,068.3	1,063.7	1,058.7

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Beginning of period	Mn €	1,058.7	1,053.2	1,046.8	1,039.4	1,030.6	1,020.1	1,007.5	992.3
(+) Transfers of the year	Mn €	56.4	57.4	58.5	59.5	60.6	61.7	62.8	63.9
(+) Depreciation (net of subsidies)	Mn €	62.0	63.8	65.9	68.3	71.1	74.3	78.0	82.2
(=) End of period	Mn €	1,053.2	1,046.8	1,039.4	1,030.6	1,020.1	1,007.5	992.3	974.0
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	1,053.2	1,046.8	1,039.4	1,030.6	1,020.1	1,007.5	992.3	974.0

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Beginning of period	Mn €	974.0	951.9	925.1	892.7	853.2	804.9	745.1	670.1
(+) Transfers of the year	Mn €	65.1	66.3	67.4	68.7	69.9	71.2	72.4	73.7
(+) Depreciation (net of subsidies)	Mn €	87.2	93.0	99.9	108.1	118.2	130.9	147.5	170.5
(=) End of period	Mn €	951.9	925.1	892.7	853.2	804.9	745.1	670.1	573.3
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	951.9	925.1	892.7	853.2	804.9	745.1	670.1	573.3

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Beginning of period	Mn €	573.3	441.9	237.0	237.0	237.0	237.0	237.0	237.0
(+) Transfers of the year	Mn €	75.1	76.4	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net of subsidies)	Mn €	206.5	281.3	0.0	0.0	0.0	0.0	0.0	0.0
(=) End of period	Mn €	441.9	237.0	237.0	237.0	237.0	237.0	237.0	237.0
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	441.9	237.0	237.0	237.0	237.0	237.0	237.0	237.0

Sources: REN (2011-2013), ERSE and Author.

Natural Gas: Regulated Asset Base

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Beginning of period	Mn €	237.0	237.0	237.0	237.0	237.0
(+) Transfers of the year	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net of subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0
(=) End of period	Mn €	237.0	237.0	237.0	237.0	237.0
(+) Fixed assets in progress	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Total RAB	Mn €	237.0	237.0	237.0	237.0	237.0

Sources: REN (2011-2013), ERSE and Author.

Annex V

Electricity: EBIT Breakdown

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Capital remuneration	Mn €	318.0	317.8	276.8	283.7	290.1	297.4	304.2	311.3
(+) Remuneration of fully depreciated assets	Mn €	8.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	66.8	68.0	69.4	71.2	73.2	75.2	77.3	79.4
(+) Allowed incentives	Mn €	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.1	3.5	3.0	3.1	3.2	3.3	3.3	3.4
(+) Own works	Mn €	20.4	21.0	20.3	20.3	20.3	20.3	20.7	21.0
(=) Revenues	Mn €	423.1	410.4	369.5	378.4	386.7	396.2	405.5	415.2
(+) Operating expenses	Mn €	-63.6	-88.9	-69.4	-71.2	-73.2	-75.2	-77.3	-79.4
(=) EBITDA	Mn €	359.5	321.4	300.1	307.1	313.5	321.0	328.2	335.7
(+) Depreciation (net from subsidies)	Mn €	-129.9	-131.0	-133.1	-135.3	-137.7	-140.1	-142.8	-145.8
(=) EBIT	Mn €	229.6	190.4	167.0	171.8	175.9	180.9	185.3	190.0

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Fixed assets RAB related (net from subsidies)	Mn €	2,419.3	2,501.3	2,581.1	2,658.8	2,734.1	2,807.0	2,881.0	2,955.9
(+) Receivables and inventories	Mn €	181.9	176.5	158.9	162.7	166.3	170.4	174.4	178.5
(+) Payables	Mn €	-343.5	-399.3	-364.3	-366.7	-369.2	-371.9	-379.5	-387.3
(=) Invested Capital	Mn €	2,257.8	2,278.4	2,375.7	2,454.8	2,531.2	2,605.5	2,675.8	2,747.2

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
EBIT	Mn €	229.6	190.4	167.0	171.8	175.9	180.9	185.3	190.0
(+) Tax on EBIT	Mn €	-73.2	-66.6	-52.6	-54.1	-55.4	-57.0	-58.4	-59.8
(=) NOPLAT	Mn €	156.4	123.8	114.4	117.7	120.5	123.9	127.0	130.1
(+) Change in invested capital	Mn €	70.8	-20.6	-97.3	-79.1	-76.4	-74.3	-70.4	-71.3
(=) Unlevered free cash flow	Mn €	227.2	103.3	17.1	38.6	44.1	49.6	56.6	58.8
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	227.2	103.3	17.1	38.6	44.1	49.6	56.6	58.8

Electricity: EBIT Breakdown

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Capital remuneration	Mn €	318.7	326.4	334.5	342.9	351.6	360.7	370.2	380.0
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	81.6	83.9	86.2	88.6	91.1	93.6	96.2	98.8
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	3.5	3.6	3.7	3.8	3.9	4.0	4.1	4.2
(+) Own works	Mn €	21.4	21.8	22.2	22.6	23.0	23.4	23.8	24.2
(=) Revenues	Mn €	425.2	435.7	446.6	457.8	469.5	481.7	494.2	507.3
(+) Operating expenses	Mn €	-81.6	-83.9	-86.2	-88.6	-91.1	-93.6	-96.2	-98.8
(=) EBITDA	Mn €	343.6	351.8	360.4	369.2	378.5	388.1	398.1	408.5
(+) Depreciation (net from subsidies)	Mn €	-149.0	-152.5	-156.3	-160.4	-164.8	-169.6	-174.8	-180.5
(=) EBIT	Mn €	194.6	199.3	204.1	208.9	213.7	218.5	223.2	228.0

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Fixed assets RAB related (net from subsidies)	Mn €	3,031.6	3,107.9	3,184.5	3,261.2	3,337.7	3,413.8	3,489.0	3,563.2
(+) Receivables and inventories	Mn €	182.9	187.4	192.0	196.9	201.9	207.1	212.5	218.1
(+) Payables	Mn €	-395.2	-403.4	-411.7	-420.2	-428.8	-437.7	-446.7	-456.0
(=) Invested Capital	Mn €	2,819.3	2,891.9	2,964.9	3,037.9	3,110.8	3,183.2	3,254.8	3,325.3

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
EBIT	Mn €	194.6	199.3	204.1	208.9	213.7	218.5	223.2	228.0
(+) Tax on EBIT	Mn €	-61.3	-62.8	-64.3	-65.8	-67.3	-68.8	-70.3	-71.8
(=) NOPLAT	Mn €	133.3	136.5	139.8	143.1	146.4	149.6	152.9	156.2
(+) Change in invested capital	Mn €	-72.1	-72.6	-73.0	-73.1	-72.9	-72.4	-71.6	-70.5
(=) Unlevered free cash flow	Mn €	61.2	63.9	66.8	70.0	73.5	77.2	81.3	85.7
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	61.2	63.9	66.8	70.0	73.5	77.2	81.3	85.7

Electricity: EBIT Breakdown

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Capital remuneration	Mn €	390.3	400.9	412.0	423.6	435.6	448.2	461.4	473.6
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	101.6	104.4	107.3	110.2	113.3	116.4	119.6	122.9
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	4.3	4.4	4.5	4.7	4.8	4.9	5.1	5.2
(+) Own works	Mn €	24.7	25.1	25.6	26.0	26.5	27.0	27.5	28.0
(=) Revenues	Mn €	520.8	534.8	549.4	564.5	580.2	596.6	613.6	629.7
(+) Operating expenses	Mn €	-101.6	-104.4	-107.3	-110.2	-113.3	-116.4	-119.6	-122.9
(=) EBITDA	Mn €	419.2	430.5	442.1	454.3	466.9	480.1	494.0	506.8
(+) Depreciation (net from subsidies)	Mn €	-186.5	-193.1	-200.2	-207.8	-216.1	-225.0	-234.7	-245.2
(=) EBIT	Mn €	232.7	237.4	241.9	246.4	250.8	255.1	259.2	261.6

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Fixed assets RAB related (net from subsidies)	Mn €	3,635.8	3,706.6	3,775.0	3,840.6	3,902.9	3,961.2	4,014.9	4,063.4
(+) Receivables and inventories	Mn €	224.0	230.0	236.2	242.7	249.5	256.5	263.9	270.8
(+) Payables	Mn €	-465.4	-475.1	-484.9	-495.0	-505.3	-515.8	-526.5	-537.5
(=) Invested Capital	Mn €	3,394.4	3,461.5	3,526.3	3,588.4	3,647.1	3,701.9	3,752.3	3,796.7

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
EBIT	Mn €	232.7	237.4	241.9	246.4	250.8	255.1	259.2	261.6
(+) Tax on EBIT	Mn €	-73.3	-74.8	-76.2	-77.6	-79.0	-80.4	-81.7	-82.4
(=) NOPLAT	Mn €	159.4	162.6	165.7	168.8	171.8	174.8	177.6	179.2
(+) Change in invested capital	Mn €	-69.0	-67.1	-64.8	-62.0	-58.7	-54.8	-50.3	-44.4
(=) Unlevered free cash flow	Mn €	90.4	95.5	100.9	106.8	113.1	119.9	127.2	134.8
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	90.4	95.5	100.9	106.8	113.1	119.9	127.2	134.8

Electricity: EBIT Breakdown

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F	2045 F
Capital remuneration	Mn €	488.0	503.2	517.6	532.8	516.0	524.5	548.6	573.9	601.1
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	126.3	129.8	133.4	137.1	140.9	144.8	148.8	152.9	157.2
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.4	5.5	5.7	5.9	5.7	5.8	6.0	6.3	6.6
(+) Own works	Mn €	28.5	29.0	29.5	30.0	30.6	31.1	31.7	32.3	32.8
(=) Revenues	Mn €	648.2	667.6	686.2	705.8	693.1	706.3	735.1	765.4	797.7
(+) Operating expenses	Mn €	-126.3	-129.8	-133.4	-137.1	-140.9	-144.8	-148.8	-152.9	-157.2
(=) EBITDA	Mn €	521.9	537.7	552.8	568.6	552.2	561.4	586.3	612.5	640.6
(+) Depreciation (net from subsidies)	Mn €	-256.6	-268.9	-282.4	-297.0	-278.5	-284.8	-307.0	-331.1	-357.7
(=) EBIT	Mn €	265.3	268.8	270.4	271.6	273.7	276.7	279.3	281.3	282.9

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F	2045 F
Fixed assets RAB related (net from subsidies)	Mn €	4,105.8	4,141.2	4,168.6	4,187.0	4,229.5	4,271.6	4,297.3	4,304.9	4,292.0
(+) Receivables and inventories	Mn €	278.7	287.1	295.1	303.5	298.1	303.7	316.1	329.2	343.0
(+) Payables	Mn €	-548.7	-560.2	-571.9	-583.8	-596.0	-608.5	-621.3	-634.3	-647.7
(=) Invested Capital	Mn €	3,835.8	3,868.1	3,891.8	3,906.7	3,931.5	3,966.8	3,992.2	3,999.7	3,987.4

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F	2045 F
EBIT	Mn €	265.3	268.8	270.4	271.6	273.7	276.7	279.3	281.3	282.9
(+) Tax on EBIT	Mn €	-83.6	-84.7	-85.2	-85.6	-86.2	-87.1	-88.0	-88.6	-89.1
(=) NOPLAT	Mn €	181.7	184.1	185.2	186.1	187.5	189.5	191.3	192.7	193.8
(+) Change in invested capital	Mn €	-39.1	-32.3	-23.7	-14.8	-24.9	-35.2	-25.4	-7.6	12.3
(=) Unlevered free cash flow	Mn €	142.6	151.9	161.5	171.2	162.6	154.3	165.9	185.2	206.1
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	142.6	151.9	161.5	171.2	162.6	154.3	165.9	185.2	206.1

Electricity: EBIT Breakdown

	Units	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Capital remuneration	Mn €	628.8	658.8	691.2	725.4	764.2	807.2	858.5
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	161.5	166.0	170.6	175.3	180.2	185.1	190.3
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	6.9	7.2	7.6	8.0	8.4	8.9	9.4
(+) Own works	Mn €	33.4	34.0	34.6	35.3	35.9	36.5	37.2
(=) Revenues	Mn €	830.7	866.1	904.0	944.0	988.7	1,037.8	1,095.4
(+) Operating expenses	Mn €	-161.5	-166.0	-170.6	-175.3	-180.2	-185.1	-190.3
(=) EBITDA	Mn €	669.1	700.1	733.4	768.7	808.5	852.7	905.1
(+) Depreciation (net from subsidies)	Mn €	-386.9	-419.4	-455.8	-496.9	-544.0	-598.9	-664.0
(=) EBIT	Mn €	282.2	280.7	277.6	271.7	264.4	253.8	241.1

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Fixed assets RAB related (net from subsidies)	Mn €	4,256.1	4,194.0	4,102.0	3,975.4	3,808.3	3,593.2	3,319.9
(+) Receivables and inventories	Mn €	357.2	372.5	388.7	405.9	425.1	446.3	471.0
(+) Payables	Mn €	-661.3	-675.2	-689.4	-704.0	-718.8	-734.0	-749.5
(=) Invested Capital	Mn €	3,952.1	3,891.3	3,801.4	3,677.4	3,514.7	3,305.5	3,041.4

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
EBIT	Mn €	282.2	280.7	277.6	271.7	264.4	253.8	241.1
(+) Tax on EBIT	Mn €	-88.9	-88.4	-87.5	-85.6	-83.3	-79.9	-76.0
(=) NOPLAT	Mn €	193.3	192.3	190.2	186.1	181.1	173.8	165.2
(+) Change in invested capital	Mn €	35.4	60.8	90.0	124.0	162.7	209.2	264.1
(=) Unlevered free cash flow	Mn €	228.7	253.0	280.1	310.1	343.9	383.0	429.3
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	228.7	253.0	280.1	310.1	343.9	383.0	429.3

Electricity: EBIT Breakdown

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Capital remuneration	Mn €	920.0	998.3	1,106.7	1,276.5	1,650.9
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	195.5	200.9	206.5	212.2	218.1
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	10.1	11.0	12.2	14.0	18.1
(+) Own works	Mn €	37.9	38.6	39.3	40.0	40.7
(=) Revenues	Mn €	1,163.5	1,248.7	1,364.6	1,542.7	1,927.8
(+) Operating expenses	Mn €	-195.5	-200.9	-206.5	-212.2	-218.1
(=) EBITDA	Mn €	967.9	1,047.8	1,158.1	1,330.5	1,709.8
(+) Depreciation (net from subsidies)	Mn €	-743.5	-844.7	-982.1	-1,191.9	-1,619.0
(=) EBIT	Mn €	224.4	203.0	176.0	138.6	90.7

Sources: REN (2011-2013) and Author.

Electricity: Invested Capital

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Fixed assets RAB related (net from subsidies)	Mn €	2,974.1	2,534.2	1,964.2	1,191.9	0.0
(+) Receivables and inventories	Mn €	500.3	537.0	586.8	663.4	829.0
(+) Payables	Mn €	-765.4	-781.6	-798.2	-815.1	-832.4
(=) Invested Capital	Mn €	2,709.0	2,289.6	1,752.9	1,040.2	-3.4

Sources: REN (2011-2013) and Author.

Electricity: Unlevered Free Cash Flow

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
EBIT	Mn €	224.4	203.0	176.0	138.6	90.7
(+) Tax on EBIT	Mn €	-70.7	-64.0	-55.4	-43.7	-28.6
(=) NOPLAT	Mn €	153.7	139.1	120.6	95.0	62.2
(+) Change in invested capital	Mn €	332.4	419.4	536.7	712.7	1,043.6
(=) Unlevered free cash flow	Mn €	486.1	558.5	657.3	807.6	1,105.8
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	-3.4
(=) Flow to the firm	Mn €	486.1	558.5	657.3	807.6	1,102.4

Natural Gas: EBIT Breakdown

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Capital remuneration	Mn €	141.7	141.6	141.6	141.5	115.5	115.9	115.9	116.0
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	-11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	37.8	39.0	40.2	41.8	43.5	45.2	47.1	49.0
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.8	3.3	3.3	3.3	2.7	2.7	2.7	2.7
(+) Own works	Mn €	4.9	5.0	4.6	4.6	4.6	4.6	4.6	4.6
(=) Revenues	Mn €	176.8	188.8	189.7	191.2	166.3	168.4	170.3	172.3
(+) Operating expenses	Mn €	-36.7	-48.4	-40.2	-41.8	-43.5	-45.2	-47.1	-49.0
(=) EBITDA	Mn €	140.2	140.4	149.5	149.4	122.8	123.2	123.2	123.3
(+) Depreciation (net from subsidies)	Mn €	-51.9	-52.9	-52.9	-53.0	-53.1	-53.3	-53.6	-53.9
(=) EBIT	Mn €	88.3	87.5	96.6	96.4	69.7	69.8	69.6	69.4

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Fixed assets RAB related (net from subsidies)	Mn €	1,111.7	1,109.5	1,107.3	1,105.0	1,102.5	1,099.9	1,097.0	1,093.8
(+) Receivables and inventories	Mn €	76.0	81.2	81.6	82.2	71.5	72.4	73.2	74.1
(+) Payables	Mn €	-100.3	-132.3	-117.3	-119.3	-121.5	-123.8	-126.1	-128.6
(=) Invested Capital	Mn €	1,087.4	1,058.3	1,071.6	1,067.9	1,052.5	1,048.5	1,044.1	1,039.3

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
EBIT	Mn €	88.3	87.5	96.6	96.4	69.7	69.8	69.6	69.4
(+) Tax on EBIT	Mn €	-28.1	-30.5	-30.4	-30.4	-21.9	-22.0	-21.9	-21.9
(=) NOPLAT	Mn €	60.1	57.0	66.1	66.0	47.7	47.8	47.7	47.6
(+) Change in invested capital	Mn €	0.3	29.1	-13.2	3.7	15.3	4.0	4.4	4.8
(=) Unlevered free cash flow	Mn €	60.4	86.0	52.9	69.7	63.0	51.8	52.1	52.4
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	60.4	86.0	52.9	69.7	63.0	51.8	52.1	52.4

Natural Gas: EBIT Breakdown

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Capital remuneration	Mn €	116.2	116.5	116.7	117.2	117.7	118.5	119.4	120.5
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	50.9	53.0	55.1	57.4	59.7	62.1	64.6	67.2
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.8
(+) Own works	Mn €	4.6	4.6	4.6	4.7	4.8	4.9	5.0	5.1
(=) Revenues	Mn €	174.5	176.8	179.2	182.0	184.9	188.2	191.7	195.5
(+) Operating expenses	Mn €	-50.9	-53.0	-55.1	-57.4	-59.7	-62.1	-64.6	-67.2
(=) EBITDA	Mn €	123.5	123.8	124.1	124.6	125.2	126.1	127.1	128.3
(+) Depreciation (net from subsidies)	Mn €	-54.3	-54.8	-55.3	-56.0	-56.9	-57.9	-59.0	-60.4
(=) EBIT	Mn €	69.2	69.0	68.7	68.5	68.4	68.2	68.1	67.9

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Fixed assets RAB related (net from subsidies)	Mn €	1,090.2	1,086.1	1,081.4	1,077.0	1,072.7	1,068.3	1,063.7	1,058.7
(+) Receivables and inventories	Mn €	75.0	76.0	77.1	78.2	79.5	80.9	82.4	84.1
(+) Payables	Mn €	-131.1	-133.8	-136.6	-140.6	-144.8	-149.1	-153.6	-158.2
(=) Invested Capital	Mn €	1,034.1	1,028.3	1,021.9	1,014.6	1,007.4	1,000.1	992.5	984.6

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
EBIT	Mn €	69.2	69.0	68.7	68.5	68.4	68.2	68.1	67.9
(+) Tax on EBIT	Mn €	-21.8	-21.7	-21.6	-21.6	-21.5	-21.5	-21.4	-21.4
(=) NOPLAT	Mn €	47.4	47.3	47.1	46.9	46.8	46.7	46.6	46.5
(+) Change in invested capital	Mn €	5.2	5.8	6.4	7.3	7.2	7.3	7.6	8.0
(=) Unlevered free cash flow	Mn €	52.7	53.0	53.4	54.3	54.1	54.0	54.2	54.5
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	52.7	53.0	53.4	54.3	54.1	54.0	54.2	54.5

Natural Gas: EBIT Breakdown

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Capital remuneration	Mn €	121.8	123.3	125.0	127.0	129.2	131.8	134.8	137.8
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	69.9	72.8	75.7	78.8	81.9	85.3	88.7	92.3
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.2
(+) Own works	Mn €	5.2	5.2	5.3	5.4	5.5	5.6	5.7	5.8
(=) Revenues	Mn €	199.7	204.1	208.9	214.1	219.7	225.8	232.4	239.1
(+) Operating expenses	Mn €	-69.9	-72.8	-75.7	-78.8	-81.9	-85.3	-88.7	-92.3
(=) EBITDA	Mn €	129.7	131.3	133.2	135.3	137.8	140.5	143.7	146.8
(+) Depreciation (net from subsidies)	Mn €	-62.0	-63.8	-65.9	-68.3	-71.1	-74.3	-78.0	-82.2
(=) EBIT	Mn €	67.7	67.5	67.3	67.0	66.7	66.2	65.7	64.6

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Fixed assets RAB related (net from subsidies)	Mn €	1,053.2	1,046.8	1,039.4	1,030.6	1,020.1	1,007.5	992.3	974.0
(+) Receivables and inventories	Mn €	85.9	87.8	89.8	92.1	94.5	97.1	99.9	102.8
(+) Payables	Mn €	-163.0	-168.0	-173.1	-178.4	-183.9	-189.6	-195.5	-201.5
(=) Invested Capital	Mn €	976.0	966.6	956.1	944.2	930.6	915.0	896.7	875.3

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
EBIT	Mn €	67.7	67.5	67.3	67.0	66.7	66.2	65.7	64.6
(+) Tax on EBIT	Mn €	-21.3	-21.3	-21.2	-21.1	-21.0	-20.9	-20.7	-20.4
(=) NOPLAT	Mn €	46.4	46.3	46.1	45.9	45.7	45.4	45.0	44.3
(+) Change in invested capital	Mn €	8.6	9.4	10.5	11.9	13.6	15.7	18.2	21.5
(=) Unlevered free cash flow	Mn €	55.0	55.7	56.6	57.8	59.2	61.0	63.2	65.7
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	55.0	55.7	56.6	57.8	59.2	61.0	63.2	65.7

Natural Gas: EBIT Breakdown

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Capital remuneration	Mn €	141.8	146.3	151.3	157.4	165.0	174.6	187.4	205.6
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	96.0	99.9	103.9	108.1	112.5	117.0	121.8	126.7
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	3.3	3.4	3.5	3.6	3.8	4.0	4.3	4.7
(+) Own works	Mn €	5.9	6.1	6.2	6.3	6.4	6.5	6.6	6.7
(=) Revenues	Mn €	247.0	255.6	264.9	275.4	287.7	302.2	320.1	343.7
(+) Operating expenses	Mn €	-96.0	-99.9	-103.9	-108.1	-112.5	-117.0	-121.8	-126.7
(=) EBITDA	Mn €	151.0	155.8	161.0	167.3	175.2	185.2	198.3	217.1
(+) Depreciation (net from subsidies)	Mn €	-87.2	-93.0	-99.9	-108.1	-118.2	-130.9	-147.5	-170.5
(=) EBIT	Mn €	63.8	62.8	61.1	59.2	57.0	54.2	50.8	46.6

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Fixed assets RAB related (net from subsidies)	Mn €	951.9	925.1	892.7	853.2	804.9	745.1	670.1	573.3
(+) Receivables and inventories	Mn €	106.2	109.9	113.9	118.4	123.7	129.9	137.6	147.8
(+) Payables	Mn €	-207.8	-214.4	-221.1	-228.1	-235.3	-242.8	-250.6	-258.6
(=) Invested Capital	Mn €	850.2	820.7	785.5	743.6	693.3	632.3	557.2	462.6

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
EBIT	Mn €	63.8	62.8	61.1	59.2	57.0	54.2	50.8	46.6
(+) Tax on EBIT	Mn €	-20.1	-19.8	-19.2	-18.6	-17.9	-17.1	-16.0	-14.7
(=) NOPLAT	Mn €	43.7	43.0	41.9	40.5	39.0	37.2	34.8	31.9
(+) Change in invested capital	Mn €	25.0	29.5	35.2	41.9	50.3	61.0	75.1	94.6
(=) Unlevered free cash flow	Mn €	68.7	72.5	77.1	82.5	89.3	98.2	109.9	126.5
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	68.7	72.5	77.1	82.5	89.3	98.2	109.9	126.5

Natural Gas: EBIT Breakdown

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Capital remuneration	Mn €	235.2	300.6	13.4	13.4	13.4	13.4	13.3	13.3
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	131.8	137.1	0.0	0.0	0.0	0.0	0.0	0.0
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.4	6.9	0.0	0.0	0.0	0.0	0.0	0.0
(+) Own works	Mn €	6.9	7.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Revenues	Mn €	379.3	451.6	13.4	13.4	13.4	13.4	13.3	13.3
(+) Operating expenses	Mn €	-131.8	-137.1	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBITDA	Mn €	247.5	314.5	13.4	13.4	13.4	13.4	13.3	13.3
(+) Depreciation (net from subsidies)	Mn €	-206.5	-281.3	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	41.0	33.1	13.4	13.4	13.4	13.4	13.3	13.3

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Fixed assets RAB related (net from subsidies)	Mn €	441.9	237.0	237.0	237.0	237.0	237.0	237.0	237.0
(+) Receivables and inventories	Mn €	163.1	194.2	5.8	5.8	5.8	5.8	5.7	5.7
(+) Payables	Mn €	-266.9	-275.5	0.0	0.0	0.0	0.0	0.0	0.0
(=) Invested Capital	Mn €	338.1	155.7	242.8	242.8	242.8	242.8	242.7	242.7

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
EBIT	Mn €	41.0	33.1	0.0	0.0	0.0	0.0	0.0	0.0
(+) Tax on EBIT	Mn €	-12.9	-10.4	0.0	0.0	0.0	0.0	0.0	0.0
(=) NOPLAT	Mn €	28.1	22.7	0.0	0.0	0.0	0.0	0.0	0.0
(+) Change in invested capital	Mn €	124.4	182.5	0.0	0.0	0.0	0.0	0.0	0.0
(=) Unlevered free cash flow	Mn €	152.5	205.1	0.0	0.0	0.0	0.0	0.0	0.0
(+) Terminal value	Mn €	0.0	155.7	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	152.5	360.8	0.0	0.0	0.0	0.0	0.0	0.0

Natural Gas: EBIT Breakdown

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Capital remuneration	Mn €	13.3	13.2	13.1	12.7	12.7
(+) Remuneration of fully depreciated assets	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Allowed incentives	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Own works	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Revenues	Mn €	13.3	13.2	13.1	12.7	12.7
(+) Operating expenses	Mn €	0.0	0.0	0.0	0.0	0.0
(=) EBITDA	Mn €	13.3	13.2	13.1	12.7	12.7
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	13.3	13.2	13.1	12.7	12.7

Sources: REN (2011-2013) and Author.

Natural Gas: Invested Capital

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Fixed assets RAB related (net from subsidies)	Mn €	237.0	237.0	237.0	237.0	237.0
(+) Receivables and inventories	Mn €	5.7	5.7	5.6	5.5	5.5
(+) Payables	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Invested Capital	Mn €	242.7	242.7	242.6	242.5	242.5

Sources: REN (2011-2013) and Author.

Natural Gas: Unlevered Free Cash Flow

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
EBIT	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Tax on EBIT	Mn €	0.0	0.0	0.0	0.0	0.0
(=) NOPLAT	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Change in invested capital	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Unlevered free cash flow	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	0.0	0.0	0.0	0.0	0.0

Telecom: EBIT Breakdown

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.4	5.3	5.0	5.1	4.9	5.0	5.1	5.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	5.4	5.3	5.0	5.1	4.9	5.0	5.1	5.2
(+) Operating expenses	Mn €	-2.6	-2.4	-2.2	-2.2	-2.2	-2.2	-2.3	-2.3
(=) EBITDA	Mn €	2.8	3.0	2.8	2.8	2.7	2.8	2.9	2.9
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	2.8	2.9	2.8	2.8	2.7	2.8	2.9	2.9

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	2.3	2.3	2.1	2.2	2.1	2.2	2.2	2.2
(+) Payables	Mn €	-3.4	-3.0	-2.8	-2.9	-2.8	-2.9	-2.9	-3.0
(=) Employed Capital	Mn €	-1.0	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
EBIT	Mn €	2.8	2.9	2.8	2.8	2.7	2.8	2.9	2.9
(+) Tax on EBIT	Mn €	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9	-0.9
(=) NOPLAT	Mn €	1.9	2.0	1.9	1.9	1.9	1.9	2.0	2.0
(+) Change in invested capital	Mn €	1.2	-0.3	0.0	0.0	0.0	0.0	0.0	0.0
(=) Unlevered free cash flow	Mn €	3.1	1.7	1.8	1.9	1.9	1.9	2.0	2.0
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	3.1	1.7	1.8	1.9	1.9	1.9	2.0	2.0

Telecom: EBIT Breakdown

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	5.3	5.4	5.6	5.7	5.8	5.9	6.1	6.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	5.3	5.4	5.6	5.7	5.8	5.9	6.1	6.2
(+) Operating expenses	Mn €	-2.4	-2.4	-2.5	-2.5	-2.6	-2.6	-2.7	-2.8
(=) EBITDA	Mn €	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.5
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.5

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.7
(+) Payables	Mn €	-3.0	-3.1	-3.2	-3.2	-3.3	-3.4	-3.5	-3.6
(=) Employed Capital	Mn €	-0.7	-0.8	-0.8	-0.8	-0.8	-0.8	-0.9	-0.9

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
EBIT	Mn €	3.0	3.0	3.1	3.2	3.2	3.3	3.4	3.5
(+) Tax on EBIT	Mn €	-0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.1	-1.1
(=) NOPLAT	Mn €	2.0	2.1	2.1	2.2	2.2	2.3	2.3	2.4
(+) Change in invested capital	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Unlevered free cash flow	Mn €	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4

Telecom: EBIT Breakdown

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	6.4	6.6	6.7	6.9	7.1	7.3	7.5	7.7
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	6.4	6.6	6.7	6.9	7.1	7.3	7.5	7.7
(+) Operating expenses	Mn €	-2.8	-2.9	-3.0	-3.1	-3.1	-3.2	-3.3	-3.4
(=) EBITDA	Mn €	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	2.8	2.8	2.9	3.0	3.1	3.1	3.2	3.3
(+) Payables	Mn €	-3.6	-3.7	-3.8	-3.9	-4.1	-4.2	-4.3	-4.4
(=) Employed Capital	Mn €	-0.9	-0.9	-0.9	-1.0	-1.0	-1.0	-1.1	-1.1

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
EBIT	Mn €	3.6	3.7	3.8	3.9	4.0	4.1	4.2	4.3
(+) Tax on EBIT	Mn €	-1.1	-1.2	-1.2	-1.2	-1.2	-1.3	-1.3	-1.4
(=) NOPLAT	Mn €	2.4	2.5	2.6	2.6	2.7	2.8	2.9	2.9
(+) Change in invested capital	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Unlevered free cash flow	Mn €	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3.0
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3.0

Telecom: EBIT Breakdown

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	7.9	8.2	8.4	8.7	8.7	9.0	9.4	9.8
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	7.9	8.2	8.4	8.7	8.7	9.0	9.4	9.8
(+) Operating expenses	Mn €	-3.5	-3.6	-3.7	-3.9	-3.9	-4.0	-4.1	-4.4
(=) EBITDA	Mn €	4.4	4.6	4.7	4.9	4.9	5.0	5.2	5.5
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	4.4	4.6	4.7	4.9	4.9	5.0	5.2	5.5

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	3.4	3.5	3.6	3.7	3.7	3.9	4.0	4.2
(+) Payables	Mn €	-4.5	-4.7	-4.8	-5.0	-5.0	-5.1	-5.3	-5.6
(=) Employed Capital	Mn €	-1.1	-1.2	-1.2	-1.2	-1.2	-1.3	-1.3	-1.4

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
EBIT	Mn €	4.4	4.6	4.7	4.9	4.9	5.0	5.2	5.5
(+) Tax on EBIT	Mn €	-1.4	-1.4	-1.5	-1.5	-1.5	-1.6	-1.6	-1.7
(=) NOPLAT	Mn €	3.0	3.1	3.2	3.3	3.3	3.4	3.6	3.8
(+) Change in invested capital	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1
(=) Unlevered free cash flow	Mn €	3.1	3.2	3.3	3.4	3.3	3.5	3.6	3.8
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	3.1	3.2	3.3	3.4	3.3	3.5	3.6	3.8

Telecom: EBIT Breakdown

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	10.5	11.4	7.8	8.1	8.5	8.9	9.3	9.8
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	10.5	11.4	7.8	8.1	8.5	8.9	9.3	9.8
(+) Operating expenses	Mn €	-4.6	-5.0	-3.5	-3.6	-3.8	-3.9	-4.1	-4.4
(=) EBITDA	Mn €	5.8	6.4	4.4	4.5	4.7	5.0	5.2	5.5
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	5.8	6.4	4.4	4.5	4.7	5.0	5.2	5.5

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	4.5	4.9	3.4	3.5	3.7	3.8	4.0	4.2
(+) Payables	Mn €	-6.0	-6.5	-4.5	-4.6	-4.8	-5.1	-5.3	-5.6
(=) Employed Capital	Mn €	-1.5	-1.6	-1.1	-1.1	-1.2	-1.2	-1.3	-1.4

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
EBIT	Mn €	5.8	6.4	4.4	4.5	4.7	5.0	5.2	5.5
(+) Tax on EBIT	Mn €	-1.8	-2.0	-1.4	-1.4	-1.5	-1.6	-1.6	-1.7
(=) NOPLAT	Mn €	4.0	4.4	3.0	3.1	3.2	3.4	3.6	3.8
(+) Change in invested capital	Mn €	0.1	0.1	-0.5	0.0	0.0	0.1	0.1	0.1
(=) Unlevered free cash flow	Mn €	4.1	4.5	2.5	3.2	3.3	3.5	3.6	3.8
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	4.1	4.5	2.5	3.2	3.3	3.5	3.6	3.8

Telecom: EBIT Breakdown

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	10.4	11.2	12.2	13.8	17.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	10.4	11.2	12.2	13.8	17.2
(+) Operating expenses	Mn €	-4.6	-5.0	-5.4	-6.1	-7.6
(=) EBITDA	Mn €	5.8	6.3	6.8	7.7	9.6
(+) Depreciation (net from subsidies)	Mn €	0.0	0.0	0.0	0.0	0.0
(=) EBIT	Mn €	5.8	6.3	6.8	7.7	9.6

Sources: REN (2011-2013) and Author.

Telecom: Invested Capital

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Fixed assets	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Receivables and inventories	Mn €	4.5	4.8	5.3	5.9	7.4
(+) Payables	Mn €	-6.0	-6.4	-7.0	-7.9	-9.8
(=) Employed Capital	Mn €	-1.5	-1.6	-1.7	-1.9	-2.4

Sources: REN (2011-2013) and Author.

Telecom: Unlevered Free Cash Flow

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
EBIT	Mn €	5.8	6.3	6.8	7.7	9.6
(+) Tax on EBIT	Mn €	-1.8	-2.0	-2.1	-2.4	-3.0
(=) NOPLAT	Mn €	4.0	4.3	4.7	5.3	6.6
(+) Change in invested capital	Mn €	0.1	0.1	0.1	0.2	0.5
(=) Unlevered free cash flow	Mn €	4.1	4.4	4.8	5.5	7.1
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	-2.4
(=) Flow to the firm	Mn €	4.1	4.4	4.8	5.5	4.6

Other: EBIT Breakdown

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.1	2.3	2.1	2.2	2.1	2.2	2.2	2.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	2.1	2.3	2.1	2.2	2.1	2.2	2.2	2.2
(+) Operating expenses	Mn €	-2.1	-2.3	-2.1	-2.2	-2.1	-2.2	-2.2	-2.2
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
(=) EBIT	Mn €	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Fixed assets	Mn €	15.4	15.4	15.3	15.3	15.2	15.1	15.1	15.0
(+) Receivables and inventories	Mn €	0.9	1.0	0.9	0.9	0.9	0.9	0.9	1.0
(+) Payables	Mn €	-0.4	-3.4	-3.2	-3.2	-3.2	-3.2	-3.3	-3.4
(=) Employed Capital	Mn €	15.9	13.0	13.1	13.0	12.9	12.8	12.7	12.6

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
EBIT	Mn €	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
(+) Tax on EBIT	Mn €	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
(=) NOPLAT	Mn €	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3
(+) Change in invested capital	Mn €	1.1	2.9	-0.1	0.1	0.0	0.1	0.1	0.1
(=) Unlevered free cash flow	Mn €	0.8	2.6	-0.3	-0.2	-0.3	-0.2	-0.2	-0.2
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	0.8	2.6	-0.3	-0.2	-0.3	-0.2	-0.2	-0.2

Other: EBIT Breakdown

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.7
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	2.3	2.3	2.4	2.4	2.5	2.6	2.6	2.7
(+) Operating expenses	Mn €	-2.3	-2.3	-2.4	-2.4	-2.5	-2.6	-2.6	-2.7
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
(=) EBIT	Mn €	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Fixed assets	Mn €	14.9	14.8	14.8	14.7	14.6	14.5	14.4	14.3
(+) Receivables and inventories	Mn €	1.0	1.0	1.0	1.0	1.1	1.1	1.1	1.2
(+) Payables	Mn €	-3.4	-3.5	-3.6	-3.7	-3.7	-3.8	-3.9	-4.0
(=) Employed Capital	Mn €	12.5	12.3	12.2	12.1	11.9	11.8	11.6	11.4

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
EBIT	Mn €	-0.4	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
(+) Tax on EBIT	Mn €	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2
(=) NOPLAT	Mn €	-0.3	-0.3	-0.3	-0.3	-0.3	-0.3	-0.4	-0.4
(+) Change in invested capital	Mn €	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2
(=) Unlevered free cash flow	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2

Other: EBIT Breakdown

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	2.7	2.8	2.9	3.0	3.0	3.1	3.2	3.3
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	2.7	2.8	2.9	3.0	3.0	3.1	3.2	3.3
(+) Operating expenses	Mn €	-2.7	-2.8	-2.9	-3.0	-3.0	-3.1	-3.2	-3.3
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7
(=) EBIT	Mn €	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Fixed assets	Mn €	14.2	14.0	13.9	13.8	13.6	13.4	13.3	13.1
(+) Receivables and inventories	Mn €	1.2	1.2	1.2	1.3	1.3	1.3	1.4	1.4
(+) Payables	Mn €	-4.1	-4.2	-4.3	-4.4	-4.5	-4.7	-4.8	-4.9
(=) Employed Capital	Mn €	11.2	11.0	10.8	10.6	10.4	10.1	9.9	9.6

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
EBIT	Mn €	-0.5	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7
(+) Tax on EBIT	Mn €	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
(=) NOPLAT	Mn €	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4	-0.5	-0.5
(+) Change in invested capital	Mn €	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.3
(=) Unlevered free cash flow	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2

Other: EBIT Breakdown

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	3.4	3.5	3.6	3.7	3.7	3.8	4.0	4.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	3.4	3.5	3.6	3.7	3.7	3.8	4.0	4.2
(+) Operating expenses	Mn €	-3.4	-3.5	-3.6	-3.7	-3.7	-3.8	-4.0	-4.2
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-0.7	-0.7	-0.8	-0.8	-0.8	-0.9	-0.9	-0.9
(=) EBIT	Mn €	-0.7	-0.7	-0.8	-0.8	-0.8	-0.9	-0.9	-0.9

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Fixed assets	Mn €	12.9	12.6	12.4	12.1	11.9	11.6	11.2	10.9
(+) Receivables and inventories	Mn €	1.5	1.5	1.6	1.6	1.6	1.7	1.7	1.8
(+) Payables	Mn €	-5.0	-5.2	-5.3	-5.5	-5.5	-5.7	-5.9	-6.2
(=) Employed Capital	Mn €	9.3	9.0	8.6	8.3	8.0	7.6	7.1	6.5

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
EBIT	Mn €	-0.7	-0.7	-0.8	-0.8	-0.8	-0.9	-0.9	-0.9
(+) Tax on EBIT	Mn €	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3
(=) NOPLAT	Mn €	-0.5	-0.5	-0.5	-0.5	-0.6	-0.6	-0.6	-0.6
(+) Change in invested capital	Mn €	0.3	0.3	0.3	0.4	0.3	0.4	0.5	0.6
(=) Unlevered free cash flow	Mn €	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1

Other: EBIT Breakdown

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	4.5	4.9	3.4	3.5	3.6	3.8	4.0	4.2
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	4.5	4.9	3.4	3.5	3.6	3.8	4.0	4.2
(+) Operating expenses	Mn €	-4.5	-4.9	-3.4	-3.5	-3.6	-3.8	-4.0	-4.2
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-1.0	-1.0	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5
(=) EBIT	Mn €	-1.0	-1.0	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Fixed assets	Mn €	10.5	10.0	9.5	9.0	8.4	7.8	7.0	6.2
(+) Receivables and inventories	Mn €	1.9	2.1	1.4	1.5	1.6	1.6	1.7	1.8
(+) Payables	Mn €	-6.5	-7.1	-5.1	-5.3	-5.5	-5.7	-6.0	-6.3
(=) Employed Capital	Mn €	5.9	5.1	5.9	5.2	4.5	3.7	2.8	1.7

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
EBIT	Mn €	-1.0	-1.0	-1.1	-1.1	-1.2	-1.3	-1.4	-1.5
(+) Tax on EBIT	Mn €	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.5
(=) NOPLAT	Mn €	-0.7	-0.7	-0.7	-0.8	-0.8	-0.9	-0.9	-1.0
(+) Change in invested capital	Mn €	0.6	0.8	-0.8	0.7	0.7	0.8	0.9	1.0
(=) Unlevered free cash flow	Mn €	0.0	0.1	-1.6	-0.1	-0.1	-0.1	0.0	0.0
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
(=) Flow to the firm	Mn €	0.0	0.1	-1.6	-0.1	-0.1	-0.1	0.0	0.0

Other: EBIT Breakdown

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Capital remuneration	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Remuneration of fully depreciated assets	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Tariff smoothing effect	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Revenues of opex	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Allowed incentives	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(+) Interest on tariff deviation	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Other revenues	Mn €	4.5	4.8	5.2	5.9	7.4
(+) Own works	Mn €	n.a.	n.a.	n.a.	n.a.	n.a.
(=) Revenues	Mn €	4.5	4.8	5.2	5.9	7.4
(+) Operating expenses	Mn €	-4.5	-4.8	-5.2	-5.9	-7.4
(=) EBITDA	Mn €	0.0	0.0	0.0	0.0	0.0
(+) Depreciation (net from subsidies)	Mn €	-1.6	-1.7	-1.6	-2.0	-2.7
(=) EBIT	Mn €	-1.6	-1.7	-1.6	-2.0	-2.7

Sources: REN (2011-2013) and Author.

Other: Invested Capital

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Fixed assets	Mn €	5.3	4.2	3.3	2.0	0.0
(+) Receivables and inventories	Mn €	1.9	2.1	2.3	2.5	3.2
(+) Payables	Mn €	-6.6	-7.1	-7.7	-8.5	-10.5
(=) Employed Capital	Mn €	0.5	-0.8	-2.1	-4.0	-7.3

Sources: REN (2011-2013) and Author.

Other: Unlevered Free Cash Flow

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
EBIT	Mn €	-1.6	-1.7	-1.6	-2.0	-2.7
(+) Tax on EBIT	Mn €	0.5	0.5	0.5	0.6	0.8
(=) NOPLAT	Mn €	-1.1	-1.2	-1.1	-1.4	-1.8
(+) Change in invested capital	Mn €	1.2	1.3	1.3	1.9	3.3
(=) Unlevered free cash flow	Mn €	0.1	0.2	0.2	0.5	1.4
(+) Terminal value	Mn €	0.0	0.0	0.0	0.0	-7.3
(=) Flow to the firm	Mn €	0.1	0.2	0.2	0.5	-5.9

Annex VI

Electricity: Firm Value Calculation

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Flow to the firm	Mn €	227.2	103.3	17.1	38.6	44.1	49.6	56.6	58.8
Discount factor	#	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
PV [flow to the firm]	Mn €	196.4	85.9	13.7	29.8	32.7	35.4	38.9	38.9
Firm value	Mn €	2,907.08	2,916.7	3,012.6	3,090.9	3,166.5	3,240.0	3,309.4	3,379.1

Electricity: Firm Value Calculation

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Flow to the firm	Mn €	61.2	63.9	66.8	70.0	73.5	77.2	81.3	85.7
Discount factor	#	0.64	0.61	0.59	0.57	0.55	0.53	0.51	0.49
PV [flow to the firm]	Mn €	39.0	39.2	39.5	39.8	40.2	40.7	41.2	41.8
Firm value	Mn €	3,449.1	3,519.1	3,588.9	3,658.1	3,726.4	3,793.7	3,859.5	3,923.5

Electricity: Firm Value Calculation

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Flow to the firm	Mn €	90.4	95.5	100.9	106.8	113.1	119.9	127.2	134.8
Discount factor	#	0.47	0.45	0.44	0.42	0.40	0.39	0.37	0.36
PV [flow to the firm]	Mn €	42.5	43.2	44.0	44.8	45.7	46.6	47.6	48.5
Firm value	Mn €	3,985.2	4,044.3	4,100.3	4,152.6	4,200.8	4,244.3	4,282.3	4,313.4

Electricity: Firm Value Calculation

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Flow to the firm	Mn €	142.6	151.9	161.5	171.2	162.6	154.3	165.9	185.2
Discount factor	#	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27
PV [flow to the firm]	Mn €	49.4	50.7	51.9	53.0	48.4	44.2	45.8	49.2
Firm value	Mn €	4,338.2	4,355.2	4,362.6	4,360.0	4,365.9	4,380.3	4,383.6	4,368.0

Electricity: Firm Value Calculation

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Flow to the firm	Mn €	206.1	228.7	253.0	280.1	310.1	343.9	383.0	429.3
Discount factor	#	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.20
PV [flow to the firm]	Mn €	52.7	56.3	60.0	63.9	68.1	72.7	78.0	84.2
Firm value	Mn €	4,331.3	4,270.5	4,183.3	4,065.8	3,913.2	3,721.0	3,481.5	3,186.4

Electricity: Firm Value Calculation

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Flow to the firm	Mn €	486.1	558.5	657.3	807.6	1,102.4
Discount factor	#	0.19	0.18	0.18	0.17	0.16
PV [flow to the firm]	Mn €	91.8	101.6	115.2	136.5	179.7
Firm value	Mn €	2,822.7	2,371.9	1,804.7	1,063.3	0.0

Natural Gas: Firm Value Calculation

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Flow to the firm	Mn €	60.4	86.0	52.9	69.7	63.0	51.8	52.1	52.4
Discount factor	#	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
PV [flow to the firm]	Mn €	52.2	71.6	42.4	53.8	46.8	37.0	35.9	34.7
Firm value	Mn €	1,275.4	1,238.9	1,234.0	1,212.1	1,196.0	1,190.7	1,184.8	1,178.5

Natural Gas: Firm Value Calculation

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Flow to the firm	Mn €	52.7	53.0	53.4	54.3	54.1	54.0	54.2	54.5
Discount factor	#	0.64	0.61	0.59	0.57	0.55	0.53	0.51	0.49
PV [flow to the firm]	Mn €	33.6	32.5	31.6	30.9	29.6	28.5	27.5	26.6
Firm value	Mn €	1,171.6	1,164.1	1,155.8	1,146.4	1,136.8	1,126.8	1,116.3	1,105.1

Natural Gas: Firm Value Calculation

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Flow to the firm	Mn €	55.0	55.7	56.6	57.8	59.2	61.0	63.2	65.7
Discount factor	#	0.47	0.45	0.44	0.42	0.40	0.39	0.37	0.36
PV [flow to the firm]	Mn €	25.8	25.2	24.7	24.2	23.9	23.7	23.6	23.7
Firm value	Mn €	1,093.0	1,079.7	1,065.0	1,048.6	1,030.1	1,009.1	985.2	957.6

Natural Gas: Firm Value Calculation

	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Flow to the firm	68.7	72.5	77.1	82.5	89.3	98.2	109.9	126.5
Discount factor	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27
PV [flow to the firm]	23.8	24.2	24.8	25.5	26.6	28.1	30.3	33.6
Firm value	926.0	889.6	847.0	797.3	738.8	669.2	585.1	481.2

Natural Gas: Firm Value Calculation

	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Flow to the firm	152.5	360.8	0.0	0.0	0.0	0.0	0.0	0.0
Discount factor	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.20
PV [flow to the firm]	39.0	88.9	0.0	0.0	0.0	0.0	0.0	0.0
Firm value	347.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Natural Gas: Firm Value Calculation

	2053 F	2054 F	2055 F	2056 F	2057 F
Flow to the firm	0.0	0.0	0.0	0.0	0.0
Discount factor	0.19	0.18	0.18	0.17	0.16
PV [flow to the firm]	0.0	0.0	0.0	0.0	0.0
Firm value	0.0	0.0	0.0	0.0	0.0

Telecom: Firm Value Calculation

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Flow to the firm	Mn €	3.1	1.7	1.8	1.9	1.9	1.9	2.0	2.0
Discount factor	#	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
PV [flow to the firm]	Mn €	2.6	1.4	1.5	1.5	1.4	1.4	1.4	1.3
Firm value	Mn €	54.831	55.2	55.5	55.7	56.0	56.3	56.5	56.7

Telecom: Firm Value Calculation

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Flow to the firm	Mn €	2.1	2.1	2.1	2.2	2.2	2.3	2.3	2.4
Discount factor	#	0.64	0.61	0.59	0.57	0.55	0.53	0.51	0.49
PV [flow to the firm]	Mn €	1.3	1.3	1.3	1.2	1.2	1.2	1.2	1.2
Firm value	Mn €	56.8	56.9	57.0	57.0	57.0	56.9	56.8	56.6

Telecom: Firm Value Calculation

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Flow to the firm	Mn €	2.5	2.5	2.6	2.7	2.7	2.8	2.9	3.0
Discount factor	#	0.47	0.45	0.44	0.42	0.40	0.39	0.37	0.36
PV [flow to the firm]	Mn €	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1
Firm value	Mn €	56.3	56.0	55.5	55.0	54.4	53.7	52.9	52.0

Telecom: Firm Value Calculation

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Flow to the firm	Mn €	3.1	3.2	3.3	3.4	3.3	3.5	3.6	3.8
Discount factor	#	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27
PV [flow to the firm]	Mn €	1.1	1.1	1.0	1.0	1.0	1.0	1.0	1.0
Firm value	Mn €	50.9	49.7	48.4	46.9	45.4	43.7	41.7	39.5

Telecom: Firm Value Calculation

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Flow to the firm	Mn €	4.1	4.5	2.5	3.2	3.3	3.5	3.6	3.8
Discount factor	#	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.20
PV [flow to the firm]	Mn €	1.0	1.1	0.6	0.7	0.7	0.7	0.7	0.8
Firm value	Mn €	37.0	33.9	32.8	30.9	28.8	26.4	23.8	20.9

Telecom: Firm Value Calculation

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Flow to the firm	Mn €	4.1	4.4	4.8	5.5	4.6
Discount factor	#	0.19	0.18	0.18	0.17	0.16
PV [flow to the firm]	Mn €	0.8	0.8	0.8	0.9	0.8
Firm value	Mn €	17.6	13.9	9.6	4.5	0.0

Other: Firm Value Calculation

	Units	2013	2014 F	2015 F	2016 F	2017 F	2018 F	2019 F	2020 F
Flow to the firm	Mn €	0.8	2.6	-0.3	-0.2	-0.3	-0.2	-0.2	-0.2
Discount factor	#	0.86	0.83	0.80	0.77	0.74	0.71	0.69	0.66
PV [flow to the firm]	Mn €	0.7	2.2	-0.3	-0.1	-0.2	-0.1	-0.1	-0.1
Firm value	Mn €	-2.2	-4.9	-4.7	-4.7	-4.6	-4.7	-4.6	-4.6

Other: Firm Value Calculation

	Units	2021 F	2022 F	2023 F	2024 F	2025 F	2026 F	2027 F	2028 F
Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Discount factor	#	0.64	0.61	0.59	0.57	0.55	0.53	0.51	0.49
PV [flow to the firm]	Mn €	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Firm value	Mn €	-4.6	-4.6	-4.6	-4.6	-4.6	-4.6	-4.6	-4.6

Other: Firm Value Calculation

	Units	2029 F	2030 F	2031 F	2032 F	2033 F	2034 F	2035 F	2036 F
Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2	-0.2
Discount factor	#	0.47	0.45	0.44	0.42	0.40	0.39	0.37	0.36
PV [flow to the firm]	Mn €	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1	-0.1
Firm value	Mn €	-4.6	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5

Other: Firm Value Calculation

	Units	2037 F	2038 F	2039 F	2040 F	2041 F	2042 F	2043 F	2044 F
Flow to the firm	Mn €	-0.2	-0.2	-0.2	-0.2	-0.3	-0.2	-0.1	-0.1
Discount factor	#	0.35	0.33	0.32	0.31	0.30	0.29	0.28	0.27
PV [flow to the firm]	Mn €	-0.1	-0.1	-0.1	-0.1	-0.1	0.0	0.0	0.0
Firm value	Mn €	-4.5	-4.5	-4.5	-4.5	-4.4	-4.4	-4.4	-4.5

Other: Firm Value Calculation

	Units	2045 F	2046 F	2047 F	2048 F	2049 F	2050 F	2051 F	2052 F
Flow to the firm	Mn €	0.0	0.1	-1.6	-0.1	-0.1	-0.1	0.0	0.0
Discount factor	#	0.26	0.25	0.24	0.23	0.22	0.21	0.20	0.20
PV [flow to the firm]	Mn €	0.0	0.0	-0.4	0.0	0.0	0.0	0.0	0.0
Firm value	Mn €	-4.7	-4.9	-3.6	-3.6	-3.6	-3.7	-3.8	-4.0

Other: Firm Value Calculation

	Units	2053 F	2054 F	2055 F	2056 F	2057 F
Flow to the firm	Mn €	0.1	0.2	0.2	0.5	-5.9
Discount factor	#	0.19	0.18	0.18	0.17	0.16
PV [flow to the firm]	Mn €	0.0	0.0	0.0	0.1	-1.0
Firm value	Mn €	-4.2	-4.6	-4.9	-5.7	0.0

Bibliography

Academic Literature and Other Documents:

Brealey, R.A., S.C. Myers and F. Allen (2005), Principles of Corporate Finance, 8th edition, McGraw-Hill/Irwin

Almeida, H. and Philippon, T., 2008, "Estimating Risk-Adjusted Costs of Financial Distress", Journal of Applied Corporate Finance, Volume 20, Number 4

Bruner, R., Eades, K., Harris, R. and Higgins, R., 2013, "Best Practices in Estimating the Cost of Capital: An update", Journal of Applied Finance, Volume 23, Number 1

Dimson, E., Marsh, P. and Stauton, M., 2011, "Equity Premium Around the World", London Business School

Damodaran, A., 2008, "What is the riskfree rate? A Search for the Basic Building Block", Stern School of Business

Fernandez, P., Aguirreamalloa, J., Linares, P., 2013, "Market Risk Premium and Risk Free Rate used for 51 countries in 2013: a survey with 6,237 answers", IESE Business School

Schaefer, S. and Strebulaev, I., 2007, "Structural models of credit risk are useful: Evidence from hedge ratios on corporate bonds", Journal of Financial Economics

Ross, S., Westerfield and Jaffe, J., Corporate Finance, 5th edition, McGraw-Hill/Irwin

Annema, A., 2012, "M&A in 2012: Picking up the pace", Mckinsey & Company"

Harris, D., Villadsen, B. and Stirzaker, J., 2013, "The WACC for the Dutch TSOs, DSOs, water companies and the Dutch Pilotage Organisation", The Bratle Group

Perrin, L., "Mapping power and utilities regulation in Europe", 2014, EY

Fama, E. and French, K., 1996, "The CAPM is wanted, dead or alive", The Journal of Finance

Kochugovindan, S., 2013, "Equity Gil Study", Barclays

Goedhart, M. H., Koller, T. and Wessels, D., 2005, "The right role for multiples in valuation", The McKinsey Quarterly

Burksaitiene, D., 2009," Measurement of value creation: EVA and NPV", Vilnius Gediminas Technical University.

Bhojraj, S., and Lee, C., 2001, "Who is my peer? A Valuation-Based Approach to the Selection of Comparable Firms", Journal of Accounting Research, Volume 40, Number 2

Damodaran, A., 2006, "Valuation Approaches and Metrics: a Survey of the Theory and Evidence", Stern School of Business

Fernandez, P., 2008, "Valuing Companies by Cash Flow Discounting: Ten Methods and Nine Theories", IESE Business School

Modigliani, F., and Miller, M., 1958, The Cost of Capital, Corporate Finance and the Theory of Investment, American Economic Review, Vol. 48, No. 3: 261-297

Fama, E. and French, K., 1996, *The CAPM is wanted, dead or alive*, The Journal of Finance

Company references:

2011-2013 Company Reports and Management Presentations to Investors and Analysts

Investment Bank Research:

BPI Equity Research, most recent equity research reports for REN

Goldman Sachs DataBase

Others:

OECD – www.oecd.org

Reuters – www.reuters.com

ERSE – www.erse.pt

International Monetary Fund – www.imf.org

Bloomberg - www.bloomberg.com