MASTER OF SCIENCE IN
FINANCE

MASTERS FINAL WORK
PROJECT

EQUITY RESEARCH REN - REDES ENERGÉTICAS NACIONAIS, SGPS, S.A:

BOND PROXY

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SUPERVISOR:
VICTOR MAURÍLIO SILVA BARROS

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Abstract

This project is an extensive valuation of REN-Redes Energéticas Nacionais SGPS SA, with a special emphasis on its dividend policy and bond features. This equity research follows the CFA Institute format and only public information until 9th February 2018 was considered.

REN is the Portuguese transmission system operator. The company acts as natural monopolist in the transmission of electricity and natural gas as result of the concessions given by the Portuguese Government. With the acquisition of EDP Portgas, SA in 2017 the company extended its activity to the distribution of natural gas in the North of Portugal. All these businesses are regulated by ERSE – Entidade Regualdora dos Serviços Energéticos. The company also acquired a 42,5% equity stake of Electrogas,SA, a Chilean company that owns a natural gas pipeline linking Quintero to the capital Santiago, in the beginning of 2017.

To determine the intrinsic value of REN's three operational segments, Electricity Transmission, Natural Gas Transmission and Natural Gas Distribution, the company was valued using a Discounted Cash Flow (DCF) Sum of the parts approach as our main valuation method and considered different costs of capital to reflect the risk profile of each regulated activity. Additionally, to value the equity stake in Electrogas, it was used the Dividend Discount Model (DDM). With an estimated price target of €2.76 per REN's common share for 2018YE, a BUY recommendation is issued with low risk, representing a 15% upside potential from the 9th February closing price of €2.43.

Complementary valuation approaches and stress tests to important variables were used to support valuation results.

In addition, the dividend policy was analysed and compared to the peers using a concession liquidation approach to study REN's stock as a bond, given its low-risk profile and stable dividend policy. The price target obtained from the dividend discount model (DDM) is €2.53, representing a slightly 5% upside potential from the 9th February closing price. A fixed income instrument analysis approach was applied to REN's stock in a concession liquidation scenario to evaluate the elasticity of the stock price to its cost of equity. The results show that a 1% increase in the cost of equity would decrease the price target in a concession liquidation scenario (€2.49) to €2,20, with a negative duration effect of €0,32 and a gain of €0.03 from convexity.

JEL classification: G10; G30; G32; G34;

Keywords: Equity Research; Valuation; Mergers & Acquisitions; DCF; Regulation; Dividend.

Resumo

Este projeto é uma avaliação extensa da REN-Redes Energéticas Nacionais SGPS SA, com uma ênfase especial na sua política de dividendos e características de instrumento obrigacionista. Esta avaliação de empresa segue o formato recomendado pelo CFA Institute e apenas foi considerada informação publica até 9 de fevereiro de 2018.

REN é a responsável pela transmissão de eletricidade e gás natural em Portugal Continental. A empresa atua como monopolista natural, consequência das concessões atribuídas pelo Estado Português. A aquisição da EDP Portgas em 2017 permitiu o alargamento das operações à distribuição de gás natural na região Norte do país. Todos estes negócios são regulados pela ERSE- Entidade Reguladora dos Serviços Energéticos. A empresa também adquiriu uma posição de 42,5% na Electrogás, uma empresa chilena que opera uma conduta de gás natural que liga Quintero à capital Santiago, no início de 2017.

Para determinar o valor intrínseco dos três segmentos operacionais da REN, Transmissão de Eletricidade, Transmissão de Gás Natural e Distribuição de Gás Natural, avaliou-se a empresa utilizando o modelo da soma das partes dos fluxos de caixa descontados (DCF) como principal método tendo em consideração diferentes custos de capital, de modo a refletir o perfil de risco de cada atividade. Adicionalmente, avaliou-se a posição acionista na Electrogas utilizando o modelo dos dividendos descontados (DDM). Com um preço alvo de €2.76 por cada ação da REN em 2018FA, emite-se uma recomendação de COMPRA com baixo risco, representando um potencial de crescimento de 15% em relação ao preço de fecho (€2.43) a 9 de fevereiro de 2018.

Métodos de avaliação complementares e analises de stress a variáveis importantes foram levados a cabo por forma a sustentar os resultados da avaliação.

Adicionalmente, a política de dividendos da empresa foi analisada e comparada com as dos seus pares usando uma perspetiva de liquidação das empresas na maturidade das concessões de modo a estudar a ação da REN como um instrumento obrigacionista, tendo em conta o seu baixo nível de risco e a estabilidade da mesma. O preço-alvo obtido pelo Modelo dos dividendos descontados é de €2.53, representando um ligeiro potencial de crescimento de 5% face ao preço de fecho de 9 de fevereiro de 2018. Foi levada a cabo uma análise de instrumento de renda fixa à ação da empresa para aferir da elasticidade do preço em relação ao seu custo dos capitais próprios. Os resultados mostram que um aumento de 1% neste parâmetro leva a uma descida do preço-alvo num cenário de liquidação das concessões (€2.49) para €2.20. A duração tem um efeito negativo de €0.32 enquanto que o ganho de convexidade é de €0.03.

Classificação JEL: G10; G30; G32; G34;

Palavras-Chave: Equity Research; Avaliação de Empresas; Fusões e Aquisições; Fluxo de Caixa Descontados; Regulação; Dividendo.

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To my parents for all the support and confidence over the past five years and for always giving me the right advices at the right time.

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Disclosure

A significant portion of this report was submitted by a group of students at ISEG, including the candidate, for the CFA Institute Research Challenge 2018, Portuguese Local final. With the wining of the local final, the same report was submitted for the EMEA Regional Final 2018 in Dublin, Republic of Ireland, as a representative of the CFA Society Portugal.

This report is published for educational purposes by Master students at ISEG and is not an investment recommendation. This report must be read with the Disclosures and Disclaimer at the end of this report. Appendices that support this report may be obtained from author upon request.

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Electric and Natural Gas Utilities – Utilities
Portuguese Stock Exchange

REN – Redes Energéticas Nacionais S.G.P.S., S.A.

Date: 11/02/2018
Ticker: RENE.PL (Bloomberg)

Current Price: 2.43
EUR 1.000: USD 1.22

Recommendation: BUY **(15% Upside)**
Target Price: EUR 2.76 **(USD 3.37)** Low-Risk

REN: Bond look alike, flashy remuneration

1.Research Snapshot

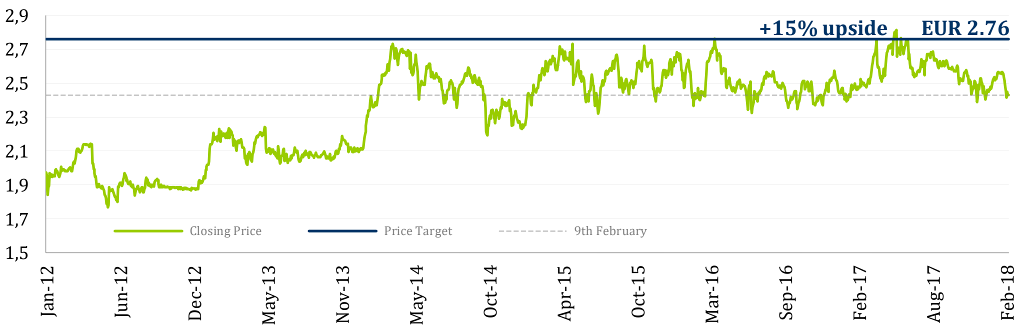
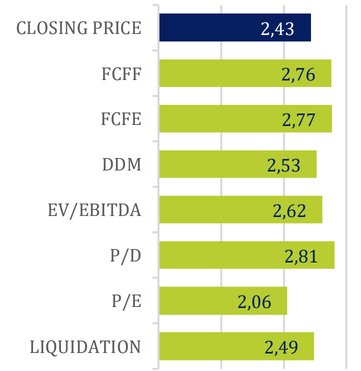


Table 1: ***REN market data***

Market Profile	
Closing price (February 9th)	2.43
52-week price range	2.35 - 2.82
Average daily volume	0.877M
Shares outstanding	663.3M
Market capitalization	1,611.9M
Free float	38.5%
Dividend Yield (2017F)	6.89%

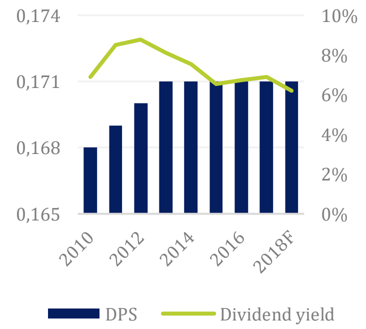
Source: *REN & Reuters*

Figure 1: ***REN Price Target***



Source: *Team estimates*

Figure 2: ***REN's Dividend Yield Evolution***



Source: *Team estimates*

We issue a **BUY** recommendation for REN, S.G.P.S,S.A (REN) with a price target (PT) of €2,76/sh for 2018YE based on a DCF model, implying a 15% upside potential from the 9th February closing price of €2,43/sh and considering the company's low risk. The main drivers for the recommendation are:

1)Solid Operations and Core Business:
As the sole TSO in both natural gas and electricity in mainland Portugal, the company benefits from its monopolistic position to have stable operating results and cash flows.Changes in regulatory parameters and efficiency targets imposed by the regulator (ERSE) may damage or improve the results. The rate of return (RoR) that the company will receive on its regulated asset base (RAB) will follow the evolution of the Portuguese 10Y Bond Yields. The DCF price target is based on a going concern assumption, however an approach based on a liquidation at the maturity of the concessions prices the company close to its current value. The marginal effect of the liquidation is €-0.27/sh from the €2.76/sh FCFF (€2.77 FCFE) to a price target of €2.49/sh, in line with our estimates using the DDM and the EV/EBITDA and P/E multiples.

2)Adding value Debt Management:
REN's management has adopted a policy of fixing the interest rate paid on its financial debt and increase its' maturity (63% fixed rate debt in 2018F). This strategy aligned with the natural hedge provided by the regulatory scheme (Figure 4 & Figure 5) will boost the efficiency of this mechanism of remuneration. The difference between the rate received on the assets side of the Balance Sheet and the effective cost paid to finance those assets is expected to increase in a yields normalization scenario. It is expected that 1% increase in yields impacts RoR by +40 bps while only impacting the cost of debt by +37bps by 2018F, thus yielding a gain of +3bps. Even in a scenario of a parallel shift of 1% in our yield assumptions for the forecasted period, the price target will only suffer a decrease of -€0.05/sh (Table 2).

3)Room for Growth Abroad:
The recent 180M U.S dollars acquisition of a 42,5% equity stake in Electrogas in Chile provides room for the company to grow abroad. Electrogas is a low-risk investment with almost zero debt. Expectations are for REN to acquire a majority stake and to increase the value of the Chilean subsidiary with the optimization of its capital structure and benefiting from the expected increase in NG demand following the forecasted GDP growth of 3.02% in the period 2017F-23F in that country.

4) Bond features and attractive Dividend Yield:
REN has the highest DY among its peer group and one of the main goals is to keep a stable and attractive dividend policy. This is proved by the increase in the DPS to €0,171/sh in 2014 and the maintenance of this value even with the ESEC imposition and by the way the PortGas acquisition was financed. Given the stability of the core business, boosted by the debt management policy that will sustain both the earnings in the payout ratios, and these facts this stock can be a bond Proxy. The DPS (6.9% DY 2017F) is a good opportunity in the actual scenario of extremely low yields. The price target of €2,53/sh given by the DDM Model support the thesis that the company is undervalued. This scenario in clean of any ESEC reimbursement that may take place in the future. A reimbursement is expected to be given to the shareholders and to have a positive +€0.16/sh or +€0.20sh depending on either it will be done phased after 2019 or all at once by 2020. (Table 12). The Yield-to-Maturity of REN on a liquidation approach would have to increase about +5bps to price the company close to its current price and an investor would recover its initial investment on a discounted cash-flow basis by the 9th December of 2028 (10 years and 10 months) (Appendix 31) considering the 9th February 2018 closing price.

Table 2: ***Impact on REN's Price Target of 1% Increase in Yields, per Year***

	2018F	2019F	2020F	2021F	2022F	2023F
Δ% in RoR	0.40%	0.40%	0.40%	0.40%	0.40%	0.40%
Δ% in Cost of Debt	0.37%	0.35%	0.44%	0.43%	0.42%	0.63%
% Gain/Loss	0.03%	0.05%	-0.04%	-0.03%	-0.02%	-0.23%
Price Target	**2.80**	**2.76**	**2.76**	**2.76**	**2.75**	**2.71**

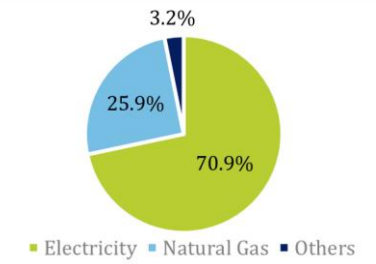
Source: *Team estimates*

2.Business Description

REN - Redes Energéticas Nacionais S.G.P.S., S.A., jointly with its subsidiaries referred to as REN Group, is Portugal's exclusive operator and manager of the mainland transport infrastructure of the National Electric System (SEN) and the National Natural Gas System (SNGN). It is a highly regulated publicly listed company, contracted by the state with its core business of guaranteeing an uninterrupted supply of electricity and natural gas to mainland Portugal. As a secondary business REN operates in telecommunications as well as other minor domestic and international investments.

In 1994 REN was initially created as a business unit within Energias de Portugal, SA (EDP), Portugal's sole and vertically integrated electricity provider. In November 2000, legislation required the liberalization of the electricity transmission and generation business and as a part of the unbundling, REN Rede Eléctrica was spun off and purchased by the Portuguese Republic. In 2006, the gas industry faced similar legislation and liberalization resulted in the unbundling of the subsidiaries of GALP Energia, S.A., giving REN the opportunity to purchase the Sines terminal from Transgás. This provided REN with a significant portion of their assets, including the gas transmission, natural gas underground storage, and liquefied gas (LNG) terminal, which includes the regasification facility. As a result of these transactions, REN S.G.P.S. was formed to recognize the new group structure as Portugal's transmission operator for both electricity and NG. Starting in 2007, REN underwent a series of three privatization stages. The first divested approximately 43% of REN's share capital. The second, in 2012, opened the door for the State Grid of China (25%) and Oman Oil (15%) to become leading shareholders. The third and final phase divested the remaining 17%.

Figure 3: ***Revenues per Segment***

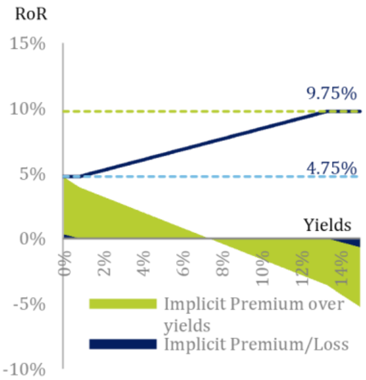


Source: *Team estimates*

Electricity

REN's electricity segment is expected to generate 71% of 2017F revenues, with an operating margin of 38.93%. It is comprised of three subsidiaries with the primary, Rede Eléctrica Nacional, operating under a 50-year concession which matures in 2057. The concession rights stipulate the full management of the grid including 8,863km of Very High Voltage lines. The other two subsidiaries complementing this core business are REN Trading, S.A., responsible for the purchase, sale, import and export of electricity as well as management of long-term power purchase agreements (PPAs), and Enondas - Energia das Ondas, S.A. which manages the concession to operate a pilot area to produce electricity from sea waves.

Figure 4: ***Electricity Indexation Methodology 2016-2019***

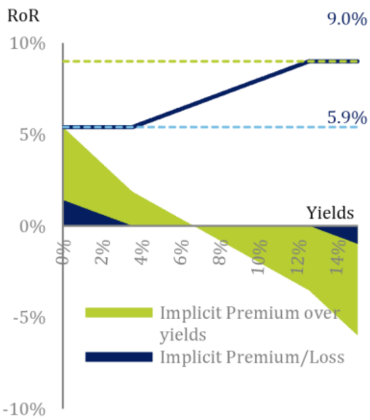


Source: *ERSE & Team estimates*

Natural Gas

REN's natural gas (NG) segment is expected to generate 26% of 2017F revenues, with 44.98% and 29.69% operating margins in transportation and distribution, respectively. Transportation operates under a 40-year concession maturing in 2046. The concession stipulates the transport and overall technical management of 1375 km of high-pressure pipeline, the LNG Sines Terminal and 6 underground storage facilities with a capacity of 333Mm³. The business is comprised of four subsidiaries which together deliver the full scope of the business. REN Gasodutos, S.A. is responsible for the high-pressure transmission of natural gas and general technical management of the SNGN and the supply switching process. REN Atlântico, Terminal GNL, S.A. manages the reception, storage, and regasification of the LNG terminal in Sines. REN Armazenagem, S.A manages the underground storage and related facilities in Carriço. Additionally, REN's recent acquisition of REN Portgas from EDP Gás, SGPS, S.A. in Oct 2017 gave REN Portugal's second largest gas distribution network (4,760km) in the northern coastal region of Portugal, with a 2017F Regulated Asset Base (RAB) estimated at €451.6M, growing REN's asset base by 13%. The transaction included full control over a 40-year concession ending in 2048, allowing REN to further exploit their proficiency in the industry.

Figure 5: ***NG Indexation Methodology 2016-2019***



Source: *ERSE & Team estimates*

Others

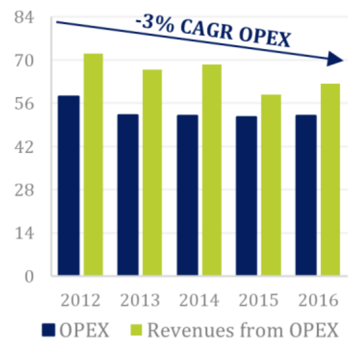
REN's remaining segment is expected to generate the final 3% of 2017F revenues. The primary contributor is a 42.5% stake in the Chilean gas pipeline company Electrogas S.A, which REN completed in 2017 for €169M. Electrogas operates a 165.6 km natural gas pipeline starting from Quintero's regasification terminal down to the city of Santiago, Chile's largest population center. The company also operates a 20.5 km diesel oil pipeline. Equity method accounting for this investment results in a direct impact on the bottom line, and the stake is expected to have an impact of 1% on revenues, and 5% on earnings by 2018F. Also included in this segment is RENTELECOM Comunicações, S.A. which manages the telecommunication services with the primary goal of deriving profits by optimizing the optical fiber excess capacity of the installations owned by REN Group, and REN Serviços, S.A. which provides engineering and advisory services to third parties. This last segment, excluding Electrogas, has an operating margin of -51.45%.

Key Drivers of Profitability

Yields: Driving Core Remuneration

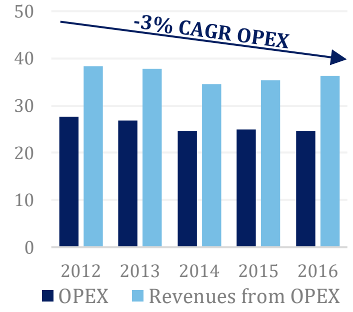
REN's operational results face heavy regulation. Through annually set tariffs, ERSE regulates close to 100% of REN's revenues from electricity and NG distribution. REN's core remuneration from both electricity and NG activities comes from the rate of return (RoR) REN receives on its Regulated Asset Base (RAB). Moreover, for the electricity segment there is an embedded incentive to efficient investment that provides the RoR with an additional premium when certain criteria are met (Appendix 25). Currently, electricity RAB at premium accounts for 55% of the total at 2017F and we project all forecasted electricity investment will benefit from this premium remuneration. The RoR is defined at the beginning of the 3Y regulatory period based on the cost of capital computed by the regulator (Appendix 11). During that time, it will vary in direct relationship with the 10Y Portuguese yield, bounded by a Cap and a Floor for each activity (Figure 4 & Figure 5). As for RAB, it depends strictly on amortization's relation with CAPEX, which in turn is driven by demand, supply, and the need for interconnection with the Spanish network system. However, the TSO's investment is subject to approval by the government after ERSE's approval. CAPEX is expected to be €138M in 2017F, growing at -1% CAGR 2017F-23F.

Figure 6: ***Electricity OPEX vs Revenues from OPEX***



Source: *REN, Team estimates*

Figure 7: ***NG OPEX vs Revenues from OPEX***



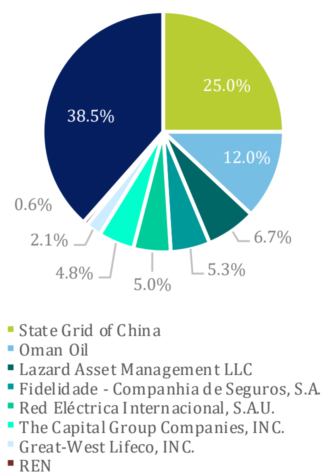
Source: *REN & Team estimates*

Table 3: ***REN'S Business Plan***

	Key Target 2015-18F	Results at 2016YE	
CAPEX	€175-€200M YoY	€206M YoY on average	✓
RAB	Stable at €3.5B (0% CAGR)	€3.5371B	✓
Cost of debt	1% decrease on average	3.20%	✓
EBITDA	€450M-€460M (-2% YoY)	€476M	✓
Net Income	€120M-€130M (+10% YoY)	€126M (excluding ESEC)	✓
Debt	Stable at €2.5B (Net debt)	Net debt of €2.5B	✓
Dividend	Stable at 0.171 p/sh	0.171 p/sh	✓
Credit Rating	Investment grade credit rating	Investment grade credit rating	✓
International Investment	Execute first international investment	Acquisition of Eletrogas in Chile	✓

Source: *REN*

Figure 8: ***Shareholder's Structure***



Source: *REN*

Table 4: Governance Metrics

Metric	REN	Peer's Average
ESG Score	50.8	50.9
ISS Score	5.0	5.9
Governance Disclosure Score	60.7	58
% Independent Directors	33.3	56.4
Board Meeting Attendance	96.7	98

Source: *Bloomberg*

Costs Recovery and Incentives: Efficiency

REN's remuneration is also based on the operational expenditures (OPEX) and the amortizations net of subsidies aiming to cover the operational and investment costs incurred by REN. The revenue component linked to OPEX evolves annually depending on the efficiency targets set by the regulator, which change every regulatory period of 3Y. For electricity concession, REN also receives a remuneration for the use of assets that technically still fit their purpose and continue to operate but have been fully amortized. Revenues from OPEX, remuneration of fully amortized assets, and recovery of amortizations is expected to yield €343.74M in 2017F, or 45% of revenues.

Company Strategies

- **Maintaining Investment at Home:** REN intends to continue investing in Portugal, to maintain a stable RAB and keep revenues steady. Additionally, the Share Purchase Agreement of €532M with the EDP Group to acquire 100% of EDP Gás (EDPD) reinforces REN's focus on the domestic and core infrastructure business as a top priority.
- **Commitment to Efficiency:** REN has the main task to meet supply and demand of both NG and electricity with minimum losses, accidents, and failures. The company reported zero interruption in the supply of NG and 1.72% of energy transmission losses in electricity with only 0.34 minutes per offtake in supply interruption. This efficiency is expected to be maintained in the future as it is one of REN's main standards that awarded them as one of the best TSOs in the world in an International Transmission Operations and Maintenance Study (ITOMS).
- **Holding the Balance:** REN aims to maintain its investment grade rating and stable dividend policy of €0.171/sh through continued financial discipline.
- **Looking Abroad:** REN seeks international investment opportunities, although a quiet period after two recent acquisitions is expected. One of those moves was REN's first international investment, by acquiring a 42.5% interest in Electrogas S.A. (€169M) in 2017, a Chilean company that owns a gas pipeline in the central zone of Chile. It currently accounts for 1% of revenue and we project this revenue to increase to 2% CAGR from 2017F to 2020F and 4% onwards.

Shareholder Structure

REN's largest shareholder is State Grid of China with a 25% ownership position (maximum allowed by the Portuguese competition authority). Oman Oil, a state-owned petroleum company, is the second largest shareholder with 12%. The third largest with only 6.9% ownership is Lazard Asset Management, a US investment manager. The remaining shareholders are Fidelidade (5.3%), and four others who own about 5% each. Notably, inside ownership only accounts for 2.1% of outstanding shares and 2017YE free float reached 38.5%.

The recent share capital increase puts REN at 663.3M shares outstanding. These ordinary shares are traded on Euronext Lisbon and do not grant any special rights beyond the shareholder's general rights. The rights offering (raising €250M) was well received by investors as evidenced by the oversubscribed demand at 1.66x. Despite the capital increase, REN's capital structure has been stable for the period from 2016 to 2017F (Appendix 4) .

3.Corporate Governance

Mr. Rodrigo Costa was elected REN's CEO and Chairman of the Board in 2014. He has an unconventional background with 38 years of experience (15 years with Microsoft Portugal as founder and General Director and executive positions on Unicre and ZON Group). Mr. João Faria Conceição has been with REN for 9 years and is currently REN's COO. He holds a degree in Aerospace Engineering and an MBA from INSEAD (France). Mr. Gonçalo Morais Soares serves as the CFO, Investor Relations Officer and Executive Director and has 20 years of experience in Corporate Finance. He earned a degree in economics as well as an MBA from Georgetown University and completed executive training at the Northwestern Kellogg Business School.

Board Structure and Attendance

There are 12 seats on the Board of Directors with only 33.3% independent, below both the generally accepted standard of 66% as well as the peer average of 56.4%. The State Grid of China and Oman Oil occupy four of the seats, contributing to the low independence rate. REN's ISS Quality Score is 5, with 1 being the highest out of 10, which places them just above their peer average at 5.9. This metric analyzes 200 factors divided over 4 pillars, providing shareholders an indication of where REN stands in terms of company best practices. The notable contributing factors for REN's score include board meeting attendance of 97% which is considered high and within range of the peer average of 98% (Table 4). Also, REN's management remuneration structure is aligned with the company's performance. Besides the normal fixed salary, compensation is tied to two variable components, short-term and long-term, each having a payout structure tied to KPIs which require a minimum of 80% be met for a positive payout.

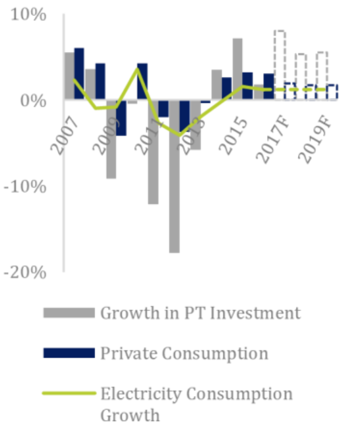
Corporate Governance

REN follows the Anglo-Saxon corporate governance model where shareholders in attendance at the General Meeting elect the following to 3-year terms:

- **General Meeting –** appoint and dismiss the members of the BoD, the remunerations committee and the statutory auditor;
- **BoD –** who appoint the three members of the Executive Committee responsible for managing the daily operations, as well allocation of resources and performance reviews.
- **Audit Committee –** three non-executive members that supervise the management of the company and propose the appointment of the statutory auditor to the General Meeting.
- **Statutory Auditor –** Deloitte & Associates who examines the financial statements.
- **Remuneration Committee –** three non-executive members who set compensation.

REN completed a full revision of their Corporate Governance system in 2013 and adopted the full set of recommendations put forth by the CMVM. To date, REN satisfies 88.6% of the recommendations. Bloomberg reports REN's overall Governance Disclosure Score of 60.7, which is higher than the peer average of 58.

Figure 9: ***Electricity Consumption vs Economic Indicators***



Source: *INE & Bank of Portugal*

Also, the one-share-one-vote principle protects minority shareholders, giving them such rights as voting for candidates for the BoD and the right to receive dividends. Limiting voting share ownership to 25% by any single entity is another protection mechanism to minority shareholders, along with management compensation linked to KPIs.

Sustainability and Social Responsibility

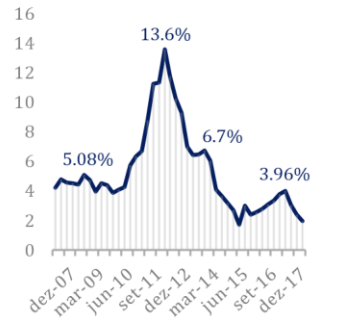
REN's sustainability strategy highlights three main areas: health and safety, including extensive on-the-job training including regular emergency response practice exercises; environmental protection, with an emphasis on climate change and minimizing environmental impact by managing consumption and reducing impact of the electromagnetic fields; and connection with the community, where REN partnered with Science & Technology Foundation and University of Porto to create a Biodiversity Department.

4.Industry Overview and Competitive Positioning

Portuguese Economic Outlook

In the aftermath of the sovereign crisis, Portugal has been on a recovery path. GDP is expected to post growth of about 2.60% in 2017 and is expected to grow 2.30% this year, bringing GDP back to 2008 levels. The main growth drivers in the period 2016-2020 are private consumption and investment, which are expected to grow at 1.95% and 6.42% CAGR, respectively (Figure 9).

Figure 10: ***10Y Portuguese Bond Yields***

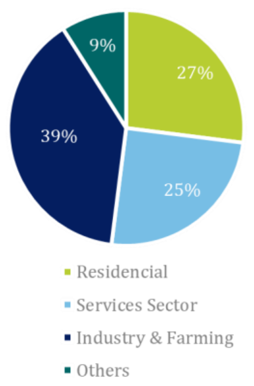


Source: *Reuters*

Investment Grade and Lower Yields

The Portuguese budget efforts to reduce debt and deficits, the GDP recovery, and the ECB's Quantitative Easing program all culminated in an elevation of the investment grade rating. Currently, it enjoys a credit rating of BBB- from S&P. These factors allowed the Portuguese Government to become less risky in the eyes of investors, permitting them to progressively refinance at lower interest rates. At 2017YE the Portuguese 10Y bond yield was quoting at 1.932%, dramatically lower than the historical maximum of 13.557% reached in Dec. 2011 (Figure 10).

Figure 11: ***Electricity Consumption by Sector (2008-15)***



Source: *INE*

Demand for Energy

The main consumers of electricity are manufacturing & agriculture, services, and residential (Figure 11) Historically, electricity consumption moved in accordance with GDP growth, although the mature market conditions should decouple this highly correlated relation (Figure 12). Electricity consumption is expected to grow at a +0.5% CAGR in 2016-2030F, justified by its historical positive correlation with private consumption and investment, already considering a forecasted +22.8% CAGR of electric vehicles circulating until 2030.

The consumption of NG is divided into two segments. The electric market (EM) which encompasses electricity production centers, while the conventional market (CM) is composed of manufacturing (glass, ceramic, food and textile), residential & commercial, and transport.

The EM is an important NG consumer. Local DGEG forecasts point to an increase of +3.8% CAGR in 2017F-27F, powered by decarbonization policies. Yet, the demand for NG in this sector is highly volatile and unpredictable due to its negative correlation with the production of renewable energy (Figure 13). The consumption of NG by the CM is expected to grow timidly at +0.76% CAGR in 2017F-27F. Overall, the expected growth for the consumption of NG in the period is +1.53% CAGR.

Supply Side Perspective

Renewablization

The European Commission (EC) demands 31% of the total consumption of electricity to come from renewable sources by 2020. Consequently, the installed capacity increased by a +5.61% CAGR in 2010-2016 to about 13,045MW, representing 66.84% of the total and expectations point to a persistent trend. Renewable electricity is the cheapest and most clean source of energy. Hence, it is first in the order of merit to match demand (Appendix 13). If the production is enough to supply the entire demand, the production centers using other sources (fuel, natural gas, coal, nuclear) will simply not function. However, the renewables are not a fully reliable source of energy due to their dependence on weather conditions and to the impossibility to store it. Moreover, the production poles are essentially located in remote zones, far from the major consumption centers.

Figure 12: ***Electricity Consumption Growth vs Real GDP Growth***

Source: *INE & Bank of Portugal*

Decarbonization

Coal is one of the main sources of electricity production, representing on average 22% in 2010-16 of the total production in Portugal. Even though coal is 50% more polluting than NG, it sometimes gets priority over NG in the electricity order of merit, benefiting from periods of low CO_2 prices (Figure 14). The EC's directives address the need to reduce the carbon footprint. Following those directives, the Portuguese government committed to shutting down the two existent thermal energy centers (Sines and Pego) that use coal as electricity production fuel until 2030F.

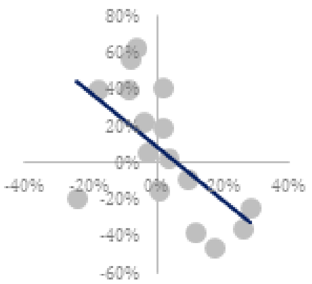
Interconnections with Spain

Under MIBEL, the Iberian electricity market works as one in terms of production and price formation. Currently, there are 11 interconnection points representing an installed capacity of 2,776MW Portugal-Spain and 2,140MW Spain-Portugal. In 2030 the installed capacity is expected to be 4,200MW and 3500MW, respectively. For NG transmission there are two interconnections, and a third one is dependent on both governments' decision, which is on hold due to the delayed construction of the interconnection between Spain and France.

Transmission Network Capex

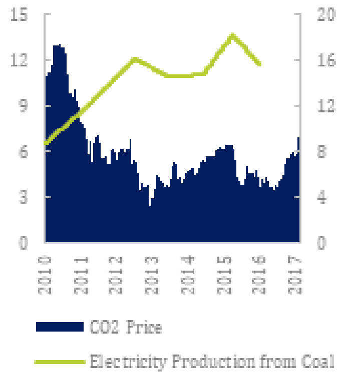
Expansion CAPEX on the grid will be mostly driven by the increasing investment in renewable sources, given the distance of production centers from the major consumption concentrations. Consequently, there is the need to connect them to the network. Despite the expected increase in demand, 8,863KM of line of very high voltage

Figure 13: ***NG Consumption & Renewables Production Correlation***



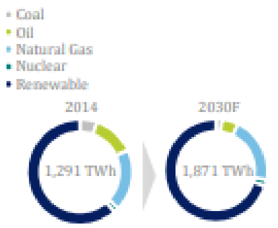
Source: *REN & INE*

Figure 14: ***CO_2 Prices vs Electricity Production from Coal***



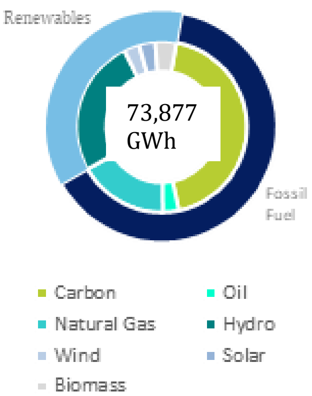
Source: *REN & Bloomberg*

Figure 15: ***Electricity Generation Evolution in LATAM (TWh)***



Source: *World Energy Council*

Figure 16: ***Electricity Generation by source in Chile, 2016***



Source: *Local CNE*

transmission network with a capacity sufficient to accommodate the future demand. Only maintenance or replacement CAPEX is required from a demand point of view. Hence, it will result in a –37.59% YoY CAPEX from €133M in 2013-17 to €85M 2018F-22F. The investment will continue a decreasing trend, but at a slower pace in the period 2023F-27F. It is expected to evolve -2.41% CAGR, reaching €81M on average.

The NG high-pressure transmission grid has enough capacity to support the forecasted increase in demand from the CM. CAPEX will be mostly driven by the decarbonization trend. Given the foreseen closure of the two coal centrals, NG will gain market share, and NG CAPEX may increase. At first sight, the increasing production of electricity from renewables reduces the need to invest in NG pipelines, although given the unpredictability of the renewable production (and impossibility to store it) maintaining the grid is key. Projections for CAPEX point to a decrease of 63.86% from the average in 2013-17F of €24.9M to €9M in 2018F-22F. The projected third interconnection with Spain represents a three-stage investment of about €225M over 9 years. About 50% will be financed by subsidies. Only the remaining 50% will be added to RAB, but the project is not expected to begin before 2020.

The Need to Go Abroad

Given the remuneration based on RAB, expectations for decreases in CAPEX will tighten TSOs revenues. TSOs from all around Europe have already begun the internationalization process to areas where the electricity and NG markets are at a development stage, in particular LATAM. The Spanish REE has 8% of revenues coming from Peru and Chile, while the Spanish NG TSO Enagas operates also in México, Chile, Peru, and Sweden, and is part in a Trans Adriatic Pipeline project. Terna diversified away from Italy to Brazil and Uruguay.

Growth in LATAM

LATAM offers growth opportunities to European TSOs looking to reduce exposure to mature local markets. The World Energy Council expects LATAM's GDP growth to be +3.67% CAGR 2017-30F, increasing middle-class income and urbanization rates. This will drive energy demand, projected to be +1.74% CAGR for the period 2017-30F. The UN forecasts the average population growth of 0.85% CAGR in the period.

The LATAM electricity framework will shift to a renewable energy-intensive production, according to a World Energy Council's scenario. The weight of renewables is expected to be 72% in the energy matrix by 2030 (Figure 15). This target will require an expansion of the transmission grid. Projected investments of $1.0T to $1.25T in power generation will fund the growing hydro energy leadership, along with the increasing NG footprint (CAGR +2.82% 2017-30F) as the main fossil fuel. Decarbonization pressures will also stagnate the final consumption of coal and promote electricity usage of +2.25% CAGR and NG by 3.51% CAGR.

Chile: A Good Low-Risk Growth Prospect

Expected increases in Chile's demand for electricity of +2.74% CAGR for the period 2018F-30F will require investments in installed capacity, especially to accommodate the peak demand.

The Chilean energy plan to increase production from renewable sources from the current 36% to 60% in 2030 requires investment in the grid estimated at $1.5B for the next 5 years by Transelec, the main TSO in Chile. This investment is expected to be most acute with regards to the expansion of the current 7,000 km in the northern interconnected system (SING) area. This grid brings energy from the thermal centrals that use c.79% carbon to produce energy to large industrial and mining infrastructures.

Furthermore, the transmission sector in Chile currently suffers from poor service quality, averaging 18,77h/person of electricity outages per year according to local SEC. European TSOs have state of the art efficiency and can enjoy opportunities in this open-access market. Greenfield investments or brownfield operations will shape Chile's electricity grid in the coming years. Investing in an A-rated country is appealing for foreign, stable, and risk-averse companies such as REN.

TOTEX: A New Regulatory Framework Coming

European capital bias regulatory models are shifting towards a more general and simple approach. TOTEX frameworks incentivize more rational, integrated, and efficient management decisions. In broad terms, under this approach, regulated networks would be given a single cost allowance, with a determined capitalization rate, thus removing the distinction between capital and operating expenditures. The industry's thinking must change into making risk-based interventions beyond capital replacement such as extending the life of an asset, and must also examine whether required outcomes can be achieved in different ways. UK and Italy have already adapted their regulatory models to this approach and expectations are for the trend to expand to other countries.

Competitive Positioning

TSOs operate with concessions awarded by the government and are subject to regulatory frameworks that define the rules of the game, due to the natural monopoly that is embedded in these sectors of utilities. Although there are no competitors for REN, we decided to perform a comparison between the company and other European operators to provide a broader overview of how REN performs as TSO.

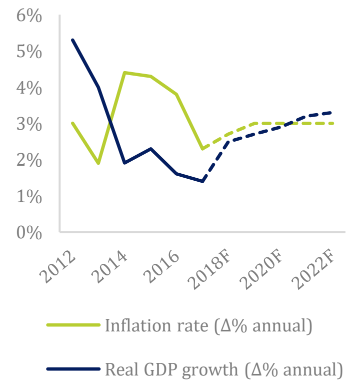
REN - The Power of Being Alone

REN is the sole TSO in electricity and NG in Portugal, operating as a government monopoly relatively free of threats of new entrants. The concessions given by the Government are awarded for long periods up to 50Y, and the key role of the regulator limits not only the amount of the operator's revenues, but also the bargaining power of its customers and suppliers. In addition, pressures from substitute products remain low. Overall, our analysis reveals a favorable competitive environment for REN's core business as shown in Appendix 27.

Efficiency and Financial Edge

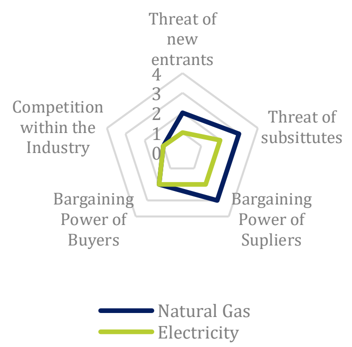
Concerning operational management, REN strives to be one of the most efficient electricity and NG European TSO, incurring on average in 68% lower operational expenditures per km of managed line comparing to its European peers of €33.3 per km. This idea is further supported by its operating margin of 10.7bps above the peer average (Figure 19). Although operating within different regulatory frameworks, TSOs do not have much control above the EBIT line due to the embedded restrictions set by the regulators.

Figure 17: ***Real GDP Growth vs Inflation rate in Chile***



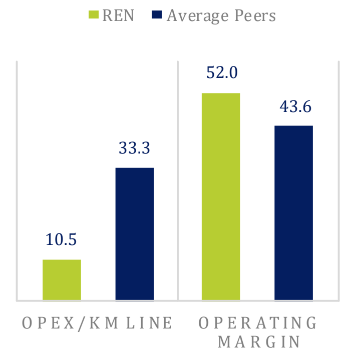
Source: *IMF*

Figure 18: ***Porter's Five Forces***



Source: Team estimates

Figure 19: ***REN vs Peers Efficiency 16YE***



Source: Team estimates

Table 5: ***REN's Sensibility to Yields***

	2018F	2023F
Δ% in RoR	0.40%	0.40%
Δ% in Cost of Debt	0.37%	0.63%
% Gain/Loss	0.03%	-0.23%
Price Target	2.80	2.71

Source: *Team estimates*

Hence, REN attempts to improve its results with rigorous and conservative financial management to reduce the financial costs as much as they can, helping them maintain stability and keep the constant dividend.

Baby Steps Abroad

REN operates in a mature market so investment opportunities are becoming scarcer. To cope with the resulting decrease in RAB, REN must look out for opportunities for growth abroad. The recent Electrogas acquisition came as an opportunity due to an asset sale by the Italian company ENEL, but highlights the abovementioned need. The fact that this asset is not regulated further opens an opportunity for REN to diversify its sources of revenues in one of the most developed economies in LATAM, Chile, in which GDP per capita is expected to grow at +3.02% over the next 4 years (Figure 17).

The supply of natural gas is protected by long-term contracts with take-or-pay provisions, providing extra security. Penetration rates in Santiago are expected to grow from 20% to 40% in the next 10-15 years, reflecting expectations that consumption of gas will double as the preferred source for heat over other substitutes, such as coal.

The acquisition did not have material impact on REN's credit rating or dividend policy because it was financed using credit lines available within the group coupled with Chile's current low-risk investment grade rating. REN is sensing the opportunity to increase its stake in Electrogas, given the attractive low levels of debt. However, the short run plan is to digest this acquisition and only advance in activist policies if it becomes relevant to REN's credit rating or dividend policy.

Initial Projects in Gas Distribution

As the sole NG distribution operator in Portugal, REN was in a unique position to gain vertical integration in NG infrastructure. Keeping the focus in Portugal, in a low-risk way, the company acquired the entire share capital of EDP Gas, subsequently renamed REN Portgás. We predict a +3.07% CAGR growth potential in FCF in the next 5 years, based on Portgás' low penetration rate when compared with Lisboagás, the other main distributor in a high population density area. REN paid €532M although the Portgás RAB was around €450M 2016YE. The premium was paid due to Portgás's growth potential and because REN expects a 30 bps higher return than the WACC for NG transmission.

Funding of the acquisition was secured by a €250M capital increase through a rights issue and was followed by a debt issuance of €300M (1.768% yield). Instead of reducing the DPS, they opted for a capital increase so that they could expand free float and increase the market liquidity for REN's shares (Appendix 21). REN is expert in managing regulated gas assets, knows the technology, the market, and all the business complexity it involves; thus, the acquisition entails low integration risk.

Although REN does not have an aggressive internationalization plan in place, it will remain opportunistic with foreign investments, and we believe that expansion in LATAM is inevitable for REN to grow and to diversify its portfolio.

5.Investment Summary

We issue a BUY recommendation on REN with a target price of €2.76/sh for 2018YE using a FCFF method with an upside potential of 15% with low-risk. The recent drop in price in line with the entire global stock market, the capital dilution, the debt restructuring, cash generating operations in Portugal, the potential to grow in LATAM, and a strong dividend policy opens room for an increase in the share price, thus justifying our recommendation.

Key Value Drivers and Potential Catalysts

The recent restructuring of debt plays a pivotal role in REN's outlook when yields start rising. RoR is based on a theoretical WACC set up by ERSE, estimated between 5.25% and 5.92% for REN's segments in 2018F, while WACC is estimated at 3.83% driven by a 1.54% after-tax cost of debt and high leverage. REN's timing to extend debt maturities and to move from floating rates to fixed rates benefited from decreasing yields for Portugal and from its investment grade rating (BBB- with a positive outlook). The latest 1.768% yield on a €300M bond issuance is an example. The hedging of the cost of debt with about 63% debt financed at fixed rates in 2018F mitigates the effects of an expected increase in yields. A +100bps in yields in 2018F affects RoR by +40bps and the cost of debt by +37bps as result of this policy (Table 5).

The acquisition of Electrogas was the **first foot in LATAM.** The premium paid for a non-controlling stake of 42.5% signals the aim for international diversification. This subsidiary accounts for €0.20/sh of REN, incorporating the 2017 capital increase and debt issuance. Chile's expected GDP growth is at +3.02% CAGR for 2017F-23F and penetration rates in Santiago are expected to increase from 20% to 40% in the next 10-15 years, meaning that expansion of the grid is critical to accommodate a doubling in consumption. The perspective of a controlling stake in this company will boost returns, given the room for capital structure optimization and high cash flow visibility supported by long-term take or pay contracts for the supply of NG in the country. We take a conservative approach, taking into consideration the limited growth in Portugal and a 2.5% CAGR in Electrogas. Any growth in LATAM will drive an upside on REN's valuation.

The **strong cash flow generation** of the company through solid operations in the country will boost the cash surplus to about €433M in 2023F (Appendix 3) .Also, the expected end of ESEC in 2019F will have several side effects. This will deleverage the firm given the limited investment opportunities within Portugal, allow for the increase of the €113M cash dividend by 2.5% YoY from 2020F-23F, and will generate a better buffer to explore opportunities abroad.

REN's operations in Portugal will remain solid, as the firm operates a natural monopoly in the transmission of Electricity and NG, and along with the **recent acquisition of REN PORTGAS** will provide room for a +320bps in operating margins from 2016-2023F and the entrance in the distribution segment of NG (Appendix 4). The distribution grid in the North of Portugal covers about 21.7% of the mainland, is expected to contribute €451.6M to RAB in 2017F and offers potential to grow given expectations for an increase to 35%-40% in the penetration rate. The distribution is remunerated at +30bps versus the transmission of NG, following the same regulatory scheme (Appendix 9).

REN has a current 6.9% dividend yield, the highest between selected peers, stable operations and investment-grade credit rating, placing the stock as a possible **bond proxy**. Investors go long in this stock looking to receive a very stable stream of cash flows over time with limited risk. This clientele effect is supported by our €2.53/sh fair value estimation using the dividend discount model (DDM).

Valuation methods
To compute REN´s target price we derive the Enterprise Value of each segment (Electricity, NG transmission, NG distribution and Others) through FCFF and use the DDM to value Chilean operations, using a SoP approach. As complementary methods we used FCFE, arriving at a €2.77/sh, the DDM, yielding €2.53/sh, and a multiples valuation through EV/EBITDA, P/E, and P/D multiples that are in line with our base 2018YE valuation of €2.76/Sh.

Risks to Achieve Price Target
Investors should be aware of the impact that **10 Y Portuguese yields** have on results. **Decreases in RAB** due to a lower investment will impact REN's ability to grow revenues. **ESEC remains a big concern**. Despite expectations about its end by 2019, a continuation of the levy will impact REN's capacity to sustain increases in dividends, leading to unsustainable payout ratios, around 90%. A **Liquidation** valuation after the end of the concessions accounts for a drop of €-0.27/sh, changing the target price for REN to €2.49/sh, still modestly above the current price.

Table 6: ***REN's Price Target***

Segment	Model	g	%	EUR
EV Elect.	FCFF	0.5%	63.6%	2,791.8
EV NG	FCFF	0.4%	26.7%	1,171.2
EV Portgas	FCFF	2%	9.5%	416.8
EV Others	FCFF	0.6%	-3.3%	(142.9)
Eq Eletrogas	DDM/Mult.	2.5%	3.5%	155
Net Debt				2,563
Equity Value				**1,829.2**
Shares Outstanding				663.3
Price Target 18YE/sh				**2.76**

Source: *Team estimates*

6.Valuation

SoP: FCFF for the Core
REN's core business is valued using a FCFF model to derive the EV of each operational segment (Electricity, NG transportation, NG distribution, and Others) along with the DDM and a price multiple to value the current 42.5% stake in Electrogas. This approach yields a 2018YE price target of €2.76/sh (Appendix 22). Complementary approaches for the entire company using a FCFE model, the DDM, and a multiples approach support the BUY recommendation. The upside potential of 15% and the low risk makes REN an attractive stock for investors targeting a current dividend yield of around 7.0% in a BBB-rated and very stable company. The valuation follows a going concern, but a liquidation approach on the maturity of each concession accounts for €-0.27/sh to €2.49/sh, still supporting the positive outlook for REN (Appendix 24). Our valuation is mainly influenced by the following factors:

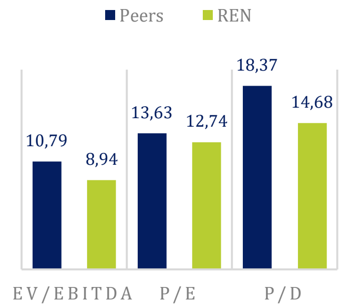
Table 7: ***REN's WACC***

DCF Analysis	2018F	Terminal
COST OF EQUITY		
Risk Free Rate (RFR)	0,7%	2,5%
Country Risk Premium (CRP)	1,4%	2,2%
Beta (β)	0,6	0,6
Equity Risk Premium (ERP)	8,5%	8,5%
Cost of equity	**7,2%**	**9,8%**
COST OF DEBT		
Cost of debt	2,2%	3,6%
Marginal tax rate	30,8%	30,8%
After-tax cost of debt	**1,5%**	**2,5%**
Weight of equity	40,3%	40,0%
Weight of debt	59,7%	60,0%
WACC	**3,8%**	**5,4%**

Source: *Team estimates*

Portuguese 10Y Yields Drive Revenues
The expectation of a normalization in yields after the end of ECB's QE and the recent figures in the US points for increases in yields across Europe, reflecting the improvement of economic indicators. The outlook for yields and REN's RoR are estimated through the computation of forward rates starting in 5 years for a 10-year period (Appendix 9). REN's cost of debt parallels our expectations for yields, as we are assuming a -28bps spread, which corresponds to the rates difference between REN's and the Portuguese government's most recent bond issues, except for the hedged part of the debt of about 63%. This represents a large source of the upside in price target.

Figure 20: REN vs Peers Multiples



Source: *Bloomberg & Team estimates*

Regulated Asset Base (RAB)
REN's RAB has been showing a progressively decreasing trend since 2014, however, this was disguised by two recent acquisitions. RAB increased by €70.5M following the acquisition of the GALP NG caverns in 2015, and by €451.6M with the purchase of EDP Portgás in 2017. With all of mainland Portugal electrified there is little room for REN to grow within the country in the electricity segment. Supported by both PDIRT-E (Plano Desenvolvimento e Investimento da Rede de Transporte de Electricidade) and PDIRGN (Plano de Desenvolvimento e Investimento da Rede de Gás Natural) a decrease in RAB is expected because depreciations will surpass CAPEX. Estimations of changes in RAB are subject to adjustments by ERSE on embedded efficiency incentives. From 2016 onwards, we take a conservative approach. REN's CAPEX is assumed to be transferred to RAB, implying the end of subsidies for new investments in both electricity and NG segments. In electricity the investment made with a cost lower than the reference cost will be remunerated at a higher rate (Appendix 25). CAPEX is expected to be paid at a premium in electricity. The third connection of NG with Spain is expected to add €58M CAPEX starting in 2020 (Appendix 10)

Incentives to Economic Rationalization
Regarding electricity, the company is provided with a remuneration on fully amortized assets that are kept in operation. Our assumptions follow what is stated in "Proveitos Permitidos e Ajustamentos para 2017 das empresas reguladas do sector Eléctrico": €21.9M for 2017F and €25.0M/year for 2018F-19F. For the following years we forecast a +8.0% YoY growth for 2020F and +9.0% YoY from then onwards, since we expect that this incentive will increase in the future driven by: 1) an enlargement of fully amortized asset base, and 2) the ceaseless objective of ERSE to protect consumers from unneeded investments.

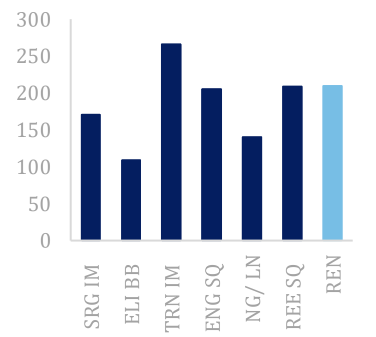
Table 8: ***Peers' Group***

Peers	Operating Margin (2016YE)	Mkt Cap (€B)
SNAM	57.77	12.51
ELIA	27.33	2.88
TERNA	50.82	9.03
ENAGAS	50.32	4.86
NATIONAL GRID	24.41	25.50
REE	50.68	8.78
REN	**52.01**	**1.62**

Source: *Team estimates & Bloomberg*

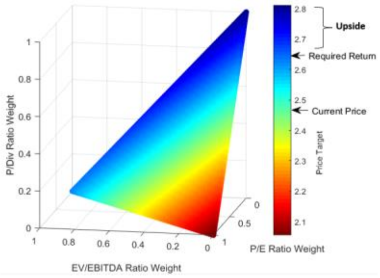
Recovery of OPEX
REN is provided with a mechanism that allows the recovery of its operational expenditures related with the transmission of electricity and NG and the distribution of NG. Given the complexity of computation of this remuneration, we consider that the recovery of OPEX will evolve YoY based on the Portuguese GDP Deflator minus an efficiency factor set by ERSE for each segment. OPEX is estimated to evolve at -1.03% CAGR 2018F-2023F. REN has been able to recover more than its OPEX, proving efficiency in its operations (Figure 6 &Figure 7).

Figure 21: ***Debt/Equity Ratios***



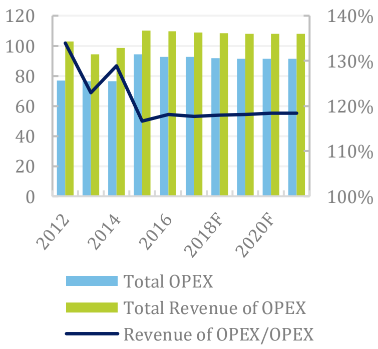
Source: *Bloomberg*

Figure 22: Multiples Valuation Heat Map



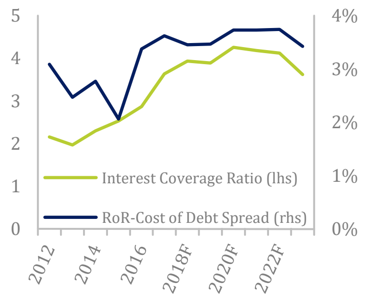
Source: *Team estimates*

Figure 23: ***OPEX Efficiency***



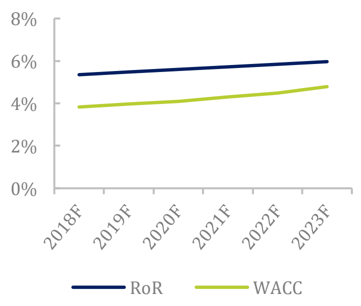
Source: *Team estimates*

Figure 24: ***Hedging Strategy Results***



Source: *Team estimates*

Figure 25: REN WACC vs RoR



Source: *Team estimates*

Energy Sector Extraordinary Contribution (ESEC): A Turnaround

We project that this extraordinary levy will end in 2019, by the end of the legislature. All companies in the sector except REN and ENDESA have already decided to forego the contribution, and have instead sued the Portuguese State on the Constitutional Court. Forecasts are that this levy will not hold in the future, following expectations by subject companies. Nevertheless, the recovery of ESEC paid until 2019F is not accounted for in the base case valuation. A positive decision by the Court may add up to €0.13/sh to REN's price target, including interest.

FCFE and DDM

These complementary approaches are useful in valuing company. In the case of FCFE, it is supported by the stable capital structure the company has maintained and is expected to maintain. The use of the DDM is justified with the stable dividend payment of the company. Also, the €2.53/sh derived by the DDM supports the clientele effect, meaning that investors look to the stock not in a controlling perspective or with the aim of realizing capital gains, but to receive a stable stream of cash flows with low-risk. We are assuming an increase of +2.5% YoY starting on 2020 following the end of ESEC (Appendix 23).

WACC Assumptions

Applying the CAPM model, we are assuming a **Cost of Equity** that ranges from **7.1% to 8.0%** in the forecasted period. We are using the 10Y German yield annual forecasted average as the **RFR**, ranging from **0.66% in 2018 and 1.45% in 2023.** We are adding to the model an average **CRP** of **2.0%**, equalling the spread between the RFR and a 2-year average of forecasts for the 10Y Portuguese bond yield. The **Beta** is around **0.6**, which was derived using a pure-play method from peer average betas. That value was supported by regressing REN's returns against the PSI20, Euronext 150 and EUROSTOXX600 returns. The **ERP is 8.5%** and comes from the relation between the REN and the PSI20, given the company's almost 100% exposure to Portugal, and takes into consideration our forecast for the future volatility of the index (Appendix 20).

Cost of Debt is linked with the assumptions for the 10Y Portuguese yield with a spread of -29bps. It will be inside the **2.23%-2.76%** range, which is much lower than just 29bps from 10Y yields due the 65% fix rate debt cost of financing (Appendix 19)

As such, and considering the relatively stable market capital structure around 60% D/EV, **WACC** will range from **3.8% in 2018 to 4.8% in 2023**.

Proper Peer

Valuation multiples are used as a complementary approach. We employ the Sum of Absolute Rank Differences (SARD) approach developed by Knudsen et al. (2017) as a basis for the search for the proper peer group, as REN is the sole TSO in Portugal. The Euro Stoxx 800, FTSE 100, and the S&P Latin America 40 constituents supplied the potential peer group. Once the SARD was calculated for each company, a subjective decision was made to exclude companies based on unrelated industry classifications. The resulting peer group has an average D/D+E ratio (based on book values) of 66.1%, in line with the 68.6% of REN. Also, average operating margins of 52.4% are in line with the 52% of REN, excluding National Grid and ELIA (Appendix 17).

Multiple Valuation

As a stable, regulated utility, the standard multiples are suitable for REN's valuation, and in this regard the EV/EBITDA, P/E, and P/D ratios were used for the analysis. The final metric, the P/D ratio, is not often used but is indeed just an inversion of the dividend yield, a significant factor in the value proposition of investing in utility shares. The company appears undervalued based on its EV/EBITDA (8.94x), P/E (12.74x) and P/Dividend (14.68x) multiples (Figure 20). These multiples are at discount when compared with the peer medians of 10.79x, 13.63x and 18.37x, respectively. However, adjusted multiples to account for historical discounts do not deviate our recommendation (Appendix 18). REN's historical lower market cap and liquidity and country risk are potential drivers of these historical discounts.EV/EBITDA and P/D support the upside potential, generating values of €2.62/sh (+7.59%) and €2.81/sh (+16.13%), respectively, while P/E points to a potential downside of €2.06/sh (-17.23%). However, we believe that P/E could be the most biased of these multiples, given the varying countries of domicile and capital structures (Figure 21) amongst peers. Figure 22 shows a heatmap of all possible valuations resulting from relative weight combinations of the three multiples.

7.Financial Analysis

Operations Set on Cruise Control

REN's operations are bounded by strict regulation reflected in the stability of its operating margins (+35.40% in 2016 with an average YoY growth of +46bps until 2023F). This improvement is explained by the €400M RAB increase in 2017F. REN benefited from the inclusion of REN PORTGAS (€451.6M) and from an expected growing trend for RoR (5.35% in 2018F to 5.97% in 2023F), explained by estimates for the increase in 10Y Portuguese Yields (2.08% to 3.52% from 2018F-23F)- Appendix 9 & Appendix 19.

Focus on Operational Efficiency

The company is expected to maintain the pace of recovering OPEX in its operating segments during 2017F-23F (c.120%) (Figure 23). This reflects compliance with the regulatory mechanism of ERSE, although REN does not benefit from being more efficient than the regulator demands. ERSE will adjust efficiency parameters as long as the company proves to enhance efficiency, shrinking the room for accumulated efficiency gains. The limitation in terms of efficiency gains is reflected in 0.11 asset turnover stable from 2012-23F.

Prudent and Strategical Debt Management

The increase in maturities and the change from floating to fixed rates allowed the company to consistently decrease the cost of debt from 5.70% in 2012 to 3.20% in 2016. In 2017F around 56% of total debt is expected to be financed at fixed rates powering a total cost of 2.70%. Fixing rates accounts for €0.40/sh in our valuation when comparing with a scenario of debt entirely at floating rates. REN is prepared for the expected and generalized increase in yields. The difference between RoR and cost of debt is expected to increase in 2018F-22F, from +312 bps to +340bps, leading to a better ICR (from 3.94 to 4.18). This spread will decrease to +308 bps in 2023F (Figure 24). The Debt-to-Capital ratio will decrease slightly from 0.66 to 0.6 (2017F-23F), reflecting REN's smooth deleveraging given limited investments perspectives. NPM will jump from 17.06% 2016 to 22.22% 2023F, excluding ESEC effects. ROE will stabilize at around 10% in 2018F-2023F driven by a low-interest burden.

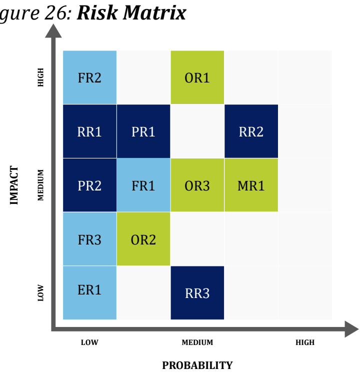
Solid Cash Generation

FCFF will range between €252.5M and 304.9M from 2017F-23F, given strong generation of operational cash flow (earnings quality consistently above 1 from 2017F to 2023F). The inevitable decrease in CAPEX, the normalization of outflows from financing activities, and the end of the levy in 2019F will open room for a growth in dividends of 2.5% YoY from 2019F-23F. The forecasted cash surplus of €433M in 2023F will allow the company to keep the investment in the internationalization strategy when the right opportunity arises.

RoR vs WACC

ERSE sets RoR (i.e., the theoretical WACC) for each activity considering a theoretical gearing ratio (D/E) of 55% for electricity and 50% for NG. Within sustainable levels, REN has an incentive to keep leverage above those targets. It decreases REN's real cost of capital, which enables the company to earn abnormal returns. This is spread is expected at +141 bps from 2018-23F, on average, following our WACC assumptions (Figure 25 & Appendix 11).

Figure 26: ***Risk Matrix***



Source: Team estimates

ESEC

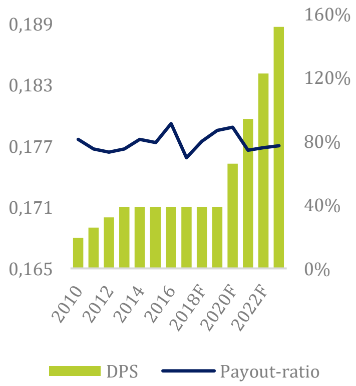
We estimate the end of the ESEC levy from 2020F onwards. This gain in cash is expected to be allocated to increases in dividends, arriving at a payout ratio of 85% in 2023F. The company decided to pay the levy. Yet, they are litigating. In the case of a win (lose) REN would receive (pay) in interest more than its cost of debt, which resembles to a gain in "lending" money to the state. The most probable scenario is the end of the levy, although without reimbursements. A full reimbursement after its end in 2019F would account for +€0.23/sh in our valuation, plus interest. Oppositely, if the levy persists in perpetuity REN's valuation adjusts €-0.15/sh to €2.61/sh. ESEC impacts -340 bps on NPM, average 2014-19F.

8.Investment Risks

Regulatory Risk | ERSE (RR1)

ERSE's adjustments to the regulatory parameters have significant impact on allowed revenues and costs embedded in the tariffs, limiting REN's ability to create value. Yet, the company has established a good relationship with the regulator and maintains its efficiency aligned with regulator's guidance. The increase in the regulatory period from three to four years under discussion will also bring forward more clarity and stability. The recent acquisition of Electrogas is a way to diversify its revenues and to gain independence from the local regulator.

Figure 27: ***DPS vs Payout-ratio***



Source: *Team estimates*

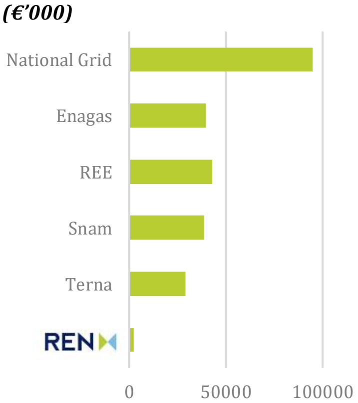
Regulatory Risk | RAB-based Model (RR2)

The RAB-based model fits better for countries that are under-developed and require greater capital-investment. With CAPEX below amortizations, RAB and revenues will decrease. The current model also promotes non-rational decisions. For instance, it does not incent the company to apply for EU Funds for infrastructure investment or retaining underperforming assets because they account for RAB purposes. Acquisitions, such as PORTGAS, would help to enlarge the RAB and smooth these effects. REN should be careful on this type of deals to avoid paying high premiums and to follow a conservative approach.

Political Risk | ESEC Levy – Extraordinary Contribution for the Energy Sector (PR1)

The possibility of the levy to continue beyond 2019 would impact earnings by about €30M per year. The levy would limit REN's ability to invest domestically and internationally. It may also jeopardize the dividend policy, implying consistently payout ratios above 90%. The decision is in the hands of the Constitutional Court, but the expectations are for it to be revoked in 2019F.

Figure 28: ***2017 REN vs Peers Liquidity (€'000)***



Source: *Bloomberg*

Market Risks | Changes in Yields (MR1)

Changes in yields directly impact REN's revenues. Yields also affect the cost of debt. The debt management policy taken by the company smooths and hedges these impacts in the short-term. The mechanism of caps and floors imposed by ERSE limits REN when yields are very high but protects the company in times of very low rates. A sudden and high increase in yields can have a negative impact on the company because RoR will not evolve in the same proportion and the increase in the cost of debt may offset the positive effect on revenues.

Operational Risk | Liquidation Perspective (OR1)

Ceasing concessions in the electricity and NG segments may imply the liquidation of REN's domestic business. The company has know-how in this industry and has been operating under efficiency targets. The likelihood of renewing the concession contracts is high. Although, a liquidation scenario would imply a drop of €0.27/sh, given the projected RAB growth.

Financial Risk | Dividend Policy Maintenance (FR1)

The maintenance of a stable dividend policy is one of REN's main goals and strategies. Despite the stability on its core business, the company's recent capital increase amplifies the cash dividend by +25%. Yet, the DPS is expected to remain stable in the period 2017F-20F. The dividend policy is key for REN, as it benefits massively from the clientele effect for a juicy and riskless dividend (Figure 27).

Financial Risk | Credit Rating Deterioration (FR2)

REN's stable operations should in theory adjust the cost of debt spread with the Portuguese yields to a situation in which they are both in line with each other. The fact that a sovereign country should be safer than a local company, especially one that has 100% exposure to the local economy, should hold in the long term. Therefore, the current estimated -28bps spread is expected to not persist in the future. Possible negative occurrences within the company, such as losing investment grade, may project this spread above the country risk, a case in which hedge mechanisms would not ease the negative effects in earnings.

Other minor but relevant risks are detailed in Appendix 26

Risks to Price Target

ESEC Levy: The base case assumes that the levy will cease in 2019. However, this outcome carries significant uncertainty and for that reason alternative scenarios were tested. The forecasts for the levy accounts on average to 21% net income. Still, it will only result in a downside potential in the scenario that it lasts in perpetuity.

Table 9: Scenario ESEC Levy ending in:

	2018	2019	2020	2021	2022	2023	Perpetuity
Price Target 18YE	2.79	**2.76**	2.72	2.69	2.66	2.62	1.93
Upside Potencial	16.7%	**15.2%**	13.5%	12.0%	10.5%	9.0%	-22.7%
Recommendation	BUY	BUY	BUY	BUY	BUY	HOLD	SELL

Terminal Growth Rates: This is one of the most important variables when applying DCF models. REN is expected to grow very slowly. Lower growth rates than those modeled could potentially change our recommendation. Nevertheless, only if the company show no growth in both of electricity and NG segments will provide downside potential.

Low Risk:

- **Sell** < -10%
- -10% ≤ **Reduce** < 0%
- 0% ≤ **Hold** < 10%
- 10% ≤ **Buy** < 20%
- **Strong Buy** ≥ 20%

Table 10: Sensitivity analysis for the Terminal Growth Rates

Terminal Growth Natural Gas	Price Target	Terminal Growth Electricity										
	2.76	0.00%	0.10%	0.20%	0.30%	0.40%	**0.50%**	0.60%	0.70%	0.80%	0.90%	1.00%
	0.00%	2.40	2.45	2.50	2.56	2.61	2.67	2.73	2.79	2.86	2.93	3.00
	0.10%	2.42	2.47	2.52	2.58	2.63	2.69	2.75	2.81	2.88	2.95	3.02
	0.20%	2.44	2.49	2.54	2.60	2.65	2.71	2.77	2.84	2.90	2.97	3.04
	0.30%	2.47	2.51	2.57	2.62	2.68	2.73	2.80	2.86	2.92	2.99	3.06
	0.40%	2.49	2.54	2.59	2.64	2.70	2.76	2.82	2.88	2.95	3.02	3.09
	0.50%	2.51	2.56	2.61	2.67	2.72	2.78	2.84	2.91	2.97	3.04	3.11
	0.60%	2.54	2.59	2.64	2.69	2.75	2.81	2.87	2.93	3.00	3.06	3.14
	0.70%	2.56	2.61	2.67	2.72	2.77	2.83	2.89	2.96	3.02	3.09	3.16
	0.80%	2.59	2.64	2.69	2.75	2.80	2.86	2.92	2.98	3.05	3.12	3.19
	0.90%	2.62	2.67	2.72	2.77	2.83	2.89	2.95	3.01	3.08	3.15	3.22
	1.00%	2.65	2.70	2.75	2.80	2.86	2.92	2.98	3.04	3.11	3.18	3.25

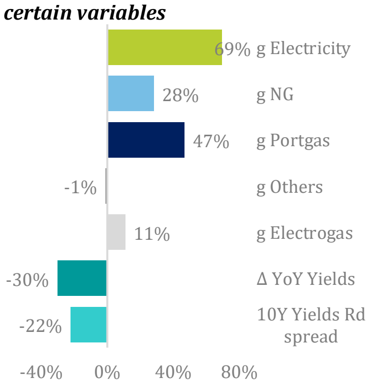
10Y Portuguese Bond Yields & REN's Cost of Debt: In our assumptions we are considering a constant growth (+29bps YoY) for the yields. Yields are very unpredictable. Expectations point to an increase in the near future, but nobody can know at exactly what pace. For instance, the foreseen end of the ECB's QE program might bring an increase in yields. Moreover, an increase in inflation rates to the ECB's target of 2% will also affect interest rates. We account for this by stressing the assumed growth in yields.

Table 11: Sensitivity analysis for the 10Y Portuguese Bond Yield

Spread Between REN cost of Debt and 10Y Portuguese Yield	Price Target	10Y Portuguese Yield - YoY change										
	2.76	0.20%	**0.29%**	0.35%	0.40%	0.45%	0.50%	0.55%	0.60%	0.65%	0.70%	0.75%
	-0.35%	2.80	2.78	2.76	2.75	2.74	2.73	2.71	2.70	2.69	2.68	2.66
	-0.28%	2.78	2.76	2.74	2.73	2.72	2.71	2.69	2.68	2.67	2.66	2.65
	0.00%	2.70	2.68	2.66	2.65	2.64	2.63	2.62	2.61	2.60	2.58	2.57
	0.10%	2.67	2.65	2.64	2.63	2.61	2.60	2.59	2.58	2.57	2.56	2.55
	0.30%	2.62	2.60	2.58	2.57	2.56	2.55	2.54	2.53	2.52	2.51	2.50
	0.50%	2.56	2.54	2.53	2.52	2.51	2.50	2.49	2.48	2.47	2.46	2.45
	0.70%	2.51	2.49	2.48	2.47	2.46	2.45	2.44	2.43	2.42	2.41	2.40
	1.00%	2.44	2.42	2.41	2.40	2.39	2.38	2.37	2.36	2.35	2.34	2.33
	1.50%	2.31	2.30	2.29	2.28	2.27	2.26	2.25	2.24	2.23	2.22	2.21
	1.70%	2.27	2.25	2.24	2.23	2.22	2.21	2.21	2.20	2.19	2.18	2.17
	2.00%	2.20	2.18	2.17	2.16	2.16	2.15	2.14	2.13	2.12	2.11	2.11

Spread Between Cost of Debt (Rd) and 10Y Portuguese Bond Yields: We forecast the spread to have a linear and constant relationship with the yields (-28bps) until 2023YE, and for the terminal period the spread conservative at zero. However, this assumes that REN's Rd is only affected by the country risk. Nevertheless, REN's specific issues can jeopardize the Rd (e.g scandals, decrease in rate due to a bad investment, etc). In our base case scenario for the yields a 38bps increase in the spread would be needed to change our recommendation.

*Figure 29: **REN price sensitivity to certain variables***



***Source:** Team estimates*

Monte Carlo Simulation

As a complementary analysis to our price target we perform a Monte Carlos simulation. Our forecast is mostly sensitive to electricity segment growth rate, and interest rates in the perpetuity. The average PT is €2.71, very close to €2.76 using DCF. Our buy recommendation has a 69% probability of being accurate.

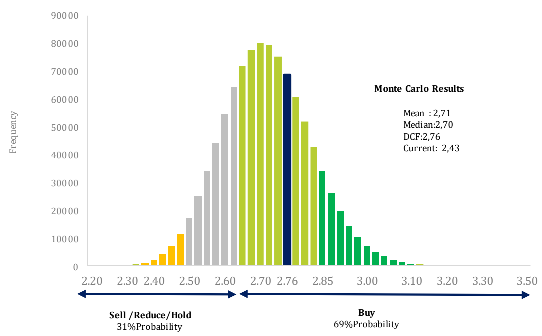
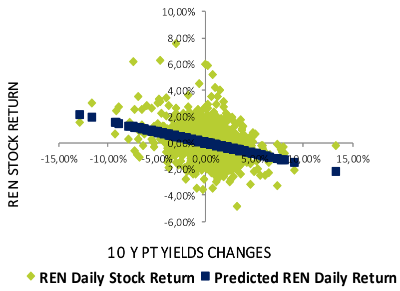
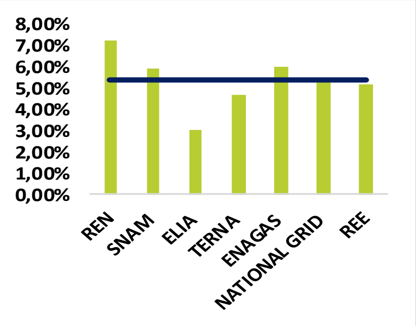


Figure 30: ***Relationship between REN's stock price and PT 10Y Yields (09th February 2013 to 09th February 2018).***



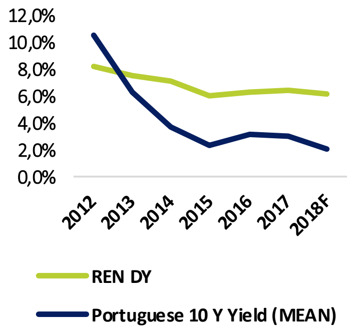
Source: *Thomson Reuters and Author Estimates*

Figure 31: ***Dividend Yield comparison among the peer group***



Source: *Bloomberg*

Figure 32:: ***REN's Dividend Yield vs 10Y PT Yields***



Source: *REN, Bank of Portugal and Author estimates*

*Table 12:****Dividend Discount Model Summary***

DDM Report	Price Target	Upside Potential
Base Case Scenario	€ 2,53	4,58%
Liquidation Perspective	€ 2,49	2,57%
Phased ESEC Recovery after 2019	€ 2,69	12,29%
ESEC recovery in 2020	€ 2,73	13,88%

Source: *Author Estimates*

9.Bond Proxy

Bond Features Embedded

Given its' solid operations and well-defined system of costs and remuneration, reflected in the stability of its operational results and cash flows, REN's business tends to be very stable and predictable. The company's low risk profile aligned with the board's goal of keeping an attractive and stable dividend policy as it was until now proxies the stock to a bond.

The stock returns tend to behave inversely with the changes in the Portuguese 10 Year Yield, reflecting the common behavior of Bond Prices related to Yields, (Figure 30).

The main justification for this movement to happen is related to the way the remuneration framework works. When there is a scenario of increases in Yields, REN´s revenues are expected to increase in the following year, but the cost of debt is also impacted with immediate effects. As the increase in RoR does not follows the positive evolution of yields in a direct proportion, negative impacts in the cost of debt may offset revenue benefits. The existing ceiling also limits RoR growth in extreme high yields scenarios. In a decreasing yields scenario benefits for the company are more evident given the abovementioned reasons.

Debt Management: Key for Dividend Stability

In a normalized yields scenario, the policy of increasing the share of fixed rate debt will start to give its fruits. If in operational terms the board has not much to do but to follow what the regulator demands, the financial strategy will protect earnings and sustain the payout levels.
It will increase the spread between RoR and the effective cost of debt, what means that the company will receive an even higher remuneration on its assets than what it pays to finance them.

Strong and Stable Dividend Policy: More than just cheap talking

REN is expected to announce the intention to continue to pay €0.171/share in dividends until 2021. This fact sustains the thesis that this dividend is stable and that the company will not decrease it even with the uncertainty around ESEC's continuation. The effects of a levy continuation or cease can be seen on table 12. If ESEC continues beyond 2019 it will jeopardize the dividend growth, if we assume it as 0% between 2019F and 2023F our price target decreases to €2.34/share, with a predicted and stable 72,1% payout ratio (Table 13)
To pay what it has promised has been a standard image of the company over the years, keeping the highest and one of the most stable dividend yields among the peers (Figure 31 and 36) and higher remuneration that the Portuguese 10Y Bonds (Figure 32) with low- risk perceived by investors and debtholders. It is important to remember that the company was able to finance itself at lower rates than the government in the January €300Mbond issue to sustain the comparison.
On top of this good dividend marketing the company has been able to almost consistently increase the dividend per share on a YoY basis. The DPS grew at 0.534% CAGR from 2007 to 2017F (Figure 36) and even with the levy consuming about €25M per year since 2014 the company did not defraud investors.

The two acquisitions made during 2017 were not an obstacle to the dividend policy and the way they were financed protected it. If the share capital increase had enlarged the number of shares outstanding by 133.2M and the dividend by €22.8M it also increased the liquidity of the shares in the market and the debt issue of the remaining amount helped to keep the Capital Structure balanced. This allowed the company to have enough liquidity to go for the acquisitions and to protect its earnings from higher interest payments that it would have if the acquisitions were financed by a larger amount of debt. In the other hand if the company financed those purchases with a larger portion of equity the dividend could have been damaged because the growth in earnings would not have followed the growth of the dividend implicit in this situation.

The Dividend Discount Model (DDM): What to expect for the dividend evolution?

On the base case valuation using the DDM, the price target obtained is €2.53/share, providing a slightly 4.58% upside potential comparing with the 9th February 2018 closing price. (Table 12)
Regarding the dividend history and the payout levels one can see that the company increased its payout ratio until 2014 to 81%, before ESEC implementation. The strong cash generation and less opportunities to invest support this idea. If on one hand it is true that less CAPEX will negatively influence revenues in the future it is also true that both Electrogas and PortGas acquisitions are expected to enhance cash generation supported by the expectations for increasing natural gas consumption and penetration rates in Chile and in the north of Portugal. Mechanisms to remunerate fully amortized assets are already a reality in electricity and may be extended to Natural Gas in a near future protecting customers from unneeded investments and diversifying revenue sources for REN and have being gain relative importance (16,1% of total revenues in 2017F).
In this analysis it was assumed a YoY DPS growth of 2.5% from 2019F until 2023F following our ESEC cease in 2019F assumption. This growth will lead to an estimated 79,6% payout ratio in 2023F (Table 13). This payout level is above the current industry average of 71,14% from 2012 to 2017 but is in line with the average REN payout ratio since 2013 of 79,57%. This positive difference from the industry can also be justified with less opportunities to invest when compared to some peers.

ESEC: The dividend's dark cloud

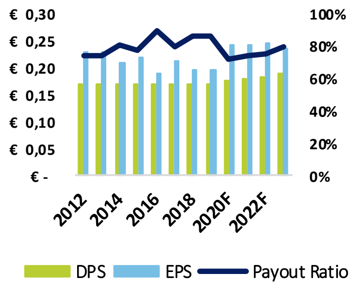
An ESEC levy continuation beyond 2019 will deteriorate the dividend growth. An analysis assuming zero growth for the dividend until 2023F gives us a €2.34/share price, providing a 4.04% downside potential from the 09th February 2018 closing price following our Dividend Discount Model results. Although with all the tension between the government and energy sector players, reflected in litigation processes and most of the companies choosing not to pay it, this levy seems to not have how to hold for much time.
The base case is clean of any ESEC recovery, but in fact the company might be reimbursed. Two scenarios of reimbursement and distribution to shareholders were analyzed the first one assumes a phased recovery from 2019F onwards and the second a full recovery in 2020F. In these two optimistic scenarios the prices are €2.69/share (12.29% upside potential) and €2.73/share (13.88% upside potential), respectively (Table 12)

Table 13: ***Dividend Growth Rates between 2019F-2023F and corresponding Payout Ratios***

Dividend Growth Rates (2019-2023)	Payout Ratio in 2023F	Price Target
0,0%	72,1%	€ 2,34
0,5%	73,5%	€ 2,38
1,0%	75,0%	€ 2,42
1,5%	76,5%	€ 2,45
2,0%	78,0%	€ 2,49
2,5%	79,6%	€ 2,53
3,0%	81,1%	€ 2,57
3,5%	82,7%	€ 2,61
4,0%	84,3%	€ 2,65
4,5%	86,0%	€ 2,69

Source: *Author Estimates*

Figure 33: ***DPS, EPS and Payout Ratios***



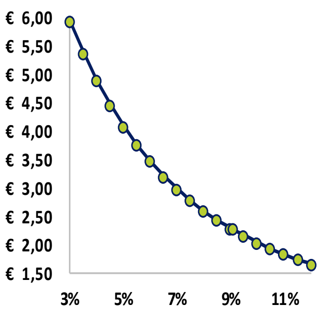
Source: *REN and Author Estimates*

Table 15: ***Changes in Price Breakdown***

Price target w/liquidation @Ke+100bps	€	2,20
Difference from Price Target w/liquidation	€	(0,29)
Duration Effect	€	(0,32)
Gain from Convexity for 1% change	€	0,03
Total Effect	€	(0,28)

Source: *Author Estimates*

Figure 34: ***Cost of Equity and Price Relationship***



Source: *Author Estimates*

Liquidation Perspective: Pure Fixed Income Instrument Approach

The possibility of the company to be liquidated after the end of its' concessions impacts, obviously, the stream of dividends over time. Following the assumption that the company will deliver the value of the RAB to its shareholders after receiving it from the Portuguese Government and that the dividend will adjust downwards as concessions cease, the price target is €2.49/share.

In this scenario, given the existence of a predictable stream of cash flows and a defined maturity for the company aligned with the abovementioned low level of risk, one can analyze it as a fixed income instrument. (Table 15)

Considering the 9th February 2018 closing price, an investor will recover the amount invested, on a discounted cash flow basis, in about 10 years and 10 months (Table 15 and Appendix 31) with a yield-to-maturity of 8.55% (Table 15).

Considering the changes in the price target relatively to the company's cost of equity, a 1% increase in the company's cost of equity would decrease the price in €0.29/share to €2.20/share. (Table 14)

This decrease can be explained by two effects: one, with negative impact, is the duration effect, that assumes a linear relationship between the two variables and in this case impacts about -€0.32/share.

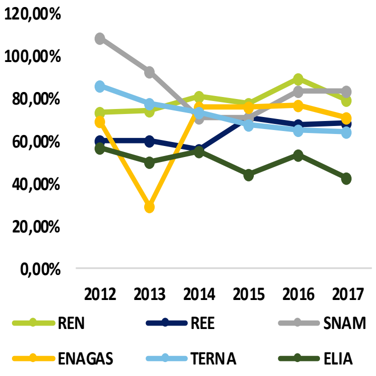
Second, the gain from convexity, impacting positively in about €0.03/share. (Table 15 and Figure 34)

Table 14: **Fixed Income Instrument Approach**

Fixed Income Instrument Analysis		
Price (09/02/2018)	€	2,43
Price target w/ liquidation	€	2,49
Price target w/ liquidation @Ke+1bp	€	2,48
Price Value of a Basis Point (PVBP) (DV01) @Ke		31,67
Modified Duration (PT w/liquidation)		12,74
Price target w/ liquidation @Ke+2bp	€	2,48
PVBP (DV01) @Ke+1bp		31,60
Estimated Second Derivative		679,71
Gain from Convexity for 1% change	€	0,03
YTM considering PT w/Liquidation		8,37%
YTM considering Price 9th February 2018		8,55%

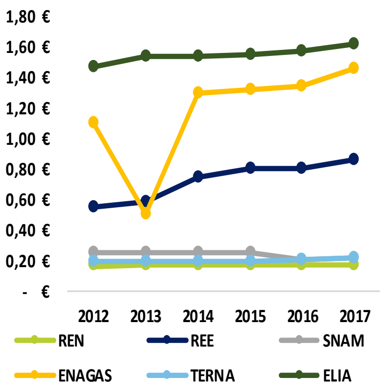
Source: *Author Estimates*

Figure 35: ***Payout ratio evolution among the peer group (2012-2017)***



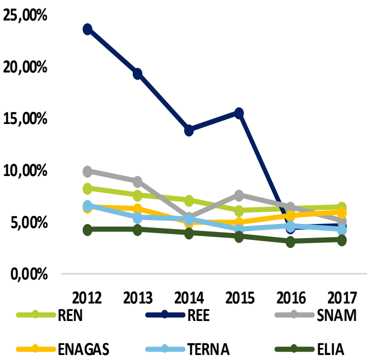
***Source*:** *Bloomberg*

Figure 37: ***DPS evolution among the peer group (2012-2017)***



***Source*:** *Bloomberg*

Figure 38: ***DY evolution among the peer group (2012-2017)***



***Source*:** *Bloomberg*

Invest in Fixed Income or in REN?

When reading this approach of comparing REN's stock with a debt instrument one must not forget the intrinsic difference and degree of risk of each kind of instrument. The difference between being a shareholder and a debtholder in an extreme (bankruptcy) scenario must not be left apart, since a shareholder is a residual claimer on the firm's assets after the debtholders being repaid. Although, considering the period of abnormal low yields and consequently cheaper financing for the firms aligned with the REN's DPS (Figure 36) and its core business stability, investing in this stock can be a good alternative to traditional fixed income instruments. The highest DY among the peer group in 2017 (6.50%) (Figure 37) and low-risk perceived by investors abovementioned are nowadays, a good opportunity to receive a stable stream cash flows with a decent remuneration.

Fixed Income Instruments paying a fix coupon of 6,50% nowadays have more risk than REN. In terms of government debt, only "high yield" bonds associated to countries experimenting financial distress or uncertain economic conditions. In corporate terms the scenario is somehow the same. Emissions with such level of coupons are linked to companies in businesses with much more volatility and/or in bad financial conditions.

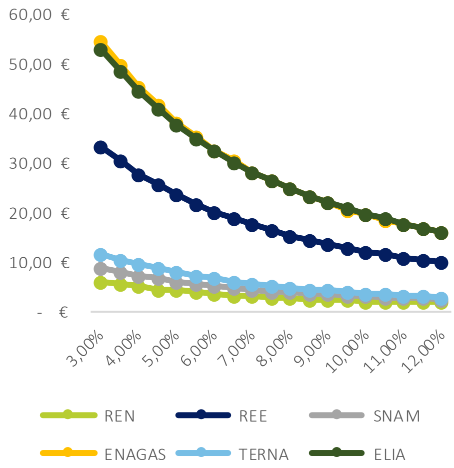
In a scenario of normalized yields, in which yields are expected to increase and stabilize at higher levels, this attractive DY may be offset for higher remuneration in the fixed income markets and higher equity risk premium demanded by investors.

One should also take into consideration that investing on REN has lower transaction costs when comparing to fixed income and the liquidity of the company, reinforced with the share capital increase, should not be a problem for bigger volume investments.

Fixed Income Approach across the peer group: Some conclusions

Extending the analysis to other companies in the industry one can immediately conclude two things REN has the highest DY and the more stable DPS among its peer group. When justifying the changes in the price of those REN is the company with the lowest gain from convexity, justified by its flatter relationship between price and cost of equity (Figure 38). In absolute terms the higher the stock price, the higher the gain from convexity (Figure and Appendix 33), but in relative terms the gain from convexity explains about 12% of the total change in REN's stock price a value aligned with the industry average of 11.90%. The more convexity a financial instrument has the more gains it produces in a decreasing yields scenario, also convexity diminishes losses when yields go up. In this case no stock has a special advantage, and REN's stock is expected to behave accordingly to its peers in relative terms when yields changes.

Figure 36: ***Peer Group Cost of Equity vs Price Relationship***



Source: *Author Estimates*

Appendices

Appendix 1: Statement of Financial Position (REN)

CONSOLIDATED BALANCE SHEET €'000	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17F-23F
NON-CURRENT ASSETS	**4,252,682**	**4,087,871**	**4,726,539**	**4,621,933**	**4,522,332**	**4,422,118**	**4,343,257**	**4,273,732**	**4,204,960**	**-2%**
Property, plant and equipment	695	578	4,514	4,728	4,942	5,156	5,370	5,584	5,798	4%
Goodwill	3,774	3,397	3,397	3,397	3,397	3,397	3,397	3,397	3,397	0%
Intangible assets	3,869,085	3,825,712	4,263,344	4,162,512	4,061,059	3,958,983	3,878,254	3,806,846	3,736,184	-2%
Investments in associates and joint ventur	14,588	14,657	185,410	186,881	188,355	189,833	191,317	192,808	194,306	1%
Available-for-sale financial assets	154,862	150,118	150,123	150,123	150,123	150,123	150,123	150,123	150,123	0%
Derivative financial instruments	10,157	20,425	20,425	20,425	20,425	20,425	20,425	20,425	20,425	0%
Other financial assets	7	14	14	14	14	14	14	14	14	0%
Trade and other receivables	133,676	10,145	19,342	13,883	14,046	14,217	14,387	14,565	14,743	-4%
Deferred tax assets	65,838	62,825	79,970	79,970	79,970	79,970	79,970	79,970	79,970	0%
CURRENT ASSETS	**337,271**	**461,954**	**454,202**	**445,962**	**465,881**	**541,349**	**606,542**	**658,561**	**692,577**	**7%**
Inventories	2,985	1,028	2,504	2,504	2,504	2,504	2,504	2,504	2,504	0%
Trade and other receivables	263,766	448,826	339,162	262,945	261,445	259,403	257,493	256,266	255,731	-5%
Available for sale Financial Assets	0	0	0	0	0	0	0	0	0	n.a.
Current income tax recoverable	5,358	0	0	0	0	0	0	0	0	n.a.
Derivative financial instruments	0	0	0	0	0	0	0	0	0	n.a.
Other financial assets	1,510	1,317	1,317	1,317	1,317	1,317	1,317	1,317	1,317	0%
Cash and cash equivalents	63,652	10,780	111,219	179,196	200,615	278,125	345,228	398,474	433,025	25%
TOTAL ASSETS	**4,589,953**	**4,549,825**	**5,180,740**	**5,067,895**	**4,988,213**	**4,963,467**	**4,949,799**	**4,932,292**	**4,897,537**	**-1%**
SHAREHOLDERS EQUITY	**1,161,289**	**1,159,217**	**1,459,860**	**1,477,093**	**1,494,834**	**1,538,846**	**1,580,903**	**1,621,041**	**1,653,212**	**2%**
Share capital	534,000	534,000	667,191	667,191	667,191	667,191	667,191	667,191	667,191	0%
Own shares	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	(10,728.0)	0%
Reserves	325,619	319,204	318,763	318,763	318,763	318,763	318,763	318,763	318,763	0%
Retained earnings	196,253	216,527	226,060	254,369	271,602	286,507	327,613	366,690	403,775	10%
Issue Premium	0	0	116,809	116,809	116,809	116,809	116,809	116,809	116,809	0%
Other changes in Equity	30	30	30	30	30	30	30	30	30	0%
Net profit for the year	116,115	100,183	141,735	130,660	131,167	160,273	161,225	162,286	157,372	2%
NON CURRENT LIABILITIES	**2,455,086**	**2,833,735**	**3,158,342**	**3,234,088**	**2,824,155**	**3,128,645**	**3,042,070**	**2,204,391**	**2,768,226**	**-2%**
Borrowings	1,891,245	2,298,543	2,564,214	2,656,224	2,255,495	2,568,913	2,490,933	1,661,448	2,233,096	-2%
Liability for retirement benefits and others	129,217	125,673	126,119	126,119	126,119	126,119	126,119	126,119	126,119	0%
Derivative financial instruments	8,426	12,212	12,212	12,212	12,212	12,212	12,212	12,212	12,212	0%
Provisions	5,717	6,154	7,526	7,526	7,526	7,526	7,526	7,526	7,526	0%
Trade and other payables	332,232	318,126	324,683	308,418	299,215	290,287	281,692	273,499	265,685	-3%
Deferred tax liabilities	88,249	73,027	123,588	123,588	123,588	123,588	123,588	123,588	123,588	0%
CURRENT LIABILITIES	**973,579**	**556,873**	**562,538**	**356,714**	**669,223**	**295,976**	**326,827**	**1,106,860**	**476,098**	**-3%**
Borrowings	650,755	216,594	269,358	85,991	402,603	34,086	59,797	839,439	211,041	-4%
Provisions	1,171	801	801	801	801	801	801	801	801	0%
Trade and other payables	315,735	311,539	291,317	268,859	264,756	260,026	265,166	265,557	263,193	-2%
Income tax payable	0	26,875	0	0	0	0	0	0	0	n.a.
Derivative financial instruments	5,918	1,063	1,063	1,063	1,063	1,063	1,063	1,063	1,063	0%
TOTAL LIABILITIES	**3,428,664**	**3,390,608**	**3,720,880**	**3,590,802**	**3,493,379**	**3,424,621**	**3,368,897**	**3,311,251**	**3,244,325**	**-2%**
TOTAL EQUITY AND LIABILITIES	**4,589,953**	**4,549,825**	**5,180,740**	**5,067,895**	**4,988,213**	**4,963,467**	**4,949,799**	**4,932,292**	**4,897,537**	**-1%**

COMMON-SIZE BALANCE SHEET (% of total assets)	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F
NON-CURRENT ASSETS	**92.7%**	**89.8%**	**91.2%**	**91.2%**	**90.7%**	**89.1%**	**87.7%**	**86.6%**	**85.9%**
Property, plant and equipment	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Goodwill	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%
Intangible assets	84.3%	84.1%	82.3%	82.1%	81.4%	79.8%	78.4%	77.2%	76.3%
Investments in associates and joint ventur	0.3%	0.3%	3.6%	3.7%	3.8%	3.8%	3.9%	3.9%	4.0%
Available-for-sale financial assets	3.4%	3.3%	2.9%	3.0%	3.0%	3.0%	3.0%	3.0%	3.1%
Derivative financial instruments	0.2%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%	0.4%
Other financial assets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Trade and other receivables	2.9%	0.2%	0.4%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
Deferred tax assets	1.4%	1.4%	1.5%	1.6%	1.6%	1.6%	1.6%	1.6%	1.6%
CURRENT ASSETS	**7.3%**	**10.2%**	**8.8%**	**8.8%**	**9.3%**	**10.9%**	**12.3%**	**13.4%**	**14.1%**
Inventories	0.1%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%
Trade and other receivables	5.7%	9.9%	6.5%	5.2%	5.2%	5.2%	5.2%	5.2%	5.2%
Available for sale Financial Assets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Current income tax recoverable	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Derivative financial instruments	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Other financial assets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cash and cash equivalents	1.4%	0.2%	2.1%	3.5%	4.0%	5.6%	7.0%	8.1%	8.8%
TOTAL ASSETS	**100.0%**	**100.0%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
SHAREHOLDERS EQUITY	25.3%	25.5%	**28.2%**	**29.1%**	**30.0%**	**31.0%**	**31.9%**	**32.9%**	**33.8%**
Share capital	11.6%	11.7%	12.9%	13.2%	13.4%	13.4%	13.5%	13.5%	13.6%
Own shares	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%	-0.2%
Reserves	7.1%	7.0%	6.2%	6.3%	6.4%	6.4%	6.4%	6.5%	6.5%
Retained earnings	4.3%	4.8%	4.4%	5.0%	5.4%	5.8%	6.6%	7.4%	8.2%
Issue Premium	0.0%	0.0%	2.3%	2.3%	2.3%	2.4%	2.4%	2.4%	2.4%
Other changes in Equity	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Net profit for the year	2.5%	2.2%	2.7%	2.6%	2.6%	3.2%	3.3%	3.3%	3.2%
NON CURRENT LIABILITIES	**53.5%**	**62.3%**	**61.0%**	**63.8%**	**56.6%**	**63.0%**	**61.5%**	**44.7%**	**56.5%**
Borrowings	41.2%	50.5%	49.5%	52.4%	45.2%	51.8%	50.3%	33.7%	45.6%
Liability for retirement benefits and others	2.8%	2.8%	2.4%	2.5%	2.5%	2.5%	2.5%	2.6%	2.6%
Derivative financial instruments	0.2%	0.3%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%	0.2%
Provisions	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.2%
Trade and other payables	7.2%	7.0%	6.3%	6.1%	6.0%	5.8%	5.7%	5.5%	5.4%
Deferred tax liabilities	1.9%	1.6%	2.4%	2.4%	2.5%	2.5%	2.5%	2.5%	2.5%
CURRENT LIABILITIES	**21.2%**	**12.2%**	**10.9%**	**7.0%**	**13.4%**	**6.0%**	**6.6%**	**22.4%**	**9.7%**
Borrowings	14.2%	4.8%	5.2%	1.7%	8.1%	0.7%	1.2%	17.0%	4.3%
Provisions	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Trade and other payables	6.9%	6.8%	5.6%	5.3%	5.3%	5.2%	5.4%	5.4%	5.4%
Income tax payable	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Derivative financial instruments	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
TOTAL LIABILITIES	74.7%	74.5%	**71.8%**	**70.9%**	**70.0%**	**69.0%**	**68.1%**	**67.1%**	**66.2%**
TOTAL EQUITY AND LIABILITIES	**100.0%**	**100.0%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Appendix 2: Income Statement (REN)

CONSOLIDATED INCOME STATEMENT €'000	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17F-23F
Sales	552	569	3,249	3,249	3,249	3,249	3,249	3,249	3,249	0%
Services rendered	536,544	544,672	588,743	560,619	557,187	552,481	548,085	545,310	544,172	-1%
Revenue from construction of concession assets	240,002	171,247	138,000	125,000	119,500	113,500	129,500	133,500	130,000	-1%
Gains from associates and joint ventures	768	1,314	8,813	8,963	9,116	9,272	9,590	9,922	10,266	3%
Other operating income	41,279	21,649	23,927	23,343	22,780	22,236	21,713	21,207	20,720	-2%
Operating income	**819,144**	**739,452**	**762,732**	**721,174**	**711,832**	**700,738**	**712,136**	**713,188**	**708,407**	**-1%**
Cost of goods sold	(562.0)	(450.0)	(1,762.4)	(1,762.4)	(1,762.4)	(1,762.4)	(1,762.4)	(1,762.4)	(1,762.4)	0%
Cost with construction of concession assets	(222,602.0)	(155,217.0)	(122,816.2)	(111,346.3)	(106,490.3)	(101,192.8)	(115,319.4)	(118,851.0)	(115,760.8)	-1%
External supplies and services	(42,636.0)	(44,328.0)	(54,469.9)	(51,919.4)	(51,717.5)	(51,415.9)	(51,139.1)	(50,997.7)	(50,988.9)	-1%
Personnel costs	(51,673.0)	(49,583.0)	(54,120.1)	(51,534.9)	(51,219.6)	(50,787.2)	(50,383.3)	(50,128.5)	(50,024.0)	-1%
Depreciation and amortizations	(209,303.0)	(214,761.0)	(228,340.6)	(225,831.7)	(220,952.5)	(215,576.6)	(210,229.0)	(204,908.0)	(200,661.6)	-2%
Provisions	302	(516.0)	0	0	0	0	0	0	0	n.a.
Impairment of trade receivables	(683.0)	(258.0)	0	0	0	0	0	0	0	n.a.
Other expenses	(11,893.0)	(12,595.0)	(15,755.0)	(15,755.0)	(15,755.0)	(15,755.0)	(15,755.0)	(15,755.0)	(15,755.0)	0%
Operating costs	(539,049.0)	(477,708.0)	(477,264.2)	(458,149.7)	(447,897.3)	(436,489.9)	(444,588.1)	(442,402.6)	(434,952.7)	-2%
Operating results	**280,095**	**261,743**	**285,468**	**263,025**	**263,935**	**264,248**	**267,548**	**270,785**	**273,454**	**-1%**
Financial costs	(110,503.0)	(91,182.0)	(78,569.7)	(66,794.7)	(67,876.3)	(62,069.1)	(63,980.0)	(65,667.9)	(75,510.2)	-1%
Financial income	6,339	5,291	9,485	9,485	9,485	9,485	9,485	9,485	9,485	0%
Investment income - dividends	5,592	5,550	19,983	19,983	19,983	19,983	19,983	19,983	19,983	0%
Financial results	(98,572.0)	(80,341.0)	(49,101.7)	(37,326.7)	(38,408.3)	(32,601.1)	(34,512.0)	(36,199.9)	(46,042.2)	-1%
Profit before income tax	**181,523**	**181,403**	**236,366**	**225,698**	**225,526**	**231,647**	**233,036**	**234,585**	**227,412**	**-1%**
Income tax expense	(39,963.0)	(55,282.0)	(68,833.0)	(69,499.9)	(69,445.8)	(71,373.9)	(71,811.5)	(72,299.4)	(70,039.7)	0%
Energy sector extraordinary contribution (ESEC)	(25,445.0)	(25,938.0)	(25,798.0)	(25,538.4)	(24,913.9)	0	0	0	0	-100%
NET PROFIT FOR THE YEAR	**116,115**	**100,183**	**141,735**	**130,660**	**131,167**	**160,273**	**161,225**	**162,286**	**157,372**	**2%**
ATTRIBUTABLE TO:										n.a.
Shareholders of the Company	116,115	100,183	141,735	130,660	131,167	160,273	161,225	162,286	157,372	2%
Non-controlling interests	0	0	0	0	0	0	0	0	0	n.a.
Consolidated profit for the year	**116,115**	**100,183**	**141,735**	**130,660**	**131,167**	**160,273**	**161,225**	**162,286**	**157,372**	**2%**
Earnings per share (expressed in € per share)	0	0	0	0	0	0	0	0	0	2%

COMMON-SIZE INCOME STATEMENT (% Operating Income)	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Sales	0%	0%	0%	0%	0%	0%	0%	0%	0%
Services rendered	66%	74%	77%	78%	78%	79%	77%	76%	77%
Revenue from construction of concession assets	29%	23%	18%	17%	17%	16%	18%	19%	18%
Gains from associates and joint ventures	0%	0%	1%	1%	1%	1%	1%	1%	1%
Other operating income	5%	3%	3%	3%	3%	3%	3%	3%	3%
Operating income	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Cost of goods sold	0%	0%	0%	0%	0%	0%	0%	0%	0%
Cost with construction of concession assets	-27%	-21%	-16%	-15%	-15%	-14%	-16%	-17%	-16%
External supplies and services	-5%	-6%	-7%	-7%	-7%	-7%	-7%	-7%	-7%
Personnel costs	-6%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%
Depreciation and amortizations	-26%	-29%	-30%	-31%	-31%	-31%	-30%	-29%	-28%
Provisions	0%	0%	0%	0%	0%	0%	0%	0%	0%
Impairment of trade receivables	0%	0%	0%	0%	0%	0%	0%	0%	0%
Other expenses	-1%	-2%	-2%	-2%	-2%	-2%	-2%	-2%	-2%
Operating costs	-66%	-65%	-63%	-64%	-63%	-62%	-62%	-62%	-61%
Operating results	**34%**	**35%**	**37%**	**36%**	**37%**	**38%**	**38%**	**38%**	**39%**
Financial costs	-13%	-12%	-10%	-9%	-10%	-9%	-9%	-9%	-11%
Financial income	1%	1%	1%	1%	1%	1%	1%	1%	1%
Investment income - dividends	1%	1%	3%	3%	3%	3%	3%	3%	3%
Financial results	-12%	-11%	-6%	-5%	-5%	-5%	-5%	-5%	-6%
Profit before income tax	**22%**	**25%**	**31%**	**31%**	**32%**	**33%**	**33%**	**33%**	**32%**
Income tax expense	-5%	-7%	-9%	-10%	-10%	-10%	-10%	-10%	-10%
Energy sector extraordinary contribution (ESEC)	-3%	-4%	-3%	-4%	-3%	0%	0%	0%	0%
NET PROFIT FOR THE YEAR	**14%**	**14%**	**19%**	**18%**	**18%**	**23%**	**23%**	**23%**	**22%**
ATTRIBUTABLE TO:	0%	0%							
Shareholders of the Company	14%	14%	19%	18%	18%	23%	23%	23%	22%
Non-controlling interests	0%	0%	0%	0%	0%	0%	0%	0%	0%
Consolidated profit for the year	14%	14%	19%	18%	18%	23%	23%	23%	22%

Appendix 3: Cash-Flow Statement (REN)

Cash Flow Statement (000' Euros)	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17F-23F
CASH FLOW FROM OPERATIONS	**503,603**	**427,809**	**369,443**	**387,390**	**394,661**	**386,719**	**383,991**	**-4%**
Operating Results	285,468	263,025	263,935	264,248	267,548	270,785	273,454	-1%
Depreciations & Amortizations	228,341	225,832	220,952	215,577	210,229	204,908	200,662	-2%
Gains/Losses in Associates and J&V	(8,813.0)	(8,963.0)	(9,116.0)	(9,272.1)	(9,590.4)	(9,921.5)	(10,265.9)	3%
Provisions	0	0	0	0	0	0	0	n.a.
Impairments	0	0	0	0	0	0	0	n.a.
Changes in NWC	61,091	53,759.0	-2,603	-2,689	7,051	1,618	-1,828	n.a.
Changes in Non Current Operational Assets	(9,197.3)	5,459.2	(163.0)	(171.0)	(170.2)	(178.1)	(177.3)	-48%
Changes in Non Current Payables	7,928.9	(16,264.6)	(9,202.9)	(8,928.4)	(8,595.4)	(8,193.0)	(7,813.1)	n.a.
Income Tax	(94,631.0)	(95,038.3)	(94,359.8)	(71,373.9)	(71,811.5)	(72,299.4)	(70,039.7)	-5%
Changes in Deffered tax Assets	(17,145.0)	0	0	0	0	0	0	-100%
Changes in Deffered tax Liablities	50,561	0	0	0	0	0	0	-100%
CASH FLOW FROM FINANCING ACTIVITIES	**408,700**	**(262,092.6)**	**(255,934.4)**	**(223,944.3)**	**(225,932.8)**	**(228,173.5)**	**(247,976.2)**	**n.a.**
Net Interest Expense	(69,084.7)	(57,309.7)	(58,391.3)	(52,584.1)	(54,495.0)	(56,182.9)	(66,025.2)	-1%
Dividends Paid	(90,650.3)	(113,426.0)	(113,426.0)	(116,261.6)	(119,168.2)	(122,147.4)	(125,201.1)	6%
Share Capital Increase	133,191	0	0	0	0	0	0	-100%
Issue Premium	116,809	0	0	0	0	0	0	-100%
Changes in Debt	318,435	(91,356.8)	(84,117.1)	(55,098.5)	(52,269.6)	(49,843.1)	(56,750.0)	n.a.
CASH FLOW FROM INVESTMENT ACTIVITIES	**(811,864.0)**	**(97,739.1)**	**(92,089.3)**	**(85,936.4)**	**(101,624.6)**	**(105,300.4)**	**(101,463.2)**	**-29%**
Concession Assets	(138,000.0)	(125,000.0)	(119,500.0)	(113,500.0)	(129,500.0)	(133,500.0)	(130,000.0)	-1%
Property Plant and Equiment	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	0%
Dividends Received (Available for Sale Assets)	19,983	19,983	19,983	19,983	19,983	19,983	19,983	0%
Acquisiton REN PORTGAS	(531,693.0)	0	0	0	0	0	0	-100%
Acquisition Electrogas	(169,285.0)	0	0	0	0	0	0	-100%
Dividends Electrogas	7,345	7,492	7,642	7,795	8,106	8,431	8,768	3%
Cash and cash equivalents in the beginning of the period	10,780	111,219	179,196	200,615	278,125	345,228	398,474	83%
NET CHANGES IN CASH	**100,439**	**67,977**	**21,419**	**77,509**	**67,103**	**53,245**	**34,552**	**-16%**
Cash and Cash Equivalents in the end of the period	**111,219**	**179,196**	**200,615**	**278,125**	**345,228**	**398,474**	**433,025**	**25%**

Common-Size Cash Flow Statements (%CFO)	2017F	2018F	2019F	2020F	2021F	2022F	2023F
CASH FLOW FROM OPERATIONS	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Operating Results	57%	61%	71%	68%	68%	70%	71%
Depreciations & Amortizations	45%	53%	60%	56%	53%	53%	52%
Gains/Losses in Associates and J&V	-2%	-2%	-2%	-2%	-2%	-3%	-3%
Provisions	0%	0%	0%	0%	0%	0%	0%
Impairments	0%	0%	0%	0%	0%	0%	0%
Changes in NWC	12%	13%	-1%	-1%	2%	0%	0%
Changes in Non Current Operational Assets	-2%	1%	0%	0%	0%	0%	0%
Changes in Non Current Payables	2%	-4%	-2%	-2%	-2%	-2%	-2%
Income Tax	-19%	-22%	-26%	-18%	-18%	-19%	-18%
Changes in Deffered tax Assets	-3%	0%	0%	0%	0%	0%	0%
Changes in Deffered tax Liablities	10%	0%	0%	0%	0%	0%	0%
CASH FLOW FROM FINANCING ACTIVITIES	**81%**	**-61%**	**-69%**	**-58%**	**-57%**	**-59%**	**-65%**
Net Interest Expense	-14%	-13%	-16%	-14%	-14%	-15%	-17%
Dividends Paid	-18%	-27%	-31%	-30%	-30%	-32%	-33%
Share Capital Increase	26%	0%	0%	0%	0%	0%	0%
Issue Premium	23%	0%	0%	0%	0%	0%	0%
Changes in Debt	63%	-21%	-23%	-14%	-13%	-13%	-15%
CASH FLOW FROM INVESTMENT ACTIVITIES	**-161%**	**-23%**	**-25%**	**-22%**	**-26%**	**-27%**	**-26%**
Concession Assets	-27%	-29%	-32%	-29%	-33%	-35%	-34%
Property Plant and Equiment	0%	0%	0%	0%	0%	0%	0%
Dividends Received (Available for Sale Assets)	4%	5%	5%	5%	5%	5%	5%
Acquisiton REN PORTGAS	-106%	0%	0%	0%	0%	0%	0%
Acquisition Electrogas	-34%	0%	0%	0%	0%	0%	0%
Dividends Electrogas	1%	2%	2%	2%	2%	2%	2%
Cash and cash equivalents in the beginning of the period	2%	26%	49%	52%	70%	89%	104%
NET CHANGES IN CASH	**20%**	**16%**	**6%**	**20%**	**17%**	**14%**	**9%**
Cash and cash equivalents in the end of the period	**22%**	**42%**	**54%**	**72%**	**87%**	**103%**	**113%**

Appendix 4: Key Financial Ratios

Key Financial Ratios	units	2014	2015	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F
PROFITABILITY RATIOS											
EBITDA Margin	%	85.28%	84.50%	83.86%	82.24%	81.98%	81.85%	81.70%	81.98%	82.04%	81.95%
EBITDA Margin Adj.	%	66.87%	59.75%	64.44%	67.36%	68.05%	68.37%	68.72%	67.35%	66.95%	67.17%
EBIT Margin	%	51.10%	48.36%	46.06%	45.69%	44.99%	45.40%	45.82%	46.70%	47.46%	48.00%
EBIT Margin Adj.	%	40.07%	34.19%	35.40%	37.43%	37.35%	37.93%	38.54%	38.36%	38.73%	39.34%
Net Profit Margin	%	19.02%	20.05%	17.63%	22.69%	21.51%	21.81%	26.58%	26.99%	27.35%	25.97%
Net Profit Margin Adj.	%	14.92%	14.18%	13.55%	18.58%	17.86%	18.22%	22.36%	22.17%	22.32%	21.29%
NPM (Excluding ESEC) Adj.	%	18.23%	17.28%	17.06%	21.96%	21.33%	21.65%	22.36%	22.17%	22.32%	21.29%
ROA	%	2.29%	2.53%	2.20%	2.74%	2.59%	2.65%	3.21%	3.24%	3.28%	3.13%
ROE	%	9.93%	10.00%	8.64%	9.71%	8.89%	8.84%	10.37%	10.17%	9.99%	9.30%
ROCE	%	7.73%	7.75%	6.56%	6.18%	5.83%	6.37%	5.89%	6.02%	7.35%	6.42%
EFFICIENCY RATIOS											
Cash Opex/RAB	%	6.47%	8.02%	6.78%	4.93%	4.72%	4.72%	4.71%	5.18%	5.38%	5.41%
Receivable turnover	times	0.96	1.14	1.27	1.45	1.80	2.03	2.03	2.03	2.03	2.03
Days Sales Outstanding (DSO)	days	381.55	320.56	286.65	252.01	202.53	179.48	179.95	180.20	180.19	180.11
Inventory turnover	times	0.44	0.24	0.22	1.00	0.70	0.70	0.70	0.70	0.70	0.70
Days Inventory Outstanding (DIO)	days	832.63	1547.03	1627.49	365.74	518.59	518.59	518.59	518.59	518.59	518.59
Payables turnover	times	0.19	0.34	0.31	0.28	0.28	0.28	0.28	0.31	0.31	0.31
Days payable outstanding (DPO)	days	1929.94	1086.15	1165.87	1317.99	1315.71	1305.35	1320.59	1194.18	1158.76	1160.49
Operating Cycle	days	1214.18	1867.59	1914.15	617.76	721.12	698.06	698.54	698.79	698.78	698.70
Cash cycle conversion (CCC)	days	-715.76	781.44	748.28	-700.24	-594.59	-607.28	-622.06	-495.39	-459.98	-461.79
Fixed asset turnover	times	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.15	0.15
Total asset turnover	times	0.11	0.11	0.12	0.11	0.11	0.11	0.11	0.11	0.11	0.11
LIQUIDITY RATIOS											
Current Ratio (x)	times	0.65	0.35	0.83	0.81	1.25	0.70	1.82	1.85	0.60	1.45
Quick Ratio (x)	times	0.65	0.34	0.83	0.80	1.24	0.70	1.81	1.84	0.60	1.44
Cash Ratio (x)	times	0.11	0.07	0.02	0.20	0.50	0.30	0.93	1.04	0.36	0.89
Interest Coverage Ratio	times	2.30	2.53	2.87	3.63	3.55	3.55	3.73	3.70	3.68	3.11
CAPITAL STRUCTURE											
Total Debt to Total Equity	times	2.29	2.19	2.17	1.94	1.86	1.78	1.69	1.61	1.54	1.48
Total Debt to Total Capital	times	0.70	0.69	0.68	0.66	0.65	0.64	0.63	0.62	0.61	0.60
Total Debt to Total Assets	times	0.53	0.55	0.55	0.55	0.54	0.53	0.52	0.51	0.51	0.50
Long-Term Debt to Equity	times	1.75	2.10	1.94	1.85	1.89	1.60	1.76	1.66	1.11	1.44
Long-Term Debt to Total Capital	times	0.55	0.66	0.65	0.63	0.66	0.58	0.65	0.64	0.44	0.58
Long-Term Debt to Assets	times	0.44	0.54	0.53	0.52	0.55	0.48	0.54	0.53	0.36	0.48
Financial Leverage	times	4.34	3.95	3.92	3.55	3.43	3.34	3.23	3.13	3.05	2.97
Net Debt/ EBITDA	times	4.93	5.06	5.26	5.30	5.12	4.95	4.73	4.51	4.32	4.16
Payout and Cash Flow Ratios											
Payout Ratio (Dividend/Net income)	%	0.74	0.81	0.78	0.90	0.80	0.86	0.88	0.75	0.76	0.77
Payout Ratio (Dividend/FCFE)	%	n.a	n.a	n.a	n.a	0.73	0.84	0.69	0.72	0.76	0.83
Earnings Quality (CFO/(Net Income+D&A+ΔNWC))	times	n.a	n.a	n.a	1.63	1.44	1.07	1.05	1.11	1.09	1.11

*Adj. (Adjusted): Takes into account all the operating income. In the remaining cases "Revenue from Construction Assets" is not accounted (Non-Cash Revenue).

Appendix 5: Statement of Financial Position Assumptions

BALENCE SHEET ASSUMPTIONS	2017F	2018F	2019F	2020F	2021F	2022F	2023F	Description
CONSOLIDATED BALANCE SHEET								
Trade and other receivables								
Tariff Deviations								We are assuming that from 2017 onwards are zero, given its unpredictability feature. The values of the tariff deviations on 2016 are fully recovered until 2018.
Trade and Other Receivables REN PORTGAS, SA	23%	23%	23%	23%	23%	23%	23%	Same relationship as of 2016 between Non Current REN PORTGAS,SA receivables and its Services Rendered
Current Assets								
Inventories								
REN PORTGAS, SA	55%	55%	55%	55%	55%	55%	55%	Same relationship as of 2016 betwen REN Portgas Inventories and its Sales
Trade and other receivables								
Trade Receivables	42%	42%	42%	42%	42%	42%	42%	Average relationship (2012-2016) between current Trade Receivables and Services Rendered
Tariff Deviations								We are assuming that from 2017 onwards are zero, given its unpredictability feature. The values of the tariff deviations on 2016 are fully recovered until 2018.
Trade and Other Receivables REN PORTGAS, SA	35%	35%	35%	35%	35%	35%	35%	Same relationship as of 2017F between Current REN PORTGAS,SA receivables and its Services Rendered
Current income tax recoverable (REN PORTGAS,SA)	-100%	0%	0%	0%	0%	0%	0%	It is assumed that the company recovers it during 2018F and the value is zero afterwards
Equity								
Share capital	Related with Share Capital Increase	0	0	0	0	0	0	Same value as 2017F (See Appendix 18)
Issue Premium	Related with Share Capital Increase	0	0	0	0	0	0	Same value as 2017F
Non Current Liabilities								
Borrowings								Appendix 19
Prepaid Interest	78%	78%	78%	78%	78%	78%	78%	Based on the realtionship between non current Prepaid interest and the total Prepaid interest of that year, the amount of prepaid interest is to be amortized over the years and results of the refinancing of bonds issues, as stated in REN'S annual report of 2016
Trade and other payables								
Other Creditors	5,22%	5,22%	5,22%	5,22%	5,22%	5,22%	5,22%	Average relationship (2013-2016) between Other Creditors (Non Current) and Services Rendered
Trade and Other Payables REN PORTGAS,SA	39%	39%	39%	39%	39%	39%	39%	Same relationship as of 2016 between REN PORTGAS,SA Trade and other Payables and its Services Rendered
Grants Related to Assets (Deffered Income)	-3,6%	-3,6%	-3,6%	-3,6%	-3,6%	-3,6%	-3,6%	Average YoY change between 2012 and 2016
Current Liabilities								
Borrowings								Appendix 19
Accrued Interest	1,12%	1,12%	1,12%	1,12%	1,12%	1,12%	1,12%	Same Percentage as 2016 of total Bonds, Bank Borrowings, Commercial Paper and Finacial Leases
Prepaid Interest	22%	22%	22%	22%	22%	22%	22%	Based on the realtionship between current Prepaid interest and the total Prepaid interest of that year, the amount of prepaid interest is to be amortized over the years and results of the refinancing of bonds issues, as stated in REN'S annual report of 2016
Trade and other payables								
Current Suppliers	24,91%	24,91%	24,91%	24,91%	24,91%	24,91%	24,91%	Median value (2012-2016) of the relationship between Current Suppliers and Services Rendered
Other Creditors	8,76%	8,76%	8,76%	8,76%	8,76%	8,76%	8,76%	Median value (2012-2016) of the relationship between Other Creditors and Services Rendered
Fixed Assets Suppliers	44,31%	44,31%	44,31%	44,31%	44,31%	44,31%	44,31%	Median (2012-2016) of the relationship between fixed asset Suppliers and Revenue from the Construction of Concession Assets
Grants Related to Assets (Deffered Income)	6,09%	6,09%	6,09%	6,09%	6,09%	6,09%	6,09%	Average (2012-2016) relationship between Current and Non Current Grants Related to Assets
Trade and other payables (REN PORTGAS, SA)	41%	41%	41%	41%	41%	41%	41%	Same relationship between REN PORTGAS,SA current payables and its services rendered
Income tax payable	-100%	0%	0%	0%	0%	0%	0%	The income tax is assumed to be fully paid in 2017F and to be 0 onwards
Inncome Tax Payable (REN PORTGAS, SA)	-100%	0%	0%	0%	0%	0%	0%	The income tax is assumed to be fully paid in 2018F and to be 0 onwards

Appendix 6: Income Statement Assumptions

INCOME STATEMENT ASSUMPTIONS	2017F	2018F	2019F	2020F	2021F	2022F	2023F	Description
INCOME STATEMENT								
Revenue and RAB Breakdown								
Average RAB								From 2017F onwards, we are assuming that the average RAB at YE will be equal to: Average RABt= Av. RABt-1 + Transfers to RABt - Amortizations t. For each segment (Electricity; Natural Gas; REN Portgas). Transfers to RAB will equal additions to concession assets plus transfers from concession assets in progress to concession assets. CAPEX on year t will be splited into additions to concession Asstes and the other part will be assumed to stay in progress during one year, hence it will be added to the concession assets in year t+1. With this we are assuming that the total amount of CAPEX is already net of subsidies, meaning that it is fully paid by REN. (Appendix 8)
Land	-4.45%	-4.45%	-4.45%	-4.45%	-4.45%	-4.45%	-4.45%	YoY decrease based on the average of the last three years
Rate of Remuneration (RoR)								
10 Year Portuguese Bond Yield	0.00%	2.22%	2.51%	2.80%	3.09%	3.38%	3.67%	We have computed the implied foward rate between the 5Y and the 15Y Portuguese Yields and used that foward rate to estimate the 10Y PT yields in 2022. Moreover, we have assumed a linear relation between the 2017 yields and our forecast for the 2022 yield. Aftermath, we are assuming a YoY growth of 29bps for the 10Y PT Yields. (Appendix 19)
Electricity	3.43%							This is the average 10Y PT yield observed between October 2016 and September 2017, excluing the 1/12 highest and lowest daily observations (as it is done by the regulator).
Natural Gas and REN PortGas	3.07%							Daily average of the 10Y Portuguese Yields Between January 2017 to December 2017. For simplicity reasons, from this year onwards we will consider our estiamtions for the average yield at the end of each year for RoR computation, so the period of observation will be equal for Electricity
Electricity RoR								The RoR is set by the Regulator (ERSE) at the beginning of each regulatory period. The values will then adjust in accordance with the 10Y Yield variations (0,4% increase for each 1% increase in Yields). In the case of Electricity, there is a RoR with premium which is 0,75% higher than the Base RoR .The values for 2018F reflect the changes for the new regulatory period (2018-2020). The RoR have a Collar mechanism with a floor of 4,75% and a Cap of 9,75%. (Appendix 9)
With Premium (+0,75%)	6.81%	6.40%	6.52%	6.63%	6.75%	6.86%	6.98%	
Without Premium	6.06%	5.65%	5.77%	5.88%	6.00%	6.11%	6.23%	
Natural Gas RoR	6.02%	6.02%	6.13%	6.25%	6.37%	6.48%	6.60%	Same as for electricity but with different collar parametrs, the floor is 5,40% and the CAP is 9%. The current Regulatory period started in 2016 and lasts until 2019. (There is no efficiency incentives on Capex, hence there no RoR Premium)
REN Portgas RoR	6.32%	6.32%	6.43%	6.55%	6.67%	6.78%	6.90%	Same as for electricity but with different collar parametrs, the floor is 5,70% and the CAP is 9,30%. The current Regulatory period started in 2016 and lasts until 2019. . (There is no efficiency incentives on Capex, hence there no RoR Premium)
Land RoR	0.36%	0.36%	0.36%	0.36%	0.36%	0.36%	0.36%	Equal to the RoR of 2016
Smoothing Differences (Natural Gas)	0	0	0	0	0	0	0	These values are assumed to be zero from 2017F onwards as it was stated by ERSE (Appendix xxx)
Remuneration of fully Amortized Assets (Incentives to Economic Rationalization)	3.85%	12.50%	11.93%	7.72%	9.00%	9.00%	9.00%	YOY growth rates implicit in ERSE expectations for the value as stated in the document "Parâmetros de Regulação para o Periodo 2018 a 2020" and from 2020F onwards we assume the average YoY growth from 2017F-2020F, given that incentive is expected to grow in the future due to the decrease in investment and a major base of fully amortized assets
Revenues from Opex								Revenues from Opex t= Revenues from Opex t-1 *(1+ GDP deflator-Efficiency factor) (Appendix xxx)
GDP Deflator	1.20%	1.40%	1.40%	1.70%	1.70%	2.00%	2.00%	The values for 2017F to 2019F correspond to the forecasts from the European Comission, while the values for 2020F and 2021F are the forecasts from the Conselho de Finanças Publicas the values for 2022F and 2023F are the target Inflation of the ECB
Efficiency Factor								
Electricity	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	Parameter Set by the Regulator (ERSE) for each regulatory period, the values for 2018F reflect the changes for the newest one (2018-2020)
Natural Gas	3%	3%	3%	3%	3%	3%	3%	Parameter Set by the Regulator (ERSE) for the current regulatory period (2016-2019)
Natural gas REN PORTGAS, SA	2%	2%	2%	2%	2%	2%	2%	Parameter Set by the Regulator (ERSE) for the current regulatory period (2016-2019)
Subsidies Recognition								
% Electricity subsidies in total subsidies recognized in the P&L	70%	70%	70%	70%	70%	70%	70%	Average relationship between 2013 and 2016
% Natural Gas subsidies in total subsidies recognized in the P&L	30%	30%	30%	30%	30%	30%	30%	Average relationship between 2013 and 2016
% REN PORTGAS in total sunbsidies recognized in P&L	0%	0%	0%	0%	0%	0%	0%	No subsidies related to REN PORTGAS (value equal to its depreciations)
Gains from associates and joint ventures								
Electrogas,SA	2%	2%	2%	2%	4%	4%	4%	As held in Conference Call of 29 th january 2018
Operating Costs								
Cost of goods sold	54%	54%	54%	54%	54%	54%	54%	Same relationship as of 2016 between COGS and Sales, reflecting the impact of both Sales and COGS of REN PORTGAS
Cost of goods sold	157.54%	157.54%	157.54%	157.54%	157.54%	157.54%	157.54%	Average Relationship (2012-2016) between COGS and Sales
REN PORTGAS, SA Cost of Goods Sold	32%	32%	32%	32%	32%	32%	32%	Same relationship as of 2016 between COGS and Sales
External supplies and services	9%	9%	9%	9%	9%	9%	9%	Average relationship (2012-2016) between ESS and Services Rendered
External supplies and services	8.12%	8.12%	8.12%	8.12%	8.12%	8.12%	8.12%	Average relationship (2012-2016) between ESS and Services Rendered
REN PORTGAS, SA External Supplies and Servies	19%	19%	19%	19%	19%	19%	19%	Same relationship as of 2016 between REN PORTGAS,SA ESS and its Services Rendered
Personnel costs	9%	9%	9%	9%	9%	9%	9%	Average relationship (2012-2016) between Personnel Costs and Services Rendered
Personnel costs	9%	9%	9%	9%	9%	9%	9%	Average relationship (2012-2016) between Personnel Costs and Services Rendered
REN PORTGAS, SA Personnel Costs	9%	9%	9%	9%	9%	9%	9%	Same relationship as of 2016 between REN PORTGAS,SA Personnel Costs and its Services Rendered
Depreciation and amortizations							5.15%	Average percentage of amortization compared with the value of concession assets
Electricity	5.86%	5.86%	5.86%	5.86%	5.86%	5.86%	5.86%	Average percentage of amortization (2012-2016) of electricity Segment compared with its concession assets
Gas	4.96%	4.96%	4.96%	4.96%	4.96%	4.96%	4.96%	Average percentage of amortization (2012-2016) of Natural Gas Segment compared with its concession assets
REN PORTGAS, SA	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	3.7%	Same relationship as 2016 of REN PORTGAS,SA amortizations compared with its concession assets
CAPEX								
Intangible assets								
Concession Assets	2.38%	2.38%	2.38%	2.38%	2.38%	2.38%	2.38%	Median value from 2012 to 2016 (% of Capex that goes directly to concession assets in the same year)
Concession Assets in Progress	97.62%	97.62%	97.62%	97.62%	97.62%	97.62%	97.62%	Median value from 2012 to 2016 (% of Capex that stays in progress in a given year)
Acquisition of REN PORTGAS, SA	Acquisiton value of REN PORTGAS, SA	0	0	0	0	0	0	The acquisition will only occur once
Portion of the CAPEX that is recognized as Cost of concession Assets (Revenue from construction Assets minus Own Works)								
Electricity	88%	88%	88%	88%	88%	88%	88%	Average from 2012 to 2016
Gas	88%	88%	88%	88%	88%	88%	88%	Average from 2012 to 2016
REN PORTGAS, SA	93%	93%	93%	93%	93%	93%	93%	Same relationship as of 2016 between REN PORTGAS,SA construction costs and revenue from construction
Financial costs								
Cost of Debt (Float)	2.56%	2.80%	3.09%	3.38%	3.67%	3.96%	4.25%	REN's cost of financing is equal to the average yield ((yield t + yield t-1)/2) of the 10Y Portuguese Bonds minus 2,82 bps, which is the spread between the yields of the January 2018 issues of Portuguese and REN's bonds. It is considered to be the cost of debt for the debt at floating rate. (Appendix 19)
Cost of Debt (Fix)	2.70%	2.61%	35.39%	44.31%	43.17%	42.04%	46.83%	Appendix 19
Cost of Debt	2.70%	2.61%	2.70%	2.65%	2.76%	2.87%	3.52%	
Income tax expense								
Energy sector extraordinary contribution (ESEC)	0.85%	0.85%	0.85%	0.00%	0.00%	0.00%	0.00%	The ESEC is set as 0,85% of the Regulated Asset Base or the concession assets (higher) excluding the value of LNG Terminal. The levy on REN Portgas is not included, it was agreed between REN and EDP at the purchase agreement that EDP will pay the levy until 2019. Additionally, we are assuming, as base case scenario, that the levy will cease on 2020.
% LNG Terminal in Total Concession Assets	19.00%	19.00%	19.00%	19.00%	19.00%	19.00%	19.00%	Same Percentage that the one implict in the value to be paid in 2017F
Total Number Of Shares	0	0	0	0	0	0	0	Same nominal value from 2017F onwards
Total Number Of Own Shares	0%	0%	0%	0%	0%	0%	0%	Same nominal value from 2017F onwards
Dividend Per Share	0.171 €	0.171 €	0.171 €	0.175 €	0.180 €	0.184 €	0.189 €	Assumed as the Same value as the most recent years, as it is one of the main policies of REN (to keep a stable dividend policy)
Dividend Per Share Growth		0%	0%	3%	3%	3%	3%	

Appendix 7: EBITDA Breakdown by Segment

Electricity EBITDA Breakdown (€M)	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17F-23F
1) Revenues	539.7	476.3	444.1	442.6	439.8	437.9	436.6	435.9	-1.5%
Revenues from assets	317.3	314.2	297.0	295.6	292.7	290.6	289.1	288.0	-1.4%
Return on RAB	140.2	139.5	119.4	118.2	117.0	115.9	114.8	113.8	-3.3%
Hydro land remuneration and lease revenues from hydro porctection zone	1	0.9	0.9	0.8	0.8	0.8	0.7	0.7	-4.5%
Remuneration of fully amortized assets	20.8	21.6	24.3	27.2	29.3	31.9	34.8	37.9	9.8%
Recovery of amortizations (net from subsidies)	143.1	140.7	141.4	138.7	135.3	132.1	129.1	126.3	-1.8%
Subsidies amortization	12.2	11.4	11.0	10.6	10.3	9.9	9.5	9.2	-3.6%
Revenues of OPEX	62.3	62.1	62.1	62.0	62.1	62.2	62.5	62.9	0.2%
Construction revenues (IFRIC 12)	157.5	100.0	85.0	85.0	85.0	85.0	85.0	85.0	-2.7%
2) OPEX	51.9	50.5	48.4	48.1	47.6	47.2	46.9	46.8	-1.3%
Personnel costs	20.5	19.9	18.9	18.8	18.6	18.4	18.3	18.2	-1.5%
External supplies and services	23.2	22.7	21.6	21.4	21.2	21.0	20.8	20.7	-1.5%
Other operational costs	8.2	7.9	7.9	7.9	7.9	7.9	7.9	7.9	0.0%
3) Construction costs (IFRIC 12)	143.6	88.2	75.0	75.0	75.0	75.0	75.0	75.0	-2.7%
4) Depreciations and amortizations	154.7	152.1	152.4	149.4	145.6	142.0	138.7	135.5	-1.9%
5) EBIT (1-2-3-4)	189.6	185.4	168.2	170.2	171.6	173.6	176.0	178.5	-0.6%
6) Depreciations and amortizations	154.7	152.1	152.4	149.4	145.6	142.0	138.7	135.5	-1.9%
7) EBITDA (5+6)	**344.3**	**337.6**	**320.7**	**319.5**	**317.2**	**315.6**	**314.7**	**314.1**	**-1.2%**

NG EBITDA Breakdown (€M)	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17-23F
1) Revenues	186.5	174.3	167.2	158.5	149.2	161.6	162.8	157.6	-1.7%
Revenues from assets	134.4	121.6	113.1	110.4	107.7	104.4	102.0	100.7	-3.1%
Return on RAB	74.8	64.5	58.1	57.4	56.3	55.0	54.6	54.4	-2.8%
Tariff smoothing effect (NG)	(0.9)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Recovery of amortizations (net from subsidies)	54.7	52.1	50.2	48.4	46.9	45.2	43.3	42.2	-3.4%
Subsidies amortization	5.9	5.0	4.8	4.6	4.4	4.3	4.1	4.0	-3.6%
Revenues of OPEX	36.3	35.6	35.1	34.5	34.1	33.6	33.3	33.0	-1.3%
Construction revenues (IFRIC 12)	13.8	17.0	19.0	13.5	7.5	23.5	27.5	24.0	5.9%
2) OPEX	24.6	23.8	22.8	22.7	22.5	22.3	22.1	22.1	-1.3%
Personnel costs	7.9	7.5	7.2	7.1	7.0	7.0	6.9	6.9	-1.5%
External supplies and services	12.7	12.4	11.8	11.7	11.6	11.5	11.4	11.3	-1.5%
Other operational costs	4	3.8	3.8	3.8	3.8	3.8	3.8	3.8	0.0%
3) Construction costs (IFRIC 12)	11.7	15.0	16.8	11.9	6.6	20.7	24.3	21.2	5.9%
4) Depreciations and amortizations	59.8	57.1	54.9	53.1	51.4	49.5	47.4	46.2	-3.5%
5) EBIT (1-2-3-4)	90.4	78.4	72.6	70.8	68.8	69.1	68.9	68.2	-2.3%
6) Depreciations and amortizations	59.8	57.1	54.9	53.1	51.4	49.5	47.4	46.2	-3.5%
7) EBITDA (5+6)	**150.2**	**135.5**	**127.6**	**123.9**	**120.2**	**118.5**	**116.4**	**114.4**	**-2.8%**

Others EBITDA Breakdown (€M)	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17-23F
1) Revenues	12.7	20.87	20.87	20.87	20.87	20.87	20.87	20.87	0.0%
Other Revenues	12.7	20.87	20.87	20.87	20.87	20.87	20.87	20.87	0.0%
Construction revenues (IFRIC 12)	0	0	0	0	0	0	0	0	-
2) OPEX	31.1	31.60	30.19	29.97	29.67	29.39	29.19	29.09	-1.4%
Personnel costs	22.2	21.15	20.12	19.95	19.74	19.53	19.39	19.31	-1.5%
External supplies and services	8	7.82	7.44	7.38	7.30	7.23	7.17	7.14	-1.5%
Other operational costs	0.9	2.63	2.63	2.63	2.63	2.63	2.63	2.63	0.0%
3) Construction costs (IFRIC 12)	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
4) Depreciations and amortizations	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
5) Other	0.3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
6) EBIT	(18.9)	(10.7)	(9.3)	(9.1)	(8.8)	(8.5)	(8.3)	(8.2)	-4.3%
7) Depreciations and amortizations	0.2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-
8) EBITDA	**(18.6)**	**(10.7)**	**(9.3)**	**(9.1)**	**(8.8)**	**(8.5)**	**(8.3)**	**(8.2)**	**-4.3%**

REN PORTGAS EBITDA Breakdown	2017F	2018F	2019F	2020F	2021F	2022F	2023F	CAGR 17-23F
1) Revenues	83.8	81.4	82.1	82.8	83.6	84.3	85.1	0.2%
Revenues from assets	47.7	45.3	46.1	46.9	47.6	48.4	49.1	0.5%
Return on RAB	28.5	26.9	27.6	28.2	28.9	29.6	30.3	1.0%
Recovery of amortizations (net from subsidies)	19.1	18.4	18.5	18.6	18.7	18.8	18.9	-0.2%
Subsidies amortization	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-
Revenues of OPEX	12.5	12.4	12.3	12.3	12.3	12.3	12.3	-0.3%
Construction revenues (IFRIC 12)	21.0	21.0	21.0	21.0	21.0	21.0	21.0	0.0%
Other Operating Income	2.7	2.7	2.7	2.7	2.7	2.7	2.7	0.0%
2) OPEX	20.2	19.5	19.7	20.0	20.2	20.4	20.6	0.3%
Personnel costs	5.5	5.3	5.4	5.4	5.5	5.6	5.7	0.3%
External supplies and services	11.5	11.1	11.2	11.3	11.5	11.6	11.8	0.3%
Other operational costs	3.2	3.2	3.2	3.2	3.2	3.2	3.2	0.0%
3) Construction costs (IFRIC 12)	19.6	19.6	19.6	19.6	19.6	19.6	19.6	0.0%
4) Depreciations and amortizations	19.1	18.4	18.5	18.6	18.7	18.8	18.9	-0.2%
5) EBIT (1-2-3-4)	24.9	23.8	24.3	24.7	25.1	25.6	26.0	0.8%
6) Depreciations and amortizations	19.1	18.4	18.5	18.6	18.7	18.8	18.9	-0.2%
7) EBITDA (5+6)	**44.0**	**42.3**	**42.8**	**43.3**	**43.8**	**44.4**	**44.9**	**0.3%**

Appendix 8: RAB Breakdown

€M	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Average RAB	**3537.1**	**3936.4**	**3837.2**	**3727.1**	**3616.7**	**3506.8**	**3418.7**	**3339.2**
Electricity	2152.7	2155.7	2103.2	2035.8	1971.4	1910.8	1853.8	1800.1
Premium	1102.6	1181.1	1197.4	1195.6	1192.9	1189.8	1186.3	1182.6
No Premium	1050.1	974.6	905.8	840.2	778.5	721.0	667.5	617.5
Natural Gas	1116.1	1072.8	1034.9	1000.7	962.7	921.1	897.3	878.5
Land	268.3	256.3	244.9	234.0	223.6	213.6	204.1	195.0
REN PORTGAS	0	451.6	454.2	456.6	459.0	461.3	463.5	465.6

Appendix 9: RoR Breakdown

To estimate RoR for each segment we used our forecasts for the 10Y Portuguese yield, applying the average yield for each year to all three regulated segments. For NG Transmission and Distribution, the calendar year period matches the regulator's period for computing the RoR based on the average 10Y yield. For electricity, although the regulator uses a different period (October$_{-1}$ to September), for simplicity we are also computing the RoR using the average forecasted 10Y yield for the whole year. The RoR for each segment has a linear relation with the 10Y Yields for each 1% increase in Yields, RoR will increase 0.4%, as given by:

$$\text{RoR}_{\text{Electricity t}} = \text{RoR}_{\text{beginning of regulatory period}} + 0.4 \times \Delta \text{ Average 10Y PT Yields}_{\text{from October}_{t-1}\text{ and September }_{t}\text{ (excluding the }\frac{1}{12}\text{highest and lowest observations)}}$$

$$\text{RoR}_{\text{NG t}} = \text{RoR}_{\text{beginning of regulatory period}} + 0.4 \times \Delta \text{ Average 10Y PT Yields}_{\text{from January}_{t}\text{ and December }_{t}\text{ (excluding the }\frac{1}{12}\text{highest and lowest observations)}}$$

Electricity RoR	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Tariff	6.1%	5.5%	5.3%	5.4%	5.5%	5.6%	5.7%
Real	6.1%	5.3%	5.4%	5.5%	5.6%	5.7%	5.8%
RoR CAP	9.15%	9.75%	9.75%	9.75%	9.75%	9.75%	9.75%
RoR Floor	5.65%	4.75%	4.75%	4.75%	4.75%	4.75%	4.75%
Yield	3.43%	2.08%	2.37%	2.66%	2.94%	3.23%	3.52%
Changes in Yields	-0.17%	-0.62%	0.29%	0.29%	0.29%	0.29%	0.29%
Relationship between 1%change in yield and changes in ROR	0.4	0.4	0.4	0.4	0.4	0.4	0.4
Premium	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%	0.75%

Electricity Regulatory Period (2018-2020)			
RoR Base	5.50%	Yield	2.70%
RoRFloor	4.75%	Yield	0.82%
RoR Cap	9.75%	Yield	13.32%
Relatinsip between 1%change in yield and changes in ROR			0.4

NG Transportation RoR	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Tariff	6.7%	6.0%	5.6%	5.7%	5.8%	6.0%	6.1%
Real	6.0%	5.6%	5.7%	5.8%	6.0%	6.1%	6.2%
RoR CAP	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%	9.00%
RoR Floor	5.40%	5.40%	5.40%	5.40%	5.40%	5.40%	5.40%
Yield	3.07%	2.08%	2.37%	2.66%	2.94%	3.23%	3.52%
Changes in Yields	0.29%	-0.99%	0.29%	0.29%	0.29%	0.29%	0.29%
Relationship between 1%change in yield and changes in ROR	0.4	0.4	0.4	0.4	0.4	0.4	0.4

NG Transportation Regulatory Period (2016-2019)			
RoR Base	5.90%	Yield	2.78%
RoRFloor	5.40%	Yield	1.53%
RoR Cap	9.00%	Yield	10.53%
Relatinsip between 1%change in yield and changes in ROR			0.4

NG Distribution RoR	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Tariff	6.2%	6.3%	5.9%	6.0%	6.2%	6.3%	6.4%
Real	6.3%	5.9%	6.0%	6.2%	6.3%	6.4%	6.5%
RoR CAP	9.30%	9.30%	9.30%	9.30%	9.30%	9.30%	9.30%
RoR Floor	5.70%	5.70%	5.70%	5.70%	5.70%	5.70%	5.70%
Yield	3.07%	2.08%	2.37%	2.66%	2.94%	3.23%	3.52%
Changes in Yields	0.29%	-0.99%	0.29%	0.29%	0.29%	0.29%	0.29%
Relationship between 1%change in yield and changes in ROR	0.4	0.4	0.4	0.4	0.4	0.4	0.4

NG Distribution Regulatory Period (2016-2019)			
RoR Base	6.20%	Yield	2.78%
RoRFloor	5.70%	Yield	1.53%
RoR Cap	9.30%	Yield	10.53%
Relatinsip between 1%change in yield and changes in ROR			0.4

Appendix 10: REN's CAPEX

CAPEX assumptions follow PDIRT-E 2018-27 (Electricity), PDIRGN 2018-27 (NG), PDIRD 2017-21 (REN Portgás). The first two are dependent on a government decision, however the last one has already received approval. Even though the programs might not be ultimately approved by the state, in our opinion, this is still the best estimation for capital expenditures.

Transfers to RAB vs CAPEX – In our assumption, all future CAPEX will be added to RAB (assuming no subsidies). Although, Transfers to RAB does not match CAPEX every year. Based on REN's historical financial statements, 2.38% of $CAPEX_t$ is going directly to RAB_t/Concession $Assets_t$, and the remaining 97.62% goes to Concession Assets in $Progress_t$, being then added to RAB/Concession Assets in t+1 (assuming that those assets will be ready to work in one year time). Accordingly, transfers to RAB in year t are given by:

$$\text{Transfers to } RAB_t = 2.38\%\ CAPEX_t + \text{Concession Assets in } Progess_{t-1}$$

Additionally, we are assuming that the whole amount of CAPEX in the electricity sector will be remunerated with RoR premium, following management expectations (confirmed by REN in conference call January, 29th 2018).

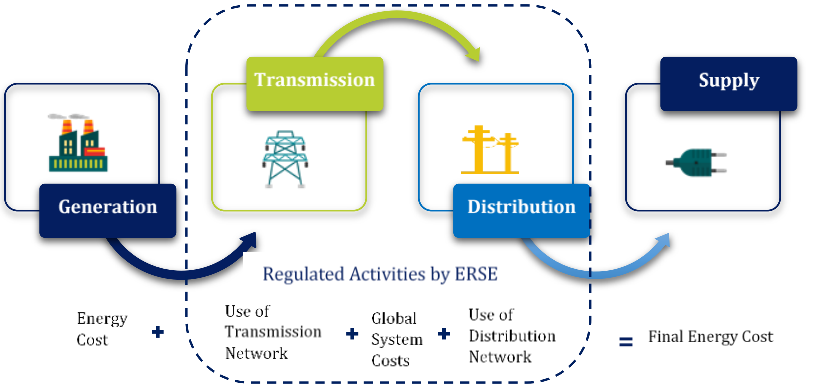
CAPEX	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Total Capex	**138,214.0**	**125,214.0**	**119,714.0**	**113,714.0**	**129,714.0**	**133,714.0**	**130,214.0**
Property, plant and equipment	214.0	214.0	214.0	214.0	214.0	214.0	214.0
Intangible assets	138,000.0	125,000.0	119,500.0	113,500.0	129,500.0	133,500.0	130,000.0
Electricity	100,000.0	85,000.0	85,000.0	85,000.0	85,000.0	85,000.0	85,000.0
Natural Gas	17,000.0	19,000.0	13,500.0	7,500.0	23,500.0	27,500.0	24,000.0
Base Plan	17,000.0	19,000.0	13,500.0	7,000.0	6,500.0	5,500.0	5,500.0
Third Interconnection with Spain (1st stage)	0.0	0.0	0.0	500.0	17,000.0	22,000.0	18,500.0
Ren Portgas	21,000.0	21,000.0	21,000.0	21,000.0	21,000.0	21,000.0	21,000.0
Others	0	0	0	0	0	0	0
Transfers to RAB	172,006.7	137,690.7	124,869.1	119,357.2	113,880.7	129,595.2	133,416.7
Electricity	**157,728.1**	**99,643.1**	**85,000.0**	**85,000.0**	**85,000.0**	**85,000.0**	**85,000.0**
Natural Gas	**13,778.9**	**17,047.6**	**18,869.1**	**13,357.2**	**7,880.7**	**23,595.2**	**27,416.7**
Ren Portgas	**499.7**	**21,000.0**	**21,000.0**	**21,000.0**	**21,000.0**	**21,000.0**	**21,000.0**

Appendix 11: Regulator's WACC Computations

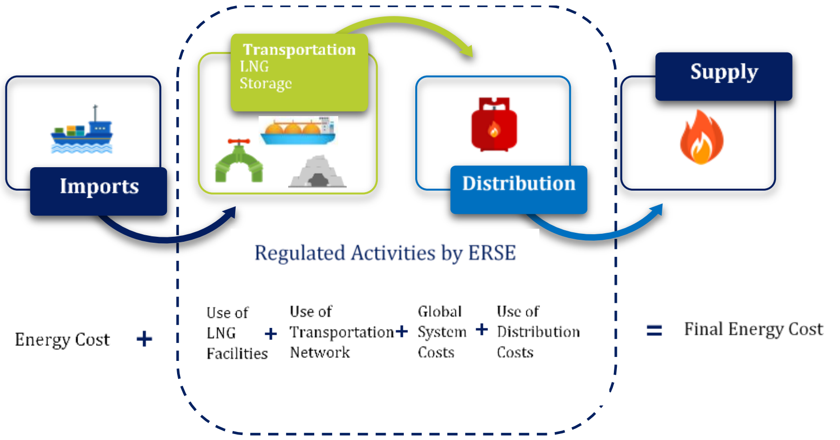
REN's NG and Electricty WACC computed by the regulator			
Variable		**Regulatory Period NG 2016-2017 to 2018-2019**	**Regulatory Period Electricity 2018-2020**
Risk Free Rate		1.73% 5 years Geometric average of 10-year bonds yields of EU countries rated AAA: Germany, Finland, Austria, Netherlands	1% 5 years Geometric average of 10-year bonds yields of EU countries rated AAA: Germany, Finland, Austria, Netherlands
Gearing [D/(E+D)]		50% Assuming real values and values defined by european regulators	55% Assuming real values and values defined by european regulators
Market Risk Premium (Rm + CRP)		[5,88% : 6,28%] **[3,75% : 4,6%]** (average spread between S&P 500 returns and 10-year T-bills and the median between european regulators) **+ 1,68%** (spread between 5-year geometric mean 10-year bonds	[6,92% : 8,4%] **[3,52% : 5%]** (average spread between S&P 500 returns and 10-year T-bills and the median between european regulators) **+ 3,4%** (spread between 5-year geometric mean 10-year bonds yields of Portugal with other european
Cost of Equity (Re)	βa TSO	0.36	0.32
	Marginal Tax-rate	29.50%	31.50%
	βe (adjusted)	0.7	0.73
	After-tax Re	5.14% - 5.69%	4.94% - 6.04%
	After-tax Re EDP Gás	5.34% - 6.01%	
	Pre-tax Re	5.43% - 6.01%	7.21% - 8.82%
	Pre-tax Re EDP Gás	5.64% - 6.36%	
Cost of Debt (Rd)	CDRP	2.50% Benchmark Spread Analysis for Utilities with similar ratings. βd=0	2.50% Benchmark Spread Analysis for Utilities with similar ratings
	Rd = CDRP + Rf	4.23%	3.50%
	Pre-tax Rd	4.23%	3.50%
	After-tax Rd	2.98%	2.40%
WACC	Pre-tax WACC	5.76%-6.15%	5.17% - 5.89%
	Pre-tax WACC EDP Gás	5.9% - 6.38%	
	Proposed WACC	**5.90%**	**5.50%**
	Proposed WACC EDP Gás	**6.20%**	**WACC premium 6.25%**

Appendix 12: Electricity and Natural Gas Value Chains

Electricity Value Chain

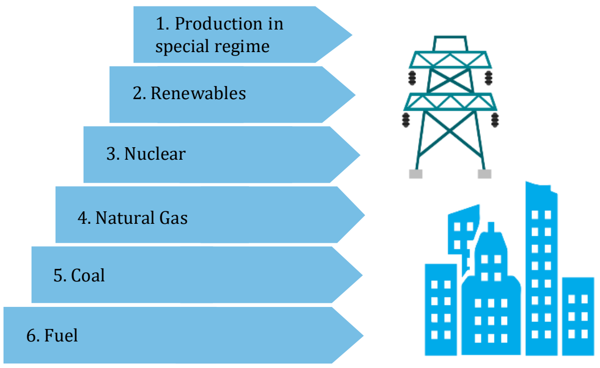


Natural Gas Value Chain

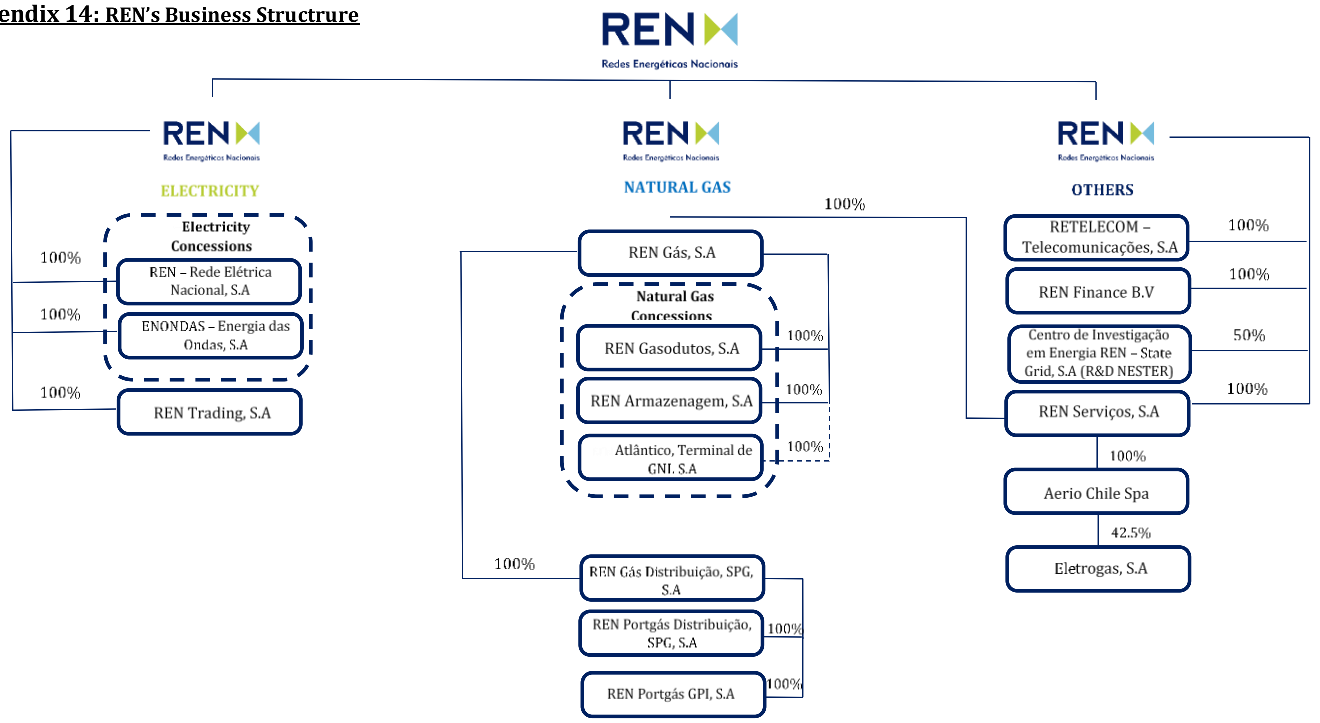


Appendix 13: Order of Merit of Energy Sources

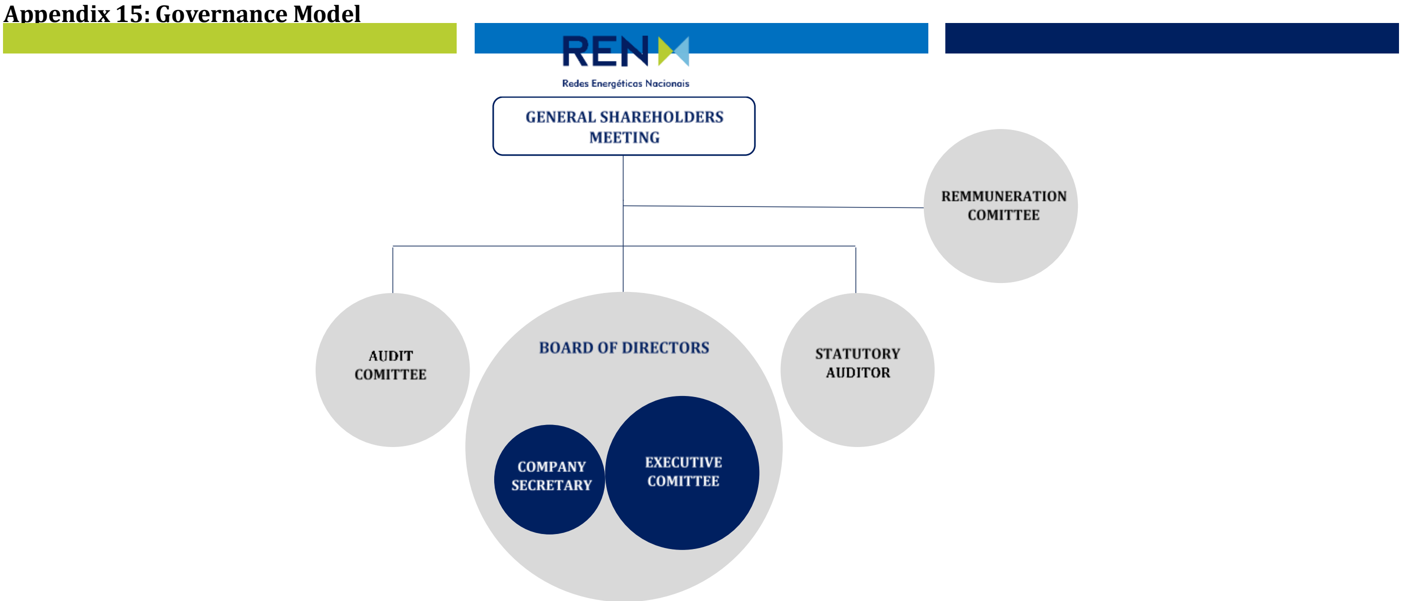
The order of merit refers to the priority of the different sources of energy to enter the electricity market. The quantities produced are decided at each day in the spot market (OMIE) through an action between the Portuguese and the Spanish producers and distributors. Once demand matches supply, the price is decided. In an unlikely scenario of renewable energies producing enough to accommodate all the demand none of the producers using the other sources will work in that specific day. When renewables are not enough nuclear energy comes next, and so on until demand is completely satisfied.



Appendix 14: REN's Business Structrure



Appendix 15: Governance Model



Appendix 16: BoD Remuneration

BOARD OF DIRECTORS						
Director	**Age**	**Independent**	**Position**	**Compensation (2016)**	**Held Since**	**Term***
Rodrigo Costa	58	No	Chairman of the BoD and CEO	561,458.28 €	2014	2017
Gonçalo Morais Soares	46	No	Executive Director and CFO	572,156.57 €	2012	2017
João Faria Conceição	43	No	Executive Director and COO	572,156.57 €	2009	2017
Guangchao (appointed by the StateGrid International Development Limited)	49	No	Vice-Chairman	80,000.04 €	2012	2017
Mengrong Cheng	48	No	Director	36,000.00 €	2012	2017
Longhua Jiang	50	No	Director	36,000.00 €	2014	2017
Omar Al-Wahaibi	51	No	Director	36,000.00 €	2015	2017
Jorge Manuel Magalhães Correia	59	No	Director	36,000.00 €	2015	2017
Manuel Ramos de Sousa Sebastião	67	Yes	Director and Chairman of Audit Comittee	75,000.00 €	2015	2017
Gonçalo Gil Mata	46	Yes	Director and Chairman of Audit Comittee	60,000.00 €	2015	2017
Maria Estela Barbot	58	Yes	Director and Chairman of Audit Comittee	60,000.00 €	2015	2017
João Luís Arnaut	54	Yes	Director	36,000.00 €	2012	2017
Total				2,160,771.46 €		

Appendix 17: Comparable Companies

Any valuation with multiples must begin with the definition of a peer group with which to benchmark the relative measures chosen. Often, industry classifications are relied on to classify comparable companies and construct a peer group. However, this intersectional approach effectuated by the classification/screening method presents difficulties in certain markets, particularly those outside the United States, where the number of public companies tends to be less abundant. Accordingly, we decided to employ the Sum of Absolute Rank Differences (SARD) approach developed by Knudsen et al. (2017) as a basis for our peer group search.[1] The SARD approach is an intuitive method that involves minimizing the sum of rank distances between fundamental factors of the subject company and prospective peers. That is, a much broader group of companies is first analyzed, and important fundamental economic and share price drivers, such as Return on Equity, Dividend Yield, Operating Margin, Capital Structure, etc. are then ranked across the entire group. The sum of the absolute rank differences between all prospective peer companies and the subject company is then compared, with a smaller sum designating a relatively more comparable peer than a larger sum. Formally, this framework is expressed by the following formula, representing the SARD between company *i* (generally fixed as the subject company) and company j:

$$SARD_{i,j} = |r_{1,i} - r_{1,j}| + |r_{2,i} - r_{2,j}| + \cdots + |r_{n,i} + r_{n,j}| = \sum_{k=1}^{n} |r_{k,i} - r_{k,j}|$$

where r subscript k,i represents the rank of the kth factor for company i. The EURO STOXX 800, the FTSE 100, and the S&P Latin America 40 index were chosen as the dataset for the SARD analysis (note no Latin American companies would end up making the peer group) as a means of starting from a very broad perspective. Once the SARD was calculated for each company based on a number of fundamental financial drivers, a subjective decision was made to exclude companies based on unrelated industry classifications. The final peer group, constituting those companies which minimized the SARD and also fell within an acceptable industry classification is shown below (note than REN necessarily has a zero SARD with itself).

Rank	SARD	Company	Div Yield	Rank	EBITDA Margin	Rank	Operating Margin	Rank	Net Margin	Rank	RoA	Rank	RoE	Rank	Current Ratio	Rank	Interest Coverage	Rank	D/(D+E)	Rank	D/E	Rank	WACC
	0	RENE PL	6,1	48	91,0	28	52,0	64	21,6	159	2,4	617	10,1	569	0,3	771	2,6	629	68,6	136	218,9	126	3,9
2	849	SRG IM	5,2	94	92,0	27	57,8	55	50,1	58	5,0	418	16,8	324	0,5	753	3,8	557	64,5	168	181,9	158	5,6
5	995	ELI BB	3,6	274	41,9	117	27,3	179	27,0	118	3,5	544	9,0	607	0,9	615	2,0	659	57,1	241	132,9	231	4,1
6	999	TRN IM	4,2	188	75,7	42	50,8	66	29,6	109	3,9	521	18,6	260	0,7	702	5,9	455	73,3	102	274,4	92	5,4
12	1127	ENG SQ	5,1	97	74,5	43	50,3	70	34,5	83	5,3	393	17,9	289	1,1	513	5,3	485	65,2	157	187,8	147	4,6
24	1526	NG/LN	4,4	175	34,3	157	24,4	210	19,6	190	4,5	454	20,3	227	0,8	644	3,8	555	67,6	141	208,9	131	8,0
27	1605	REE SQ	4,2	195	75,8	41	50,7	68	31,1	104	5,7	365	23,0	178	0,8	652	5,1	494	69,0	135	222,4	125	9,0

Appendix 18: Valuation through Multiples

The multiples were calculated for 2018F. Multiples for REN were based on team estimates (pro forma financial statements), and peer multiples were taken from Bloomberg consensus estimates. Median values were calculated as reference points to mitigate the effects of outlier values. Extensive charts of the forecasted multiples for REN against the peer group are given below.

To actually capitalize REN's projected results with these median values, an important decision needed to be made regarding which multiples to finally employ in the valuation and which, if any, to exclude as not representative of REN's market valuation. Not all multiples are equally relevant across industries and business models, and certain nuances work to make certain multiples generally more acceptable under certain conditions. For example, as a measure of total firm value to a proxy of total firm earnings, the EV/EBITDA multiple is seen as a preferable multiple among companies with significant differences in capital structure. As shown previously, the debt-to-equity ratio of the companies ranges from 1.08 to 2.65, and thus we were quickly motivated to favor the EV/EBITDA multiple. However, accepting a certain multiple as relevant/applicable could still lead to a naive application of capitalizing the multiple if we do not understand the subject company's historical behavior and also the historical relation to the peer group.

An additional series of charts below was employed to help resolve this problem. For example, refer to the chart of REN's historical EV/EBITDA multiple along with the historical median of the peer group. We see that for a time, REN traded along with the valuation of the peer group, although a divergence has emerged over the course of the past few years. We see similar behavior in the P/E and P/D ratios. Compare this to the subsequent P/Sales multiple, where we see that REN has always traded at a discount to the peer group. Thus, applying the peer median in the P/Sales multiple to REN's forecasted revenues is effectively asking the market to *do something it has never done before* in valuing REN at the same P/Sales multiple as the peer group. We must accept this as a lower likelihood scenario than the previous case and adjust the significance of this multiple lower and/or simply exclude it accordingly. The most acute example of this decision process is seen with the P/B multiple, which shows that REN has always traded at a large discount to the market based on this multiple compared to the peer group, and thus an interpretation can be made that the market simply does not value REN based on book value in the same way that it does the peer group.

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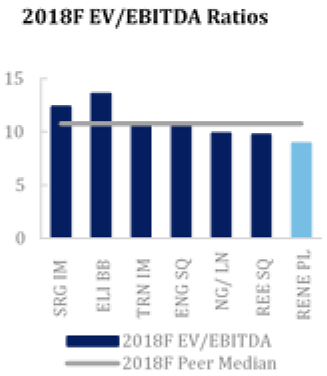
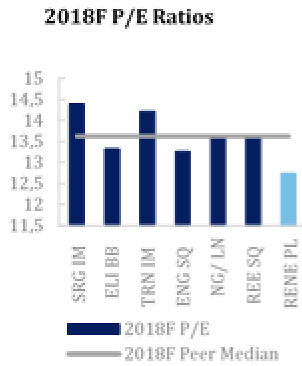
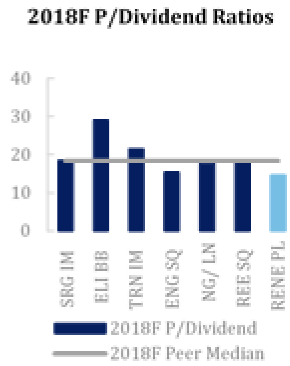
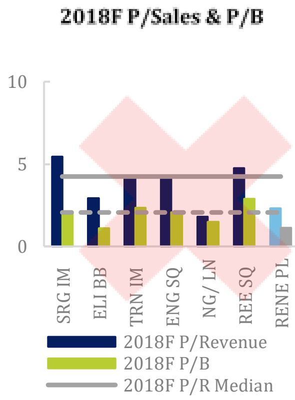
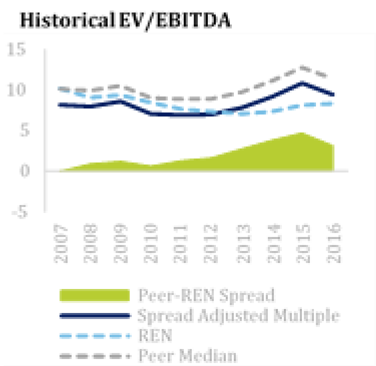
[1] Knudsen, J., Kold, S., and Plenborg, T. 2017. Stick to the Fundamentals and Discover Your Peers. *Financial Analysts Journal*. Volume 73, Number 3.

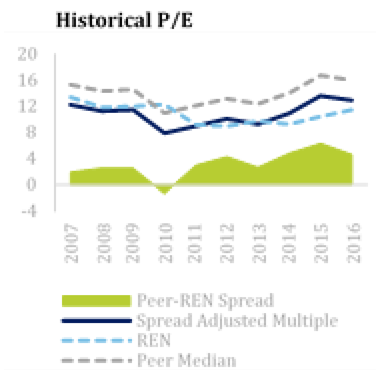


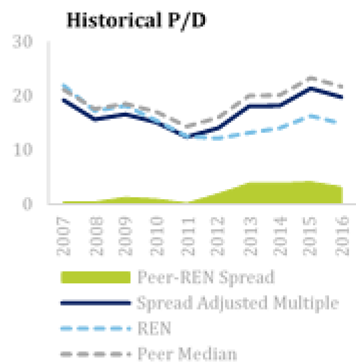


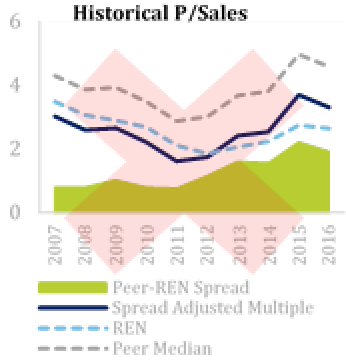


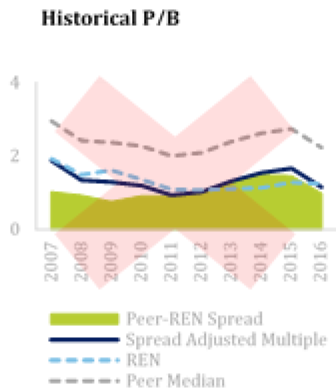












Multiple	Price Target 18YE	Upside Potential
Price/Earnings	2.06	-15.40%
EV/EBITDA	2.62	7.96%
Price/Dividend	2.81	15.73%

Taking these factors into consideration, we decided to exclude the P/Sales and P/Book ratios from our multiples-based valuation. However, we also discounted the remaining multiples by the average spread over the observation period 2007-2016, to account for the somewhat persistent, but less acute, discount in even these remaining three multiples. The final valuation, as shown previously, was thus based only on the EV/EBITDA, P/E, and P/D multiples.

Appendix 19: Cost of Debt

Portuguese 10Y Bond Yield: To forecast the 10Y yield we compute the implicit forward rate between the 5Y yield and the 15Y yield, getting the r(5;15)- the 10Y yield five years from now. In that sense, the 10Y yield for 2022YE is estimated to be 3.38%. Then, a linear interpolation/extrapolation gives the yields for each one of the years in our forecast period. As a result, we are assuming a linear increase YoY in the 10Y yields. Moving from 2023F to the **Terminal Value**, we are assuming the same increase as for the 10Y German yield.

German 10Y Bond Yield: Data extracted from Bloomberg. For the **Terminal Value** we are assuming an increase to 2.45%, considering a reasonable premium over the ECB´s inflation rate target of 2%.

Average Yields: For RoR, CRP and Cost of Debt computations we are considering the average between the yield at the beginning and the end of the year.

Risk Free Rate: Average of German 10Y yield at the beginning and the end of the year.

Country Risk Premium: Difference between the historical average of Portuguese and German 10Y yields.

Cost of Debt (Float): Equal to the yearly average of the 10Y Portuguese yield minus a spread of 28.2bps, which corresponds to the spread between the most recent bond issue from both REN and the Portuguese State in January 2018. For the **Terminal Value** we dropped the spread to 0%, as we do not consider it reasonable that the company will keep financing at a lower rate than the government in the long run.

Cost of Debt (Fixed): We are assuming that the company will try to maintain the fixed rate bond weight relatively stable in relation to the total debt. This will function as a hedge strategy against the expected increase in yields. Accordingly, we are assuming the partial rollover of the maturing bonds in January 2018, already including the bond issued to pay the bridge loan used to acquire EDP Gás Distribuição. To assess the fixed cost of debt we take the average of the outstanding fixed rate bonds, weighted by the respective amount outstanding. For the **Terminal Value,** we are assuming a stabilization at 55% fixed rate debt, because in periods of "normal" interest rates, major amounts of fixed rate debt may result in large losses if interest rates fall.

Cost of Debt:

$$Rd = Rd(Float) * Variable\ rate\ Debt\ weight + Rd\ (Fixed) * Fix\ rate\ Debt\ weight$$

	2017F	2018F	2019F	2020F	2021F	2022F	2023F	Terminal Value
10Y Portuguese Bond Yield	1.93%	2.22%	2.51%	2.80%	3.09%	3.38%	3.67%	4.67%
10Y PT Yield YoY change		0.0029	0.0029	0.0029	0.0029	0.0029	0.0029	
Average Yield		2.08%	2.37%	2.66%	2.94%	3.23%	3.52%	
10Y Germany Bond Yield	0.42%	0.89%	1.28%	1.45%	1.45%	1.45%	1.45%	2.45%
Risk Free Rate	0.32%	0.66%	1.09%	1.37%	1.45%	1.45%	1.45%	2.45%
Country Risk Premium	2.53%	1.42%	1.28%	1.29%	1.49%	1.78%	2.07%	2.22%
Cost of Debt (Float)	**2.56%**	**1.79%**	**2.08%**	**2.37%**	**2.66%**	**2.95%**	**3.24%**	**4.67%**
Spread with 10Y PT yield	-0.282%	-0.282%	-0.282%	-0.282%	-0.282%	-0.282%	-0.282%	0%
Cost of Debt (Fix)	**2.80%**	**2.49%**	**2.49%**	**2.08%**	**2.08%**	**2.08%**	**2.58%**	**2.73%**
Fix Rate (% of Total)	56%	63%	65%	56%	57%	58%	53%	55%
Variable Rate (% of Total)	44%	37%	35%	44%	43%	42%	47%	45%
Cost of Debt	**2.70%**	**2.23%**	**2.35%**	**2.21%**	**2.33%**	**2.45%**	**2.887%**	**3.60%**
After-tax Cost of Debt	**1.91%**	**1.55%**	**1.63%**	**1.53%**	**1.61%**	**1.69%**	**2.00%**	**2.49%**

	2016	2017F	2018F	2019F	2020F	2021F	2022F	2023F
Fix Rate Bonds	62.8%	55.8%	62.6%	64.6%	55.7%	56.8%	58.0%	53.2%
Float Rate Bonds	4.8%	4.2%	4.4%	4.5%	4.6%	4.7%	4.8%	4.9%
Commercial Paper	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
Bank Borrowings	18.3%	15.5%	18.5%	16.3%	25.0%	23.7%	22.5%	27.1%
REN Portgas	0.0%	10.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Financial Lease	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Prepaid Interest	-1.1%	-0.7%	-0.6%	-0.4%	-0.4%	-0.3%	-0.2%	-0.2%
Accrued Interest	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Fix Rate Bonds	Issue Date	Maturity Date	Maturity	Initial Amount	Outstanding Amount	Interest Rate
2017	1/31/2013	1/31/2018	0.085	300,000	162,800	4.13%
	10/17/2013	10/16/2020	2.795	400,000	267,755	4.75%
	2/12/2015	2/12/2025	7.123	300,000	500,000	2.50%
	6/1/2016	6/1/2023	5.419	550,000	550,000	1.75%
2018	6/20/2009	6/20/2024	5.474	99,555	99,555	2.71%
	10/17/2013	10/16/2020	1.795	400,000	267,755	4.75%
	2/12/2015	2/12/2025	6.123	300,000	500,000	2.50%
	6/1/2016	6/1/2023	4.419	550,000	550,000	1.75%
	1/18/2018	1/18/2028	9.055	300,000	300,000	1.77%

Appendix 20: WACC Assumptions

Cost of Equity: Capital Asset Pricing Model with Country Risk Premium

$$Re = RFR + CRP + \beta * ERP$$

Unlevered Beta: We have used a Pure-Play method to get REN's Levered Beta. **First Step:** collect the levered betas of the peers (Bloomberg), and deleverage them in accordance with the respective capital structures and effective tax rates. **Second step:** take the average of these unlevered betas to estimate REN's unlevered beta. Finally, lever this estimate at REN's capital structure and effective tax rate. We confirmed our result by regressing REN against various indices, which confirmed our computation using the Pure-Play method.

ERP: Computed using the Constant Sharpe Ratio with forecasted volatility approach (Moschella, J. CFA, 2017)[2]. We first calculate the excess return from the last 10 years of monthly returns of the PSI20 over the 10Y German bond yield. The second step is to divide the annualized average of the excess returns by the historical standard deviation of the PSI20. With that we arrive at the Index Constant Sharpe Ratio. The third and final step is to multiply this Sharpe Ratio by our annualized forecasted volatility for the PSI20, derived using a GARCH model. The ERP is thus given by:

$$EPR = \frac{\sum(R_{PSI20} - RFR)}{\sigma_{PSI20\ Historical}} * \sigma_{PSI20\ Forecast}$$

WACC: We have used market values for the capital structure. Starting from the company's assumed target capital structure, in accounting terms, of 70% Debt and 30% Equity, we computed the market capital structure by applying the P/Book historical average. From this we obtain a market Capital Structure of 60% Debt and 40% Equity. From there we work backwards, computing the Enterprise Value and subtracting the accounting Net Debt to get the capital structure for each year. WACC is thus given by:

$$WACC = \frac{E}{EV} * Re + \frac{D}{EV} * Rd * (1 - T_{effective})$$

Beta Unlevered (Based on peers)				
	Effective Tax Rate	Debt to Equity	Beta Levered	Beta Unlevered
SNAM SPA	34.26%	1.707	0.652	0.307
ELIA SYSTEM OPERATOR SA/NV	15.08%	1.088	0.540	0.281
TERNA SPA	32.72%	2.659	0.645	0.231
ENAGAS SA	22.32%	2.054	0.687	0.265
NATIONAL GRID PLC	17.12%	1.405	0.866	0.400
RED ELECTRICA CORPORACION SA	24.94%	2.089	0.739	0.288
REDES ENERGETICAS NACIONAIS	30.47%	2.170	0.741	0.295

Beta Levered (regression against market index)			
5Y Monthly Data	R Squared	Beta	#Obs
PSI 20	**0.460**	**0.625**	**60**
STOXX 600	0.147	0.513	60
Euronext 150	0.269	0.615	60
STOXX Utilities	0.247	0.591	60
S&P 500	0.033	0.301	60

History Period: 10Y	Average Excess Return	Standard Deviation	Constant Sharpe Ratio	ERP
PSI 20	10.37%	19.91%	0.52	8.53%
STOXX 600	12.01%	15.07%	0.80	8.80%
EURONEXT 150	23.16%	18.70%	1.24	13.67%
STOXX UTILITIES	5.02%	15.19%	0.33	3.65%
S&P 500	**16.90%**	**15.22%**	**1.11**	**12.26%**

DCF Analysis	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**Terminal**
COST OF EQUITY							
Risk Free Rate (RFR)	0,7%	1,1%	1,4%	1,5%	1,5%	1,5%	2,5%
Country Risk Premium (CRP)	1,4%	1,3%	1,3%	1,5%	1,8%	2,1%	2,2%
Beta Unlevered	0,3	0,3	0,3	0,3	0,3	0,3	0,3
Debt-to-Equity	1,5	1,4	1,4	1,4	1,2	1,1	1,5
Effective Tax Rate	30,8%	30,8%	30,8%	30,8%	30,8%	30,8%	30,8%
Beta (β)	0,60	0,59	0,57	0,55	0,54	0,53	0,60
Equity Risk Premium (ERP)	8,5%	8,5%	8,5%	8,5%	8,5%	8,5%	8,5%
Cost of equity	**7,2%**	**7,4%**	**7,5%**	**7,7%**	**7,8%**	**8,0%**	**9,8%**
COST OF DEBT							
Cost of debt	2,2%	2,3%	2,2%	2,3%	2,4%	2,9%	3,6%
Marginal tax rate	30,8%	30,8%	30,8%	30,8%	30,8%	30,8%	30,8%
After-tax cost of debt	**1,5%**	**1,6%**	**1,5%**	**1,6%**	**1,7%**	**2,0%**	**2,5%**
WACC							
Weight of equity	40,3%	40,8%	42,7%	44,4%	45,6%	46,8%	40,0%
Weight of debt	59,7%	59,2%	57,3%	55,6%	54,4%	53,2%	60,0%
WACC	**3,82%**	**3,99%**	**4,09%**	**4,29%**	**4,49%**	**4,82%**	**5,42%**

[2] [1] Moschella, J. CFA, 2017. Financial Modeling for Equity Research: A Step-by-Step Guide to Earnings Modeling. *Gutenberg Research LLC.*

Appendix 21: REN's Share Capital Increase

Number of new shares	133,191,262
Nominal Value	1
Share Capital	133,191,262
Issue Premium/sh	0.9
Issue Premium (EUR)	116,808,738
Total Ammount (EUR)	250,000,000

Number of old shares	534,000,000
Number of own Shares	(3,881,374)
Number of new shares	133,191,262
Total shares Outstanding	663,309,888
Total Number of Shares	667,191,262

Old Amount of Share Capital	534,000
Share Capital Increase	133,191
New Amount of Share Capital	667,191
Issue Price (EUR)	1.9

Appendix 22: Sum of the Parts (SoP) Analysis

DCF for Core Segments

We have computed the FCFF for all four of REN's segments and discount these at the same WACC, as we consider that since all the segments are exposed 100% to Portugal it is thus reasonable to assume the same determinants of the WACC. The three main segments (excluding the others) are utilities, and they are also regulated by ERSE, hence they have similar behaviour to market changes, justifying the same Beta and consequently the same cost of equity.

Growth Rates: Electricity and Natural Gas Transmission are at a mature stage, and RAB is in a decreasing trend, so revenues are expected to decrease at a relatively constant pace. To compute the growth rate of those segment's FCFF, we decided to assume the ECB's inflation rate long term target minus the revenue CAGR in 2017F-23F.

$$g = \pi_{\text{ECB long term target}} - \text{REN's Revenues}_{\text{CAGR 17F}-\text{23F}}$$

However, this approach didn't seem reasonable for REN Portgas, because for that period the segment is still growing revenues because RAB still increasing, although this is not expected to be maintained in perpetuity since RAB is expected to start decreasing from 2023 onwards. We are assuming that in perpetuity REN's revenues in this sector will move at 0.5% CAGR.

The others segment functions as somewhat of a support for the core businesses, so we compute the growth rate of the FCFF as the weighted average of the growth rates of the core segments. FCFF is thus given by:

$$\mathbf{FCFF_i = EBIT_t x(1 - T_e) + NonCash\ Charges_t - Capex_t - \Delta NWC_t}$$

ELECTRICITY (€'000)	2017F	2018F	2019F	2020F	2021F	2022F	2023F	TV
EBIT	185,442.6	168,232.1	170,169.0	171,606.1	173,615.7	175,982.9	178,539.8	174,798.3
Tax Rate	29.1%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
ESEC	(17,873.1)	(15,789.8)	(15,413.9)	0.0	0.0	0.0	0.0	0.0
Unlevered Net Income	113,566.1	100,636.1	102,344.4	118,746.5	120,140.4	121,784.9	123,614.9	121,031.9
D&A	152,118.5	152,118.5	152,118.5	152,118.5	152,118.5	152,118.5	152,118.5	152,118.5
Revenue from Construction of Concession Assets	(100,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(87,142.9)
Changes in Non Current Operational Assets	3,357.9	3,366.2	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Non Current Operational Liabilities	(4,765.7)	(4,344.1)	(2,647.8)	(2,546.5)	(2,415.8)	(2,280.8)	(2,162.0)	(2,162.0)
Changes in NWC	37,650.5	37,650.5	37,650.5	37,650.5	37,650.5	37,650.5	37,650.5	37,650.5
Cash Flow From Investiment Activities	(100,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(85,000.0)	(135,543.4)
FCFF	**190165.557**	**190293.98**	**152451.706**	**165102.0774**	**169119.89**	**164165.1**	**160794.8**	**114244.6**
PV of FCFF		908466.9	746820.5	618652.8	473024.0	317562.6	160794.8	
PV of Terminal Value		1887866.2	1963172.3	2043381.5	2131114.2	2226893.5	2334282.2	
ENTERPRISE VALUE		**2,796,333**			**g =**	**0.5%**		

NATURAL GAS (€'000)	2017F	2018F	2019F	2020F	2021F	2022F	2023F	TV
EBIT	78,380.6	72,623.2	70,813.6	68,804.8	69,063.6	68,948.7	68,151.9	70,969.5
Tax Rate	29.1%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
ESEC	(7,924.9)	(9,748.6)	(9,500.0)	0.0	0.0	0.0	0.0	0.0
Unlevered Net Income	47,630.2	40,511.5	39,508.1	47,605.0	47,781.2	47,698.6	47,162.1	49,111.8
D&A	57,089.7	54,941.5	53,062.0	51,366.0	49,480.8	47,417.4	46,235.8	46,235.8
Revenue from Construction of Concession Assets	(17,000.0)	(19,000.0)	(13,500.0)	(7,500.0)	(23,500.0)	(27,500.0)	(24,000.0)	(18,857.1)
Cost with Construction of Concession Assets	15,009.4	16,775.2	11,919.2	6,621.8	20,748.3	24,279.9	21,189.8	16,649.1
Changes in Non Current Operational Assets	1,401.8	1,386.6	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Non Current Operational Liabilities	(4,765.7)	(4,344.1)	(2,647.8)	(2,546.5)	(2,415.8)	(2,280.8)	(2,162.0)	(2,162.0)
Changes in NWC	15,717.5	13,669.2	(651.7)	(664.5)	1,710.7	386.8	(433.0)	2,336.3
Cash Flow From Investiment Activities	(17,000.0)	(19,000.0)	(13,500.0)	(7,500.0)	(23,500.0)	(27,500.0)	(24,000.0)	(46,235.8)
FCFF	**98082.93298**	**84939.965**	**74189.8741**	**87381.92034**	**70305.262**	**62501.97**	**63992.67**	**47078.09**
PV of FCFF		404037.1	331825.8	268162.1	188542.0	123550.7	63992.7	
PV of Terminal Value		761694.7	792078.4	824440.3	859837.7	898481.6	941809.6	
ENTERPRISE VALUE		**1,165,732**			**g =**	**0.4%**		

OTHERS (€'000)	2017F	2018F	2019F	2020F	2021F	2022F	2023F	TV
EBIT	(10,736.5)	(9,327.1)	(9,100.9)	(8,802.9)	(8,522.2)	(8,328.5)	(8,224.6)	(9,006.1)
Tax Rate	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Unlevered Net Income	(7,609.9)	(6,455.0)	(6,298.5)	(6,090.6)	(5,896.0)	(5,761.6)	(5,691.5)	(6,232.3)
Changes in Non Current Operational Assets	135.4	142.2	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Non Current Operational Liabilities	(460.2)	(445.6)	(277.5)	(272.8)	(265.6)	(255.8)	(245.3)	(245.3)
Changes in NWC	1,517.7	1,402.2	(68.3)	(71.2)	188.1	43.4	(49.1)	240.8
Cash Flow From Investiment Activities	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	(214.0)	0.0
FCFF	**(6,631.0)**	**(5,570.2)**	**(6,858.2)**	**(6,648.6)**	**(6,187.5)**	**(6,188.0)**	**(6,199.9)**	**(6,236.8)**
PV of FCFF		(34,049.4)	(29,615.2)	(23,686.8)	(17,769.7)	(12,102.7)	(6,199.9)	
PV of Terminal Value		(105,304.4)	(109,504.9)	(113,978.9)	(118,872.6)	(124,215.2)	(130,205.3)	
ENTERPRISE VALUE		**-139,354**			**g = 0.6%**			

REN PORTGAS (€'000)	2017F	2018F	2019F	2020F	2021F	2022F	2023F	TV
EBIT	24,881.0	23,846.5	24,250.0	24,681.4	25,113.9	25,573.6	26,034.1	24,911.5
Tax Rate	29.1%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%	30.8%
ESEC	0	0	0	0	0	0	0	0
Unlevered Net Income	17,635.3	16,503.4	16,782.8	17,076.7	17,374.9	17,691.8	18,015.9	17,239.1
D&A	19,132.4	18,443.0	18,537.6	18,628.7	18,716.5	18,801.0	18,882.3	18,882.3
Revenue from Construction of Concession Assets	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)
Cost with Construction of Concession Assets	19,568.5	19,568.5	19,568.5	19,568.5	19,568.5	19,568.5	19,568.5	19,568.5
Changes in Deferred Tax Assets	(17,145.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Deferred Tax Liabilities	50,561.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Changes in Non Current Operational Assets	(14,092.3)	564.2	(163.0)	(171.0)	(170.2)	(178.1)	(177.3)	(177.3)
Changes in Non Current Operational Liabilities	23,198.8	-928.7	268.4	281.5	280.2	293.2	291.9	291.9
Changes in NWC	1,518.8	1,320.9	(63.0)	(64.2)	165.3	37.4	(41.8)	225.8
Cash Flow From Investiment Activities	(552,693.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(21,000.0)	(18,882.3)
FCFF	**(473,315.4)**	**13471.2232**	**12931.2627**	**13320.24996**	**13935.192**	**14213.72**	**14539.49**	**16147.93**
PV of FCFF		74366.24	63324.09	52451.73	40811.59	28084.31	14539.49	
PV of Terminal Value		338268.05	351761.41	366133.30	381853.26	399015.00	418256.91	
ENTERPRISE VALUE		**412,634**			**g = 1.5%**			

DDM for Electrogas

The dividend discount model is the most appropriate method to value Electrogas given the information available about the company and its expected stable dividend.

To compute the **cost of equity** we used the 10Y Chilean Bond yield, ERP and Beta from Damodaran for emerging markets, adapting the Beta in accordance with the known capital structure of Electrogas of almost 0% debt.

As a complementary method we assess the value of the company through a multiples approach, by multiplying the implicit net income of the company implied in the accounting gain recognized by REN in its Income Statement by the P/E ratio for emerging market provided by Damodaran. Both approaches yielded similar figures.

Growth rate: We took a conservative approach by considering a growth rate close to 100bps below the expected long-term GDP growth.

DDM ELETROGAS	2018F	2019F	2020F	2021F	2022F	2023F	TV
Dividends	7,491.9	7,641.7	7,794.6	8,106.4	8,430.6	8,767.8	8,767.8
Eq Eletrogas	155,381.5	159,484.1	163,746.8	168,178.9	172,622.3	177,064.3	-

Mult. ELECTROGAS	2018F
REN's Stake	42.5%
Gain from Electrogas	7,650
Electrogas Net Income	18,000
P/E Mult.	16.76
Electrogas Valuation	301,680
Value of REN's stake at Electrogas	**128,214**

DDM ELECTROGAS	2018F
Growth Rate	2.5%
Cost of Equity	7.8%
RFR	4.6%
ERP	6.0%
β_L	0.54
Eq VALUE	**155,381.5**

ENTERPRISE VALUE		4,390,727.0
Electricity	63.7%	2,796.33
Natural Ga	26.5%	1,165.73
REN Portg:	9.4%	412.63
Others	-3.2%	(139.4)
Eletrogas	3.5%	155.38
Net Debt		2,563.02
Equity Value		**1,827.7**
Shares Outstanding		663.3
Price Target 18YE/sh		**2.76**
Upside Potential 18YE		**15%**

Appendix 23: FCFE & DDM Analysis

This model is also suitable to value REN due to the relatively stable Capital Structure. We took an approach that assumes that the amounts of investment in CAPEX and NWC made by the company at each year will be financed in accordance with the market capital structure of that specific year. We sum up the FCFF to each one of the segments and applied the following formula. Electrogas was valued through the DDM model. . Recognizing that equity represents a leverage position in the business, we have computed the Terminal Growth rate for FCFE by multiplying Assets/Equity ratio by the average expected growth rate in the FCFF.

$$FCFE_t = FCFF_t + After\ tax\ net\ Interest\ Expense_t + \frac{D}{EV}_{Target}\ x\ (Capex_t - D\&A_t + \Delta NWC_t)$$

We adjust the net interest expense for the **Terminal Value** by applying the expected terminal cost of debt to the debt amount of the 2023F total debt.

	2018F	2019F	2020F	2021F	2022F	2023F	TV
FCFF	**283135.0**	**232714.6**	**259155.7**	**247172.8**	**234692.8**	**233127.0**	**171233.9**
Net Interest Expense	(57,309.7)	(58,391.3)	(52,584.1)	(54,495.0)	(56,182.9)	(66,025.2)	(88,040.1)
Tax Rate	31%	31%	31%	31%	31%	31%	31%
After Tax Net Interest Expense	(39,662.2)	(40,411.0)	(36,382.2)	(37,702.1)	(38,867.3)	(45,690.3)	(60,925.0)
Target D/EV	0.60	0.59	0.57	0.56	0.54	0.53	0.60
Capital Expenditures	125214.0	119714.0	113714.0	129714.0	133714.0	130214.0	200661.6
Depreciations and Amortizations	(225,831.7)	(220,952.5)	(215,576.6)	(210,229.0)	(204,908.0)	(200,661.6)	(200,661.6)
Changes in Net Working Capital	(49,576.5)	2,394.2	2,467.4	(6,450.5)	(1,476.5)	1,665.2	(8,496.1)
FCFE (without Electrogás)	**153,876.2**	**133,782.6**	**165,822.4**	**161,116.9**	**156,291.9**	**150,871.4**	**105,211.3**
PV of FCFE	772,335.9	664,336.6	570,432.2	435,563.2	295,953.9	150,871.4	
PV of Terminal Value	911,227.5	978,821.8	1,052,393.2	1,132,903.3	1,221,685.7	1,319,739.3	

Terminal Growth Rate	1.7%
Terminal Cost of Equity	9.8%
PV of FCFE	772,335.9
PV of Terminal Value	911,227.5
Enterprise Value	1,683,563.4
Eq Electrogás	155,381.5
Shares outstanding	663,309.9
Price target	**2.77**
Upside Potential 18YE	**16%**

Dividend Discount Model

REN pays a stable dividend, and pays very high attention to its maintenance when deciding to invest. In our forecast the dividend will remain sustainable, as the payout ratio remains slightly above or even below 80%. We are assuming an increase YoY from 2020 onwards, when ESEC ceases, and a long-term growth equal to the one used on FCFE.

Dividend Discount Model (with Electrogás)	2018F	2019F	2020F	2021F	2022F	2023F	TV
Dividends Paid	113,426.0	113,426.0	116,261.6	119,168.2	122,147.4	125,201.1	125,201.1
PV of Dividends	593,089.5	515,244.6	432,020.6	339,915.2	238,046.3	125,201.1	
PV of Terminal Value	1,084,358.0	1,164,794.9	1,252,344.7	1,348,151.5	1,453,802.3	1,570,485.8	

Terminal Growth Rate	1.7%
Terminal Cost of Equity	9.8%
PV of Dividends	593,090
PV Terminal Value	1,084,358
Equity Value	1,677,447
Number of Shares Outstanding	663,310
Equity Value per Share	**2.53**
Upside Potential 18YE	**5%**

Appendix 24: Liquidation Approach

In the case that the concession is not renewed the State will have to reimburse the book value of REN assets, at the time of expiry of concession contracts. We are assuming the RAB will be amortized at the historical rate and that CAPEX for both Electricity and NG transmission will decrease at 1% over the course of the concessions. In REN Portgás case in 2024 we are assuming a 20% decrease to comply with the company's expectations of a decrease in RAB. For the remaining years of the concession we are assuming a decrease of 2.50% in CAPEX, complying with the expected mature stage of the market.

We are considering the same FCFF as for the Sum of the Parts approach, although we are discounting the Terminal FCFF only until the end of each concession, as in the formula below. For the growth rate we assumed the weighted average of REN's four segments.

$$Terminal\ Value_{2023} = \frac{FCFF_{TV}}{(WACC_{TV} - g)} * \left(1 - \frac{1+g}{1+WACC_{TV}}\right)^{(t_{ending\ year\ of\ concession} - 2023)}$$

€M	...	2022F	2023F	...	2046F	2047F	2048F	...	2055F	2056F	2057F
Average RAB		**3418.66**	**3339.17**		**2168.40**	**1806.71**	**1784.40**		**1293.47**	**1278.68**	**1264.14**
Electricity		1853.79	1800.10		1391.24	1376.49	1361.95		1265.23	1252.09	1239.12
Premium		1186.34	1182.58		1237.26	1231.54	1225.49		1175.81	1167.91	1159.87
No Premium		667.45	617.52		153.98	144.95	136.46		89.42	84.18	79.24
Natural Gas		897.27	878.45		339.07	0.00	0.00		0.00	0.00	0.00
Land		204.12	195.03		48.63	45.78	43.10		0.00	0.00	0.00
REN Portgas		463.47	465.59		389.46	384.43	379.36		0.00	0.00	0.00

Segment	Depreciation	CAPEX	CAPEX 2023F	CAPEX Decrease
Electricity	5.9%	85,000	51,475.8	1%
Natural Gas	5.0%	5,500	39,422.6	1%
REN Portgas	3.7%	21,000	36,579.2	20%
Land	5.9%	0	1,039.7	0%

Electricity (including Land)	2018F	2019F	2020F	2021F	2022F	2023F	TV
FCFF	190,294	152,451.7	165,102.1	169,119.9	164,165.1	160,794.8	114,244.6
PV of FCFF (until 2057)	2,416,896.4	2,315,420.5	2,251,341	2,175,811.8	2,096,879.3	2,025,916.4	
Liquidation Value	**169,987.4**	**176,768.1**	**183,990.3**	**191,889.98**	**200,514.1**	**210,183.6**	
Natural Gas	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**TV**
FCFF	84,940.0	74,189.9	87,381.9	70,305.3	62,502.0	63,992.7	47,078.1
PV of FCFF (until 2046)	915,628.1	863,823.8	821,896.0	766,050.5	727,014.3	696,557.5	
Liquidation Value	**81,472.1**	**84,721.9**	**88,183.4**	**91,969.6**	**96,103.0**	**100,737.4**	
REN PORTGAS	**2018F**	**2019F**	**2020F**	**2021F**	**2022F**	**2023F**	**TV**
FCFF	13,471.2	12,931.3	13,320.2	13,935.2	14,213.7	14,539.5	16,147.9
PV of FCFF (until 2048)	278,362.6	275,457.8	273,252.5	271,092.5	268,714.8	266,774.0	
Liquidation Value	**333,481.0**	**346,783.4**	**360,951.9**	**376,449.4**	**393,368.2**	**412,337.8**	

g electricity	0.5%
g Natural Gas	0.4%
g REN Portgas	1.5%
Long-Term WACC	5.4%
PV of FCFF (Concession Segments)	3,610,887
PV of Liquidation Amount	584,940.4
Others	(139,353.7)
Stake in Electrogas	155,381.5
Enterprise Value	4,211,855.2
Net Debt	2,563,018.9
Market Capitalization	1,648,836.3
Shares Outstanding	663,309.9
Price Target	**2.49**
Upside Potential 18YE	**3%**

Appendix 25: Electricity and NG Allowed Revenues

2018-2020 Regulatory Period for Electricity:

Cost with Capital + Incentives + Tariffs Deviations + Rent on protection zone land + Recovery of Amortization + Recovery of OPEX

RAB x RoR

REN receives an increase based on efficiency. If it can build at lower costs than the ones referenced by ERSE, it will receive a RoR with premium and will also recognize a higher RAB than the real. Higher RAB and higher RoR will be the incentive to be efficient at a CAPEX level.

Incentive to Rational Economic Investments: Incentive to the operator be rational on its investments, for instance to remunerate fully amortized assets that are still in good operations conditions.

Resulting from differences between the estimated and the actual demand and recovered 2y after and remunerated at a rate corresponding to the daily average of the 12-month Euribor observed during those years, plus a spread that is annually published by ERSE.

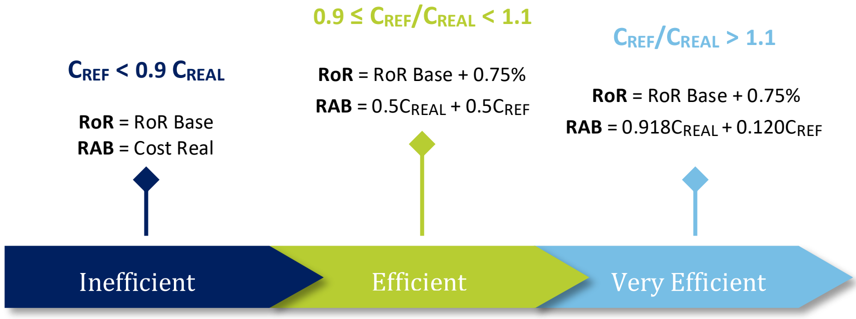
Protection zone land fixed annual rent.

Depreciation of the RAB, net of subsidies.

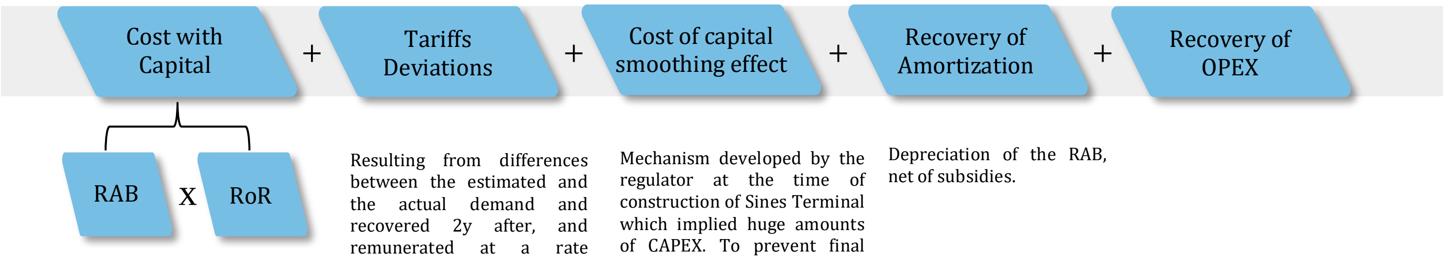
OPEX is defined at the beginning of each regulatory period of three years. The formula states how allowed OPEX will increase from one year to the next, on a price-cap base. REN will receive the full amount of the allowed OPEX, so it has an incentive to reduce operational expenses.

$OPEX = OPEX_{N-1} \times (1+GDPI - 1.5\%)$ + Additional OPEX induced by grid expansion

CAPEX Efficiency Mechanism



2016-2017 to 2017-2019 Regulatory Period for Natural Gas:



Contrary to what happens in Electricity Transmission, in the NG there are no incentives to be efficient at a CAPEX level. The remuneration mechanism, however, is the same.

Resulting from differences between the estimated and the actual demand and recovered 2y after, and remunerated at a rate corresponding to the daily average of the 12-month Euribor observed during those years, plus a spread that is annually published by ERSE.

Mechanism developed by the regulator at the time of construction of Sines Terminal which implied huge amounts of CAPEX. To prevent final consumers from enduring a huge increase in the tariffs, the regulator set this mechanism which smoothed out the costs.

Depreciation of the RAB, net of subsidies.

Recovery of OPEX	
Terminal – REN Atlântico	0.8 FC x (1+GDPd–2%) + 0.2 VC_1 x (1+GDPd–2%) + VC_2 x (1+Δ OMIP-2%)
Transportation – REN Gasodutos	0.6 FC x (1+GDPd-3%) + 0.4VC x (1+GDPd-3%) + PC
Storage – REN Armazenagem	0.85 x FC x (1+GDPd-3%) + 0.15 x VC x (1+GDPd-3%)
Global System Management – REN Gasodutos	FC x (1+GDPd-2%)
Distribution – REN Portgás	0.4 x FC x (1+GDPd-2%) + 0.15 x VC_1 x (1+GDPd-2%) + 0.45 x VC_2 x (1+GDPd-2%)

OPEX mechanism set by the regulator tries to provide good estimates of the real OPEX along with some incentives to increase efficiency by the operator. To achieve those estimates, the regulator goes through by defining a fixed component (FC), typically related with previous year real costs, and then a variable component (VC), where it sets one or more cost inductors related to the activity.

Terminal – REN Atlântico

- Fixed Component (10^3€) = 4645 based on the average of real costs and allowed income of 2014.
- Variable $Component_1$ (€/kWh) = 0,080804 related to the amount of LNG regasified.
- Variable $Component_2$ (€/kWh) = 0,0431 related to the amount of electricity used by the terminal. Instead of the IPIB, this one will evolve based on the annual average futures electricity price published by OMIP.

REN Gasodutos

- Fixed Component (10^3€) = 8294 based on energy transported costs and allowed revenues of 2014.
- Variable Component (GWh/day) = 22,725 - last 12-months daily maximum of used capacity on exits.
- Pass-through costs - related to LNG transportation by truck to remote zones (UAG's), which it should not be the responsibility of the TSO. This cost is received in its full amount if it does not exceed the annually published reference unitary costs.

REN Armazenagem

- Fixed Component (10^3€) =2505 - like the other activities, average of 2014 real costs and allowed revenues

- Variable Component (EUR/GWh) = 0,24013 - energy extracted + injected in GWh is the main cost inductor

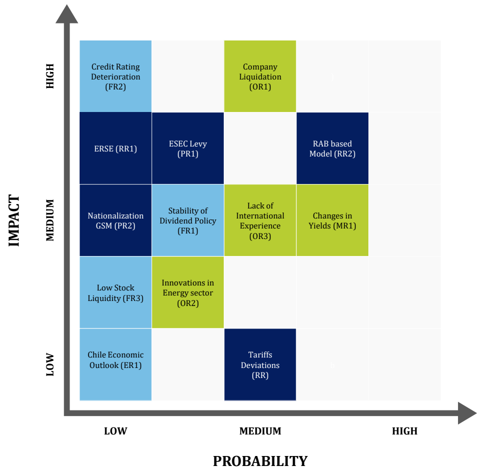
GGS

- Fixed Component (10^3€) = 1074 - estimated value of costs with group services for 2016. This activity follows a revenue-cap model, which does not require cost inductors like the other activities which are under a price-cap model.

Distribution – REN Portgás

- Fixed Component (10^3€) = 4864.4 based on 2014 operational costs
- Variable Component$_1$ (10^3€/MWh) = 0.000261 related to the amount of energy used for the distribution
- Variable Component2 (10^3€/s.p.) = 0.016353 based on supply points unitary costs

Appendix 26: Risk Matrix



Source: Team estimates

Operational Risk | Innovations in the energy sector (OR2)

The transmission system operators (TSO) are challenged by the rise of renewable energy sources, namely wind and solar, which enable both industrial and residential customers to install their own infrastructure independent from the system. In addition, the implementation of smart grids and technological advances in energy storage are also changing the structure of this industry and affecting TSOs turnover. These innovations in the energy sector allow customers to efficiently manage their energy consumption. Efficiency leads to decreases demand of both natural gas and electricity.

Operational Risk | Lack of International Experience and scale (OR3)

The acquisition of Electrogas in Chile was a new beginning in REN's strategy to reduce exposure to Portugal, as investment opportunities are scarcer. However, the limited experience and know-how on how to operate in LATAM under different regulatory schemes may prove to be a challenge to REN. Also, REN does not have many resources to compete with its peers in a bidding war for an acquisition, due to their relative small size, thus prioritizing greenfield operations. REN's conservative approach may also limit its investments abroad.

Economic Risk | Chile Economic Outlook (ER1)

REN has a 42,5% stake in Electrogas, SA. The company operates an important gas pipeline in Central Chile, and the performance of the investment will intrinsically depend on the economic performance of that country, expected to grow at 3.02% CAGR from 2018F to 2022F. One important issue is that REN is protected by take-or-pay contracts in which customers agree to buy a certain amount of natural gas, and if they fail to buy the agreed quantities the company must be compensated by them.

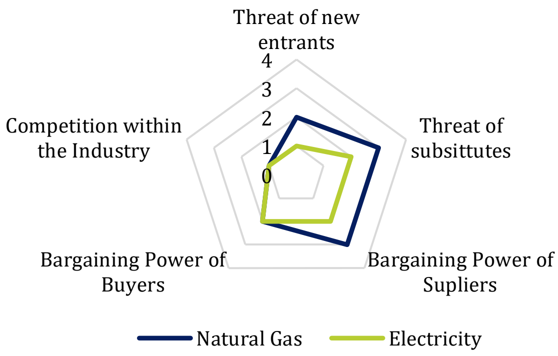
Financial Risk | Incapacity to attract big fish (FR3)

With the current 38% of free-float and concentrated positions limited to 25%, REN is not able to attract big institutional investors aiming for a controlling stake. Although, the capital increase mitigated the negative effect of liquidity and considering the buy-and-hold profile of investors in these kind of companies (dividend clientele effect), a liquidity discount was not considered in our analysis.

Regulatory Risk | Fluctuations in Tariffs Deviations (RR3)
As the tariffs are defined based on forecasts, deviations will always occur, which are referred as tariff deviations. REN receives the amount of the deviation plus interest two years after each tariff deviation. The regulator can be pressurized to avoid tariff increases in the future. Increases in tariff deviations can also oblige REN to issue additional debt to meet working capital needs, thus increasing net debt and interest costs that lead to negative impacts on the credit ratings.

Political Risk | Lose GSM via Nationalization (PR2)
Recently a left-wing Portuguese party, Bloco de Esquerda, presented a proposal to the Portuguese Parliament aimed at nationalizing the General System Management, arguing that it was in the best interest of the public and an important strategical asset for the state. The still limited relevance of BE in the parliament justifies our low probability assessment. In terms of impact, it would be most noticed in operational efficiency since the value of the assets allocated to this activity are not material, thus making hard to predict possible consequences.

Appendix 27: Porter's Five Forces Model



Legend:
Threat to the business:
1 Insignificant
2 Low
3 Moderate
4 Significant

Electricity

Bargaining Power of Suppliers | LOW
Electricity is a kind of good in which the good itself and its transmission are inseparable. Companies in this industry do not buy or sell energy and therefore suppliers are linked to the construction of the infrastructures for electricity transmission. This impacts the growth of RAB, one of the key drivers of profitability, as well as their ability to reach the efficiency targets which guarantee a premium remuneration if investments are made below reference costs. It may also impact the way the company achieves efficiency related to operational expenditures as defined by the regulator.

Threat of Substitutes | LOW
Electricity itself does not have a substitute, however, there are alternative ways to produce it through renewable energy as well as several fossil fuels. The transmission business functions independent of the source of electricity and thus the only substitutes available are those created by consumers adopting self-sufficient alternatives. These alternatives, such as solar panels, are still mostly unproven on a large scale which moderates the level of this threat. Nevertheless, transmission will always exist.

Bargaining Power of Buyers | LOW
Energy transmission buyers are the full spectrum of the communities in which they serve: industrial, commercial, residential, municipal. As there are no substitutes, customers have no choice but to use the only energy transmission operator available. Demand for electricity is inelastic and it is an essential good for society, so the bargaining power of the consumer is very low. In addition, the regulator has a key role to ensure the supply of electricity at reasonable prices to consumers, while keeping in mind the operator's interest.

Threat of new entrants | INSIGNIFICANT
The electricity transport industry enjoys high barriers to entry, as any new potential operator would require significant upfront land and capital investments. In this sense, the industry already relishes features of a natural monopoly. The Iberian market also has very strong legal barriers, with electric transport utilities operating under exclusive government concession contracts. This regulatory framework expands and solidifies these high barriers to entry, effecting a government monopoly, thus making the threat of new entrants insignificant.

Competition within the Industry | INSIGNIFICANT
Given the high barriers, the rivalry is at a minimum. Without competitors in this sector, firms act as monopolists. Expansion and investment are controlled by the regulator, as they must approve all investment plans to ensure the balance between consumers' interests as well as all the interests of the players in the power transmission sector.

Natural Gas

Bargaining Power of Suppliers | MODERATE
NG in the Iberian market is imported, which exposes Iberia to the economic and political environment of the supplier's countries. Even though subject to risks, those are mitigated by the take-or-pay clause established in the supply contracts. As in the electricity segment, the suppliers are also the ones who drive the construction and maintenance of assets, which plays a key role.

Threat of Substitutes | MODERATE
NG substitutes are the renewable sources of energy in the EM and electric heating in the residential & commercial part of CM. Decarbonization trends and climate change policies improve NG consumption in the short to medium-term, as they exercise pressure in the replacement of oil and coal. In the long-term, however, it may lead to a lot of developments in renewables and electricity infrastructure which will inevitably hurt NG demand. The transmission and distribution do not face major treats.

Bargaining Power of Buyers | LOW
In the short run, the power of buyers is very low since the allowed revenues are controlled by the regulator. However, in the long run, if demand for NG decreases, tariffs and rates of remuneration are adjusted for the change resulting in a decrease in the regulated revenues.

Threat of new entrants | LOW
The NG transmission industry also has high barriers to entry including a strong legal barrier as they operate exclusively under concession contracts that create a natural monopoly position. There are very high costs to enter the market and the number of revenues received are subject to heavy regulation. The distribution is more dispersed in the number of operators, although the capital requirements and fulfilled demand prevents new entrants.

Competition within the Industry | INSIGNIFICANT
In the NG transport business, operators act as monopolists since concessions are awarded for large periods of time. It is a market where the necessary infrastructure demands large investment and know-how which leads to the high barriers to entry. This is seen by the Government as the model that best fits consumers' interests in terms of quality and efficient service. Operator's investment plans are subject to approval by the regulator to ensure that the final price consumers pay is fair and that the operator does not have power to independently determine prices. The NG distribution has more players, although each one of them operate in different areas, thus making competition insignificant.

Appendix 28: Recommendation Scale

Level of Risk	SELL	REDUCE	HOLD	BUY	STRONG BUY
High Risk	0%	10%		20%	45%
Medium Risk	-5%	5%		15%	30%
Low Risk	-10%	0%		10%	20%
	2,21	**2,43**	**2,43**	**2,65**	**2,86**

Source: *Author Estimates*

Appendix 29: Terminal Dividend Growth Rate vs Terminal Cost of Equity

	Price Target	Terminal Dividend Growth Rate						
	€ 2,53	0,0%	0,5%	1,0%	**1,7%**	2,0%	2,5%	3,0%
Terminal Cost of Equity	6,0%	€ 3,07	€ 3,28	€ 3,53	€ 3,98	€ 4,22	€ 4,71	€ 5,37
	7,0%	€ 2,76	€ 2,91	€ 3,09	€ 3,39	€ 3,55	€ 3,86	€ 4,25
	8,0%	€ 2,52	€ 2,64	€ 2,77	€ 3,00	€ 3,11	€ 3,32	€ 3,58
	9,0%	€ 2,34	€ 2,44	€ 2,54	€ 2,71	€ 2,79	€ 2,95	€ 3,13
	9,8%	€ 2,22	€ 2,30	€ 2,39	**€ 2,53**	€ 2,60	€ 2,72	€ 2,87
	11,0%	€ 2,08	€ 2,14	€ 2,21	€ 2,32	€ 2,37	€ 2,47	€ 2,57
	12,0%	€ 1,98	€ 2,03	€ 2,09	€ 2,18	€ 2,22	€ 2,30	€ 2,39
	13,0%	€ 1,90	€ 1,94	€ 1,99	€ 2,07	€ 2,10	€ 2,17	€ 2,24
	14,0%	€ 1,83	€ 1,86	€ 1,91	€ 1,97	€ 2,00	€ 2,06	€ 2,11
	15,0%	€ 1,76	€ 1,80	€ 1,83	€ 1,89	€ 1,92	€ 1,96	€ 2,01

Source: *Author Estimates*

Appendix 30:Dividend Growth Rate 2019F-2023F vs Terminal Dividend Growth Rate

	Price Target	Dividend Growth Rate (2019F-2023F)									
	€ 2,53	0%	0,5%	1,0%	1,5%	2,0%	**2,5%**	3,0%	3,5%	4,0%	4,5%
Terminal Dividend Growth Rate	0%	€ 2,07	€ 2,10	€ 2,13	€ 2,16	€ 2,19	€ 2,22	€ 2,26	€ 2,29	€ 2,32	€ 2,36
	0,50%	€ 2,14	€ 2,17	€ 2,20	€ 2,23	€ 2,27	€ 2,30	€ 2,34	€ 2,37	€ 2,41	€ 2,44
	1%	€ 2,22	€ 2,25	€ 2,28	€ 2,32	€ 2,35	€ 2,39	€ 2,42	€ 2,46	€ 2,50	€ 2,54
	1,70%	€ 2,34	€ 2,38	€ 2,42	€ 2,45	€ 2,49	**€ 2,53**	€ 2,57	€ 2,61	€ 2,65	€ 2,69
	2%	€ 2,40	€ 2,44	€ 2,48	€ 2,52	€ 2,56	€ 2,60	€ 2,64	€ 2,68	€ 2,72	€ 2,76
	2,50%	€ 2,52	€ 2,56	€ 2,60	€ 2,64	€ 2,68	€ 2,72	€ 2,76	€ 2,81	€ 2,85	€ 2,90
	3%	€ 2,65	€ 2,69	€ 2,73	€ 2,78	€ 2,82	€ 2,87	€ 2,91	€ 2,96	€ 3,00	€ 3,05

Source: *Author Estimates*

Appendix 31: Macaulay Duration in a liquidation scenario

t	CF	Cost Of Equity	Cash Flow Weighted Time	Dcf Weighted Time	Total	Macaulay Duration	
0	€ 0,17	7,42%	€ -	0,00	26,24	10,80	Using Closing Price at 9/2/2018
1	€ 0,17	7,42%	€ 0,17	0,16		10,56	Using PT w/ liquidation
2	€ 0,18	7,52%	€ 0,35	0,30			
3	€ 0,18	7,65%	€ 0,54	0,43			
4	€ 0,18	7,84%	€ 0,74	0,54			
5	€ 0,19	8,03%	€ 0,94	0,64			
6	€ 0,19	9,81%	€ 1,15	0,66			
7	€ 0,20	9,81%	€ 1,37	0,71			
8	€ 0,20	9,81%	€ 1,59	0,75			
9	€ 0,20	9,81%	€ 1,82	0,78			
10	€ 0,21	9,81%	€ 2,05	0,81			
11	€ 0,21	9,81%	€ 2,30	0,82			
12	€ 0,21	9,81%	€ 2,55	0,83			
13	€ 0,22	9,81%	€ 2,81	0,83			
14	€ 0,22	9,81%	€ 3,08	0,83			
15	€ 0,22	9,81%	€ 3,35	0,82			
16	€ 0,23	9,81%	€ 3,64	0,81			
17	€ 0,23	9,81%	€ 3,93	0,80			
18	€ 0,23	9,81%	€ 4,23	0,79			
19	€ 0,24	9,81%	€ 4,54	0,77			
20	€ 0,24	9,81%	€ 4,86	0,75			
21	€ 0,25	9,81%	€ 5,19	0,73			
22	€ 0,25	9,81%	€ 5,53	0,71			
23	€ 0,26	9,81%	€ 5,88	0,68			
24	€ 0,26	9,81%	€ 6,24	0,66			
25	€ 0,26	9,81%	€ 6,61	0,64			
26	€ 0,27	9,81%	€ 6,99	0,61			
27	€ 0,27	9,81%	€ 7,38	0,59			
28	€ 0,28	9,81%	€ 7,79	0,57			
29	€ 0,75	9,81%	€ 21,64	1,44			
30	€ 0,24	9,81%	€ 7,17	0,43			
31	€ 0,77	9,81%	€ 23,84	1,31			
32	€ 0,20	9,81%	€ 6,42	0,32			
33	€ 0,20	9,81%	€ 6,73	0,31			
34	€ 0,21	9,81%	€ 7,05	0,29			
35	€ 0,21	9,81%	€ 7,38	0,28			
36	€ 0,21	9,81%	€ 7,72	0,27			
37	€ 0,22	9,81%	€ 8,07	0,25			
38	€ 0,22	9,81%	€ 8,43	0,24			
39	€ 0,23	9,81%	€ 8,80	0,23			
40	€ 1,94	9,81%	€ 77,74	1,84			

Appendix 32: Dividend Growth Rate 2019F-2023F vs Terminal Cost of Equity

Terminal Cost of Equity	Price Target € 2,53	Dividend Growth Rate (2019F-2023F) 0,0%	0,5%	1,0%	1,5%	2,0%	2,5%	3,0%	3,5%	4,0%	4,5%
	6,0%	€ 3,65	€ 3,72	€ 3,78	€ 3,84	€ 3,91	€ 3,98	€ 4,04	€ 4,11	€ 4,18	€ 4,25
	7,0%	€ 3,13	€ 3,18	€ 3,23	€ 3,29	€ 3,34	€ 3,39	€ 3,45	€ 3,51	€ 3,56	€ 3,62
	8,0%	€ 2,77	€ 2,81	€ 2,86	€ 2,90	€ 2,95	€ 3,00	€ 3,05	€ 3,09	€ 3,14	€ 3,19
	9,0%	€ 2,51	€ 2,55	€ 2,59	€ 2,63	€ 2,67	€ 2,71	€ 2,75	€ 2,80	€ 2,84	€ 2,88
	9,8%	€ 2,34	€ 2,38	€ 2,42	€ 2,45	€ 2,49	**€ 2,53**	€ 2,57	€ 2,61	€ 2,65	€ 2,69
	11,0%	€ 2,15	€ 2,18	€ 2,22	€ 2,25	€ 2,29	€ 2,32	€ 2,35	€ 2,39	€ 2,42	€ 2,46
	12,0%	€ 2,03	€ 2,06	€ 2,09	€ 2,12	€ 2,15	€ 2,18	€ 2,21	€ 2,25	€ 2,28	€ 2,31
	13,0%	€ 1,92	€ 1,95	€ 1,98	€ 2,01	€ 2,04	€ 2,07	€ 2,10	€ 2,13	€ 2,16	€ 2,19
	14,0%	€ 1,84	€ 1,86	€ 1,89	€ 1,92	€ 1,94	€ 1,97	€ 2,00	€ 2,03	€ 2,06	€ 2,09
	15,0%	€ 1,76	€ 1,79	€ 1,81	€ 1,84	€ 1,86	€ 1,89	€ 1,92	€ 1,94	€ 1,97	€ 2,00

Source: *Author Estimates*

Appendix 33: Changes in price related to changes in the cost of equity (peer group)

	ELIA	ENAGAS	REE	TERNA	SNAM	REN
Price target w/liquidation @Ke+100bps	27,88 €	21,71 €	12,15 €	3,97 €	2,98 €	2,20 €
Difference from Price Target w/liquidation	(4,19) €	(2,85) €	(1,44) €	(0,59) €	(0,39) €	(0,29) €
Duration Effect	(4,67) €	(3,15) €	(1,59) €	(0,66) €	(0,43) €	(0,32) €
Gain from Convexity for 1% change	0,54 €	0,33 €	0,16 €	0,07 €	0,05 €	0,03 €
Total Effect	(4,14) €	(2,82) €	(1,43) €	(0,58) €	(0,39) €	(0,28) €

Source: *Author Estimates*

Appendix 34: List of Abbreviations

Redes Energéticas Nacionais, S.G.P.S, S.A (REN)
Discounted Cash Flow (DCF)
Dividend Discount Model (DDM)
Direção Geral de Energia e Geologia (DGEG)
Debt- to - Enterprise Value (D/EV)
Debt-to-Equity (D/E)
Dividend per Share (DPS)
Dividend Yield (DY)
Basis point(s) (bp(s))
Board of Directors (BoD)
Entidade Reguladora dos Serviços Energéticos (ERSE)
Enterprise Value (EV)
Earnings Before Interest, Taxes, Depreciations and Amortizations (EBITDA)
Energias de Portugal (EDP)
Energias de Portugal Distribuição (EDPD)
Electricity Market (EM)
European Comission (EC)
European Central Bank (ECB)
Energy Sector Extraordinary Contribution (ESEC)
Equity Risk Premium (EQR)
Earnings (E)
Cash Flow (CF)
Compounded Annual Growth Rate (CAGR)
Chief Executive Officer (CEO)
Chief Operations Officer (COO)
Chief Financial Officer (CFO)
Cost of Equity (Re or Ke)
Cost of Debt (Rd)
Capital Expenditures (CAPEX)
Comissão do Mercado e Valores Mobiliários (CMVM)
Conventional Market (CM)
Forecasted (F)
Free Cash Flow to the Firm (FCFF)
Free Cash Flow to Equity (FCFE)
Sum of the parts (SoP)
Share (sh)
Standard & Poor's (S&P)
Securities and Exchange Commission (SEC)
Sum of Absolute Rank Differences (SARD)
Rate of Return (RoR)
Regulated Asset Base (RAB)
Return on Equity (ROE)
Red Electrica de España (REE)
Risk- Free Rate (RFR)
Natural Gas (NG)
National Electric System (SEN)
National Natural Gas System (SNGN)
Net Profit Margin (NPM)
Year End (YE)
Year (Y)
Yield-to-Maturity (YTM)
Year on Year (YoY)
Latin America (LATAM)
Liquified Natural Gas (LNG)
Price (P)
Price to Earnings (P/E)
Price to Book (P/B)
Price to Dividend (P/D)
Price Target (PT)
Price Value per Basis Point (PVBP)
Power Purchase Agreements (PPAs)
Millions (M)
Mega Watts (MW)
Mercado Ibérico de Electricidade (MIBEL)
Gross Domestic Product (GDP)
Kilometers (KM)
Key Perfomance Indicators (KPI)
International Transmissions Operations and Maintenance Study (ITOMS)
Transmission System Operator (TSO)
Total Expenditure (TOTEX)`
Operational Expenditures (OPEX)
Quantitative Easing (QE)
Weighted Average Cost of Capital (WACC)

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Recommendation System

Level of Risk	SELL	REDUCE	HOLD/NEUTRAL	BUY	STRONG BUY
High Risk	0%≤	>0% & ≤10%	>10% & ≤20%	>20% & ≤45%	>45%
Medium Risk	-5%≤	>-5% & ≤5%	>5% & ≤15%	>15% & ≤30%	>30%
Low Risk	-10%≤	>-10% & ≤0%	>0% & ≤10%	>10% & ≤20%	>20%