GALP ENERGIA

COMPANY REPORT

OIL & GAS

3 JUNE 2013

STUDENT: CARLOS ANTUNES

Major focus on E&P

Brazil is the main key of the equation

- After a careful and detailed analysis, we recommend a price per share of 14.56 €, which corresponds to an expected return of 15.07%.
- The E&P segment is the main value creator of Galp's portfolio, with the major investments by the firm being allocated here. Currently, these enclose primarily the Brazilian fields, taking special attention in Lula, and the NG reserves in Mozambique. A concession agreement with Sinopec was closed, which, in exchange for a 30% share of Petrogal, Galp acquired an increase in capital that became beneficial for the continuing rise of expenses.
- In R&M, with the conversion project finished, Galp's refineries gained new levels of productivity, also allowing the firm to increase its own refining margins. Although the market shares of supermarkets have been growing, Marketing's performance has continued relatively stable.
- The G&P continues to function steadily. No major future events are expected to happen and/or affect directly Galp's transactions in the near future, either in the regulated and liberalized markets.

Company description

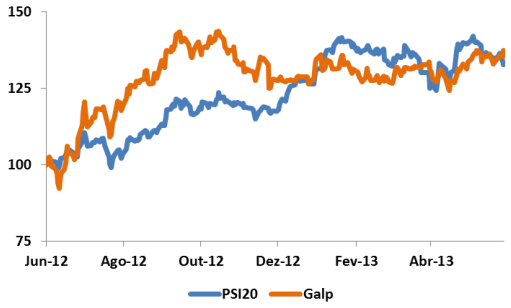
Galp Energia is a Portuguese energy company, whose stock is listed in the Euronext Lisbon stock exchange since 2006. It is one of the largest firms in Portugal in terms of market capitalization, thus being enlisted in the PSI-20 Index. Founded in 1999, it is divided into three segments and operates in 13 countries. Also, it is the only refining company in the Portugal.

Recommendation:	**BUY**
Vs Previous Recommendation	*BUY*
Price Target FY13:	**14.56 €**
Vs Previous Price Target	*14.56 €*
Price (as of 3-Jun-13)	**12.65 €**

Reuters: GALP .LS, Bloomberg: GALP PL

52-week range (€)	8.33-13.29
Market Cap (€m)	10.133
Outstanding Shares (m)	829.251
Free float	30,32%

Source: Bloomberg



Source: Bloomberg

(Values in € millions)	2012	2013E	2014F
Revenues	18.644	17.905	18.653
EBITDA	1.038	1.296	1.460
EBIT	542	570	475
Net Profit	343	293	231
EPS	0,41	0,35	0.29
D/(D+E)	51.8%	49.9%	49.8%
Net Debt	1.696	1.919	2.415
Capital Employed	8.402	8.620	8.880
Net Debt / Equity	25.3%	21.4%	20.9%
EBIT/Interest Expenses	8.7	3,7	2.6

Source: Galp Energia, Analyst Estimates

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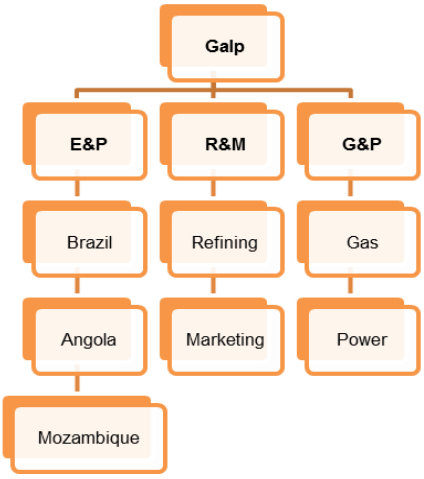
Figure 1: Company Structure



Source: Galp Energia

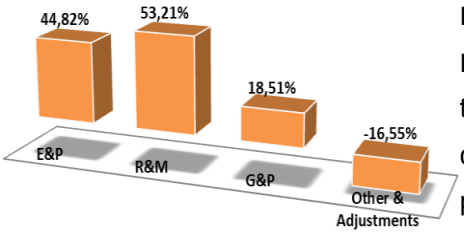
Company description

Galp Energia is a Portuguese energy company that was founded in 1999. Galp is the main oil and natural gas operator in Portugal and operates into three major business segments: Exploration & Production (E&P), Refining & Marketing (R&M) and Gas & Power (G&P).

50 Projects over 10 countries, with special focus on Brail, Angola and Mozambique

In the E&P segment, Galp operates in over 50 projects located over 10 countries, with Brazil, Angola and Mozambique being currently the most important ones. This segment first started in Angola, at the Safueiro field, but has since then added several other projects, with block-14 as the most profitable one over the past years, being now in a decaying phase. In 1999, Galp started operating in Brazil by participating in the second bidding round for the award of exploration rights in the country. Nowadays, Brazil is the biggest value creator for this segment. There, Galp operates, through a partnership with Petrobras, in a total of 15 offshore and 5 onshore projects. Among these, emphasis should be given to the Cernambi and Lula fields (Santos basin), whose joint production accounts for approximately 8,3 million barrels of oil and natural gas. Moreover, in the case of Mozambique, Galp operates under a farm-in agreement (10%) with ENI and Empresa Nacional de Hidrocarbonetos (ENH), in the exploration of area 4 in the Rovuma basin's ultra-deep water. With a 27 Tcf[1] of natural gas-initially-in-place, this area has become a higher priority, even though, due to the country's poor quality infrastructures, it requires an enormous amount of investment in order to properly extract the natural gas.

Figure 2: (%) EBIT per Segment, 2012



Source: Galp Energia

Conversion Project completed in 2012

The Refining part of the R&M segment includes mostly the activity in the two Portuguese refineries – Matosinhos (hydroskimming) and Sines (cracking), with 110.000 and 220.000 kboepd[2], respectively. These refineries provide a balanced production mix, namely in middle distillates, such as gasoline and diesel. Galp made a conversion project (€1,4 billion), which began in 2008 and was completed in December 2012, with the main goal of optimizing the capacity utilization of its refineries, now allowing for a better processing of both light and heavy crude, whose cost is normally cheaper than light and condensed ones.

Primary source of revenues is R&M

Regarding Marketing, Galp is the leader in terms of market share in Portugal, has an increasing presence in Spain, while also participating in some African countries. The sales of Galp's oil products encompass LPG[3] and direct clients in

[1] Trillion Cubric Feet
[2] Thousand barrels of oil equivalent per day
[3] Liquified Petroleum Gas

sectors such as wholesale, retail and industrial. This segment is currently the biggest source of the firm's revenues.

Figure 3: Galp's competitors & peers data

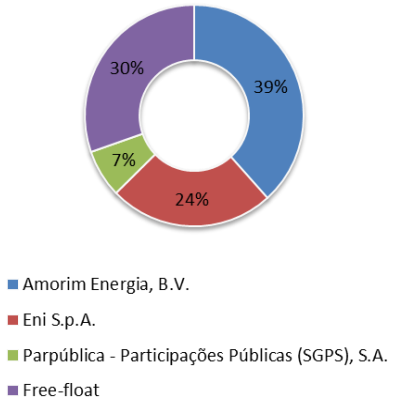
	Country	Net Income (€ Bn)	Market Cap (€ Bn)	Employees
Galp	Portugal	0,34	9,75	7,24
Repsol	Spain	0,63	23,18	29,99
BP	UK	17,29	106,03	85,70
Iberdrola	Spain	2,70	26,71	30,76
Shell	Netherlands	20,63	109,23	87,00
TNK-BP	Russia	5,94	17,23	42,00

Source: Galp, Repsol, BP, Shell, TNK

Galp's Gas sector involves: regulated activities, which encompass the distribution and storage of NG[4]; liberalized activities, through the import of NG; and a mix marketing, which include the previous two and is directed to industrial, commercial and residential clients and electricity producers. The company shares the control of this market along with EDP. Finally, in the Power sector, Galp holds an installed capacity of 245 MW[5], including the cogeneration at Galp's refineries, which represent 24% of the consumption in the industrial sub-segment. Galp's portfolio in this sector comprises cogeneration plants, wind power and the development of the marketing of electricity.

Shareholder structure

Figure 4: Shareholder Structure (2012)

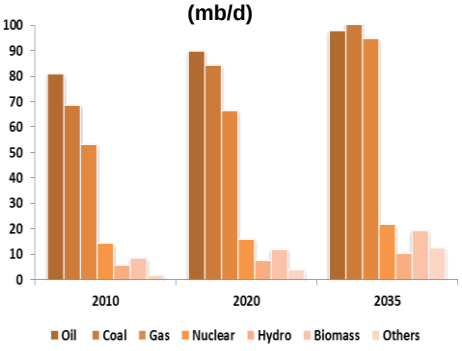


Source: Galp Energia

In 2006, Galp Energia created a shareholder agreement between Amorim Energia (33,34%), Eni (33,34%) and Caixa Geral de Depósitos (1%), jointly denoted as "the Parties", which ended to be in effect in 2012. Alongside these, there were Parpública (2%), Iberdrola (4%), Banco Português de Investimento (2,07%), Corporación Caixa Galicia (2%), the Portuguese State (5%), while the remaining 17,25% account as free float.

In 2011, Eni obtained the right to sell more than 20% of Galp's equity, whereas CGD would retain the 1% it held at the time. On November 2012, Eni sold 4% of Galp's share capital (at €11,48 per share), with CGD also selling its 1%. In addition, Eni issued bonds equivalent to approximately 8% of the share capital of Galp, thus currently holding 24,34% of the firm's equity. Still in 2012, Amorim acquired 5% of Galp's share capital (at €14,25 per share), now holding 38,34% of the equity of the company. Apart from these two, Galp's shareholder structure is composed by Parpública, which holds 7%, and the fraction correspondent to free float, 30,32%.

Figure 5: World supply of primary energy (mb/d)



Source: OPEC, EIA

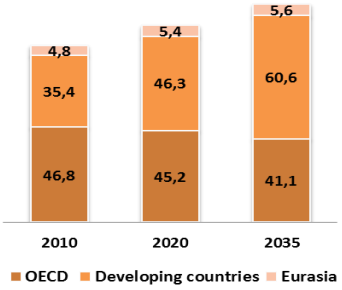
More recently, in May 2013, Eni completed a placement of 6,7% of Galp's share capital, through a bookbuilding process intended for qualified institutional investors. As a result, Eni will hold 16,34% of the firm's outstanding shares. In our view, this measure will be beneficial for Galp, as it might reduce its overhang risk.

Exploration & Production

Market Overview

[4] Natural Gas
[5] Megawatts

Figure 6: World oil demand (mb/d)



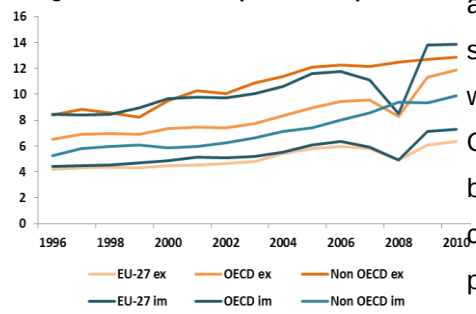
Source: OPEC, EIA

Figure 7: (%) Oil demand per sector

		2009	2035
OECD	Transp	63%	59%
	Industry	24%	29%
	Res/Com/Agr	10%	9%
	Electricity	3%	3%
Developing countries	Transp	50%	61%
	Industry	28%	23%
	Res/Com/Agr	12%	11%
	Electricity	10%	5%
Eurasia	Transp	61%	50%
	Industry	23%	37%
	Res/Com/Agr	11%	8%
	Electricity	5%	4%

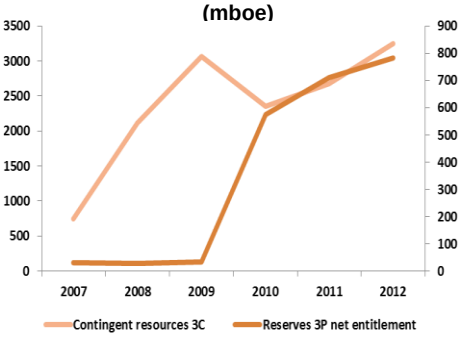
Source: OPEC World Oil Outlook 2012

Figure 8: Total ex/imports of oil products



Source: EIA, OPEC

Figure 9: Galp's reserves and contingents (mboe)



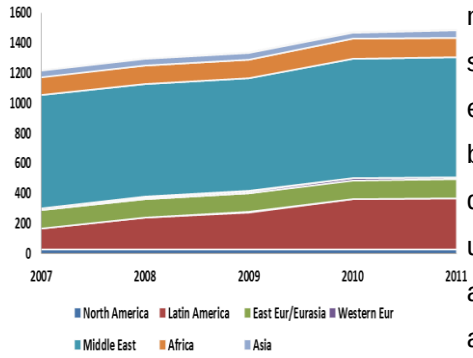
Source: Galp

Humanity has always used energy for its survival and benefit. The more developed and evolved society got, the more dependent has man become on energy. It should not be a surprise that the demand for energy has been explosively increasing, especially during the last century, having a huge impact on economic growth (and vice-versa). Developed countries show a clear and larger consumption of energy than developing ones. However, in the last decade, these developing economies, such as India and China, have registered higher growth percentages of their GDP and, consequently, their energy demand has also been increasing. According to OPEC, by 2035, primary energy demand should increase approximately 54%, with fossil fuels, which currently account for 87% of total energy used, still representing 82% of this energy output. Oil will also continue to occupy the biggest portion of fuel type; even though it should have a smaller share (27%) than the one it holds nowadays (35%). By 2016, world oil demand should reach 92,6mb/d[6], and 107,3mb/d in 2035. This growth will however mostly come from developing Asia, rather than OECD countries. In fact, for the latter, this demand is expected to follow a decreasing trend, only accounting for 41,1mb/d of the total outlook in 2035, where developing countries will lead the poll (60,6mb/d). In order to better understand this development, we thought it would be relevant to analyze the main sectors that utilize oil as part of its production process – transportation, industry, residential / commercial / agricultural and electricity generation. Starting with transportation, it is clearly the sector most dependent on oil. In 2012, in particular for road transportation, there were about 870 million cars around the globe, with more than 2/3 belonging to OECD countries. However, during the last few years the percentage shares between developing and developed countries have suffered significant and fast changes, with the first ones expected to hold around 52% of total cars in the planet by 2035. With the car ownership forecasted to flatten, mainly caused by technological improvements, the appearance of more environmental friendly and efficient fuels and a saturation effect[7], total OECD percentage share of oil usage is supposed to reach 59% in 2035 (from 64% in 2009), whereas in developing countries it should achieve 61%, comparing with the current 50% it occupies. Specifically for developing countries, this massive growth in transportation oil usage will certainly offset the remaining sectors. In industrial terms, usage of oil is expected to decrease from 28% (2009) to 23% (2035); in production of electricity is expected to decline (10% to 5%); and in residential / commercial / agricultural, consumption of oil should register a (small) reduction, from 12% to 11% by 2035.

[6] Million barrels of oil

[7] "Vehicle Ownership and Income Growth, Worldwide: 1960-2030" - Joyce Dargay, Dermot Gately and Martin Sommer

Figure 10: World proven oil reserves (bn)



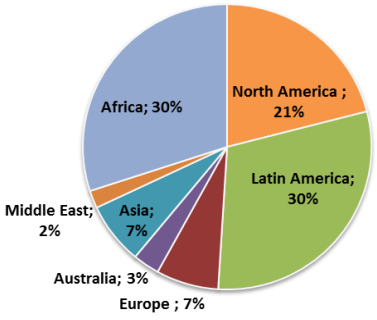
Source: EIA, OPEC

Figure 11: OPEC basket prices ($/b)

2001	23,12
2002	24,36
2003	28,10
2004	36,05
2005	50,64
2006	61,08
2007	69,08
2008	94,45
2009	61,06
2010	77,45
2011	107,46

Source: OPEC

Figure 12: Deepwater Capex (US$m) 2012-2016 By Region



Source: BP, Bloomberg

Given the rising tendency of demand, the supply of oil is expected to follow this movement, although in order to achieve this, a tremendous amount of investment streams is necessary. For instance, in deep water reserves, higher capital expenditures are expected to be mainly concentrated in Latin America and Africa between 2012 and 2016. Oil fields/reserves are already projected to enter in a decreasing phase after 2020. Consequently, firms will be obliged to use unconventional methods in order to find oil, which will require the development and application of projects, using new extraction technology, that will be associated with risks currently difficult to foreseen. Taking this into account, according to OPEC, during the period of 2012-2016, this stream of investments is projected to be $270 billion, with this figure estimated to rise even more after this date.

The supply and demand of oil are the direct catalysts of oil prices. Historically, these figures were considered much less volatile and easier to predict, particularly until 2006-2007. In 2008, with the beginning of the financial crisis in the United States, the consequential contagion overseas, especially in the European Union, and the more and more unstable situation in the middle east oil producer countries, crude prices suffered an extreme growth, moving from $69,08 to $94,45 in just one year (**figure 10**). In the long term, in order to accompany the increasing demand in oil, prices are predicted to grow as well. Moreover, the evolution of crude will also depend on other factors, such as governmental (restrictions on amount of regulation at CO_2 emissions) political (existence of Cartels) and technological (advances in machinery, equipment, …).

Considering the major increase in the demand of oil, it becomes clear the interest Galp has in this area, particularly with its E&P division. According to the company's strategy, this is the segment that will generate the biggest percentage of value, especially from 2013 onwards. Currently, Galp's most important projects are located in Brazil, Angola and Mozambique, although it has already several other countries in view, like Namibia, Morocco and even Portugal, expecting to reach a production of 300kboepd by 2020, more than 10 times its current level.

Brazil

Galp participates in 21 projects in Brazil across 8 different offshore/onshore basins – Potiguar, Pernambuco, Segipe/Alagoas, Espírito Santo, Campos, Santos and Amazonas. Recently, Galp participated in a bid for exploratory blocks, organized by the ANP[8], being awarded the following blocks: PN-T-136, PN-T-150, PN-T-166 and PN-T-182 in the Parnaíba basin; BAR-M-300, BAR-M-

[8] Agência Nacional do Petróleo, Gás Natural e Biocombustível

Figure 13: Reserves and production start

Block	Reserves (Mboe)	Prod. Year
BM-S-8		
Bem-te-vi, Car and Big	1.000	2013
BM-S-11		
Iara	3.000	2013
Lula and Cernambi	8.300	2010
BM-S-21		
Caramba	1.000	2016
BM-S-24		
Jupiter	2.300	2016

Source: Galp Energia, Analyst Estimates

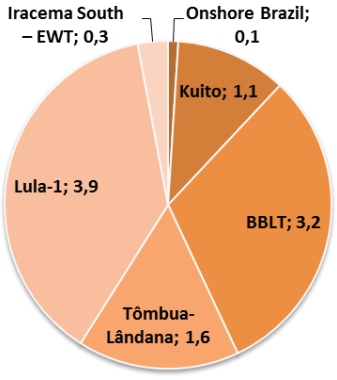
342, BAR-M-344 and BAR-M-388 in the Barreirinhas basin; and an additional block in the Pontiguar basin, POT-M-764. In a per basin basis, these concessions cost to the consortium R$22.3M (€8,3M), R$251M (€96M) and R$8M (€3M), respectively. Of all the enumerated, the most important is the Santos basin, as it is the only one that currently has fields already in its production phase, thus the only area that will be taken into consideration for valuation purposes (others are still in testing and exploration stages). In terms of transport infrastructure, for oil in 2013, transport will done through DP[9] shuttle tankers, and afterwards via shallow water transfer units (UOTE[10]); while for gas, the transport is made through the Mexilhão gas route (10m^3/d capacity), and after 2014, by the Cabiúnas gas pipelines (13m^3/d). In this basin, Galp is present in four offshore blocks.

Figure 14: Fields in Brazil

Basins	Block		Galp participation (%)	Operator	# Blocks	Area (km2)	Water depth (metres)
Potiguar	BM-POT-16	offshore	20%	Petrobras	2	1.535	50-2.000
	BM-POT-17		20%	Petrobras	3	2.302	50-2.000
	POT-M-764		20%	Petrobras			
Pernambuco			20%	Petrobras	3	1.713	1.000-2.000
Espírito Santo			20%	Petrobras	1	722	2.000-2.200
Campos			15%	Petrobras	1	85	100-400
Santos	BM-S-8		14%	Petrobras		2.432	2.000-2.500
	BM-S-11		10%	Petrobras		2.297	2.000-2.500
	BM-S-21		20%	Petrobras		1.037	2.000-2.500
	BM-S-24		20%	Petrobras		1.394	2.000-2.500
Amazonas		onshore	40%	Petrobras	3	5.718	
Sergipe/Alagoas			50%	Galp	2		
Pernaiba	PN-T-136		50%	Galp			
	PN-T-150		50%	Petrobras			
	PN-T-166		50%	Petrobras			
	PN-T-182		50%	Galp			
Barreirinhas	BAR-M-300	offshore	10%	BG Group			
	BAR-M-342		10%	BG Group			
	BAR-M-344		10%	BG Group			
	BAR-M-388		10%	BG Group			

Source: Galp Energia

Figure 15: Working interest production per project in 2012



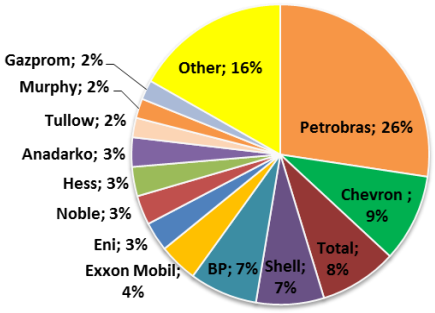
Source: Galp Energia

BM-S-8 in the Carcará, Biguá and Bem-te-vi fields; BM-S-11, with the Iara and Lula and Cenambi fields; BM-S-21 in the Caramba field; and BM-S-24 in the Jupiter field. Petrobras is the main operator in all these basins, including all the blocks in the Santos basin, with the exception of Sergipe/Alagoas, where Galp is the operator.

In BM-S-8, Bem-te-vi had its first discovery in 2007, while an exploration well in Biguá has already been drilled and completed in 2011, separated 21km from the first. After that, attention was turned to the drilling of Carcará that had a proven oil quality of around 31º API[11]. A DoC[12] was planned to happen in the end of 2012, as well as the drilling of a EWT[13] for this field. However, in order to better understand its characteristics, a delay on the deadline was asked to ANP for the

[9] Dynamically Positioned
[10] Offshore Transport and Export Unit
[11] American Petroleum Institute
[12] Declaration of Commerciality
[13] Extended Well Test

Figure 16: Deepwater capex (US$m) 2012-2016 By Operator



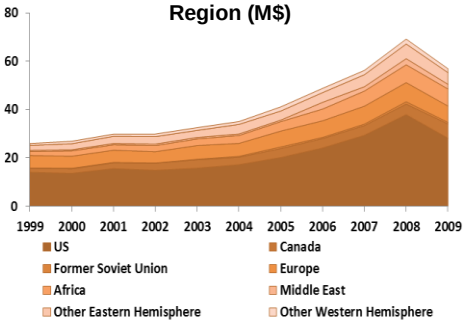
Source: BP, Bloomberg

Figure 17: SPT in Brazil

SPT (≤11322 kboe/year)	0%
SPT (11322 - 22644 kboe/year)	10%
SPT (22644 - 33966 kboe/year)	20%
SPT (33966 - 45288 kboe/year)	30%
SPT (45288 - 56609 kboe/year)	35%
SPT (> 56609 kboe/year)	40%

Source: Galp Energia

Figure 18: Production/Lifting Costs by Region (M$)



Source: EIA

Figure 19: Petrobras costs (lifting $/barrel; rest M$)

	2008	2009	2010	2011	2012
Lifting costs excluding prod taxes	7,7	8,78	10,03	12,59	13,92
Lifting costs including prod taxes	19,39	20,51	24,64	32,52	33,83
Exploration costs	1775	1702	1981	2630	3994
R&D expenses	941	681	993	1454	1143

Source: Petrobras

issuance of the DoC, which should take place in 2013. According to the company's initial estimates, 400-500Mboe[14] were expected, stating they might have been too conservative. Due to these new events, we decided to consider 1.000Mboe of reserves for this block. Iara's appraisal phase is expected to be completed in the end of this year. The DoC and EWT are also anticipated to happen at the same time. Reserves were assumed to be 3.000Mboe with a 16% recovery factor. Still in BM-S-11, Lula and Cernambi constitute the biggest asset of the firm in terms of Brazilian oil fields, with particular emphasis to Lula. Production already started in Lula back in 2009 following an 18-month EWT, with confirmed reserves of 8.300Mboe (6.500 for Lula and 1.800 for Cernambi). In 2010, this EWT was replaced by a long-term production system – the FPSO[15] of Cidade de Angra dos Reis, with an oil capacity of 100mb/d, according to Petrobras. By 2017, Galp expects to have installed a total of 10 FPSOs in the Lula area alone.

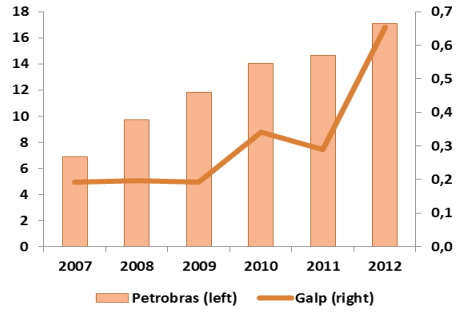
For Caramba in BM-S-21, activities are currently focused on interpreting the 3D seismic data, processed in 2011, and in identifying and selecting prospects. The drilling of an exploration well is forecasted for 2014 and a DoC for April 2015, with production expected to start in 2016. Due to uncertainty caused by lack of data regarding this field and the proximity it has with BM-S-8, we expect a similar number of reserves, 1.000Mboe. The Jupiter field had its first discovery in 2008, with studies suggesting that it was similar to Lula's size. The company estimates a DoC will take place in February 2016. In 2012, the drilling of a second well, Jupiter NE, was completed, confirming the existence of high quality fossil fuels (33% oil, 33% gas and 33% condensates). As a result, an FPSO is estimated to be allocated in this field by 2018 and we considered reserves of 2.300Mboe.

The management of oil production in Brazilian fields is subject to some specific regulations and rules. In fiscal terms, tax regimes in Brazil are done through concessions that encompass the following: a Special Participation Tax, ranging from 0% to 40% depending on production of oil/ng, water depth, onshore/offshore type and production per year; royalties that account for 10% of gross sales; and a corporate tax rate of 34%, which is comprised by a basic 15% corporate income tax, plus a 9% social contribution on net profit and a 10% surtax.

Historical costs related with the exploration and production of oil have been increasing over time. Especially in the last decade, with the economic recession and various conflicts in Middle East, operating costs and capital expenditures in oil related matters more than doubled. Also, as markets became more competitive, new and more expensive

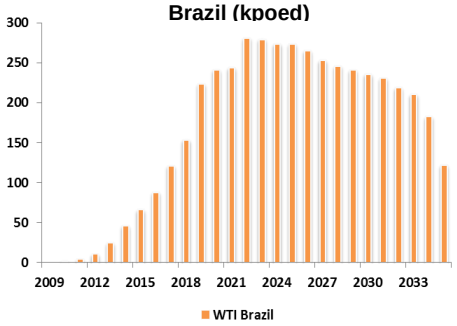
[14] Million barrels of oil equivalent
[15] Floating, Production, Storage and Offloading

Figure 20: Petrobras/Galp capex (M€)



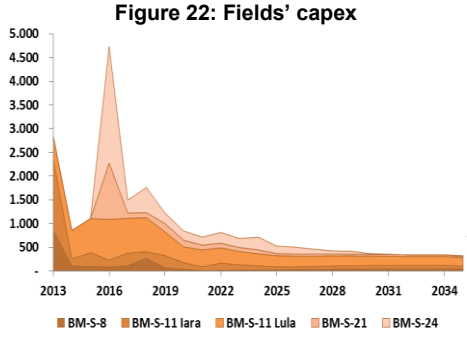
Source: Galp, Petrobras

Figure 21: Working interest production Brazil (kpoed)



Source: Galp, Analysts Estimates

Figure 22: Fields' capex



Source: Galp, Analysts Estimates

technologies and labor are required. As Galp has an agreement with Petrobras in all the fields it participates in Brazil, with the latter being the main operator in a big portion of them, it becomes crucial to understand Petrobras's own operating costs. Due to factors already enumerated and others, such as the rising prices of steel and/or iron, we also forecast Petrobras' costs to grow in the near future. However, as Galp's operations in the basin being analyzed are all located in ultra-deep water areas, Petrobras's historical might not be a very accurate benchmark. The reasoning behind this is the following: it has a riskier nature; the cost of drilling, for instance, a shallow water reserve ($40/bbl) is lower than in an ultra deepwater reserve (can go up to $100/bbl[16]); and the fact that Petrobras previous operations do not involve fields with these characteristics. With that in mind, we should expect even larger capex, as maintenance. Thus, we assume a total of $28/bbl as operating costs for these fields. In Brazil, capital expenditures are valued taking into account extraction and injection wells, FPSOs and their respective maintenance. According to our analysis, and taking reference on the only Brazilian field already producing where Galp has a participation, Lula, we assumed an average cost per well of $180M, with a production of 20kbopd; while for FPSOs, we used an average production of 150kbopd and a cost of $1,2Bn.

During the first semester of 2012, Galp finalized the agreement, announced in November 2011, with Sinopec, related to the capital increase in Petrogal Brazil and other related parties, responsible for the company's upstream activities in that country. Sinopec fully subscribed to the $4,8 billion capital increase (€3,6 billion), plus a shareholder loan that amounted for $0,6 billion (€0,45 billion), resulting in a partnership with Galp, where the first holds 30% of Petrogal's operations in Brazil and the rest belonging to Galp. Still, the consolidation of Petrogal's operations continued to be fully accounted in Galp's own financial statements, where the capital increase was accounted both in cash and minority interests. In our view, this agreement became very beneficial for Galp in a sense that it helped decrease part of the risks associated with the financing of the operations in the producing fields. However, it should be noted that this positive perspective was not shared entirely by the market, as Galp's stock price started decreasing just after the agreement was first announced, falling more than €3 in around a 20-days period.

Angola

In Angola, Galp participates in five projects – four oil projects spread through four offshore blocks (block 14, block 32, block 14k-A-IMI and block 33), where the main operators are either Total or Chevron; and an integrated natural gas project

[16] "Trends in moving towards deepwater E&P in Malaysia" – Frost & Sullivan

Figure 23: Fields in Angola

Block	Galp share (%)	Operator
Block 14		
Kuito, BBLT, T-L	9%	Chevron
Mal and Luc	9%	Chevron
Block 14K-A-IM		
Lianzi	4,5%	Chevron
Block 32		
Kaombo	5%	Total

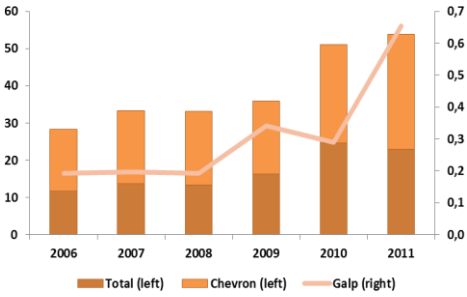
Source: Galp

Figure 24: Reserves and production start (Angola)

Block	Reserves (Mboe)	Prod. Year
Block 14		
Kuito, BBLT, T-L	350	2009
Mal and Luc	1200	2014
Block 14K-A-IM		
Lianzi	300	2015
Block 32		
Kaombo	1300	2016

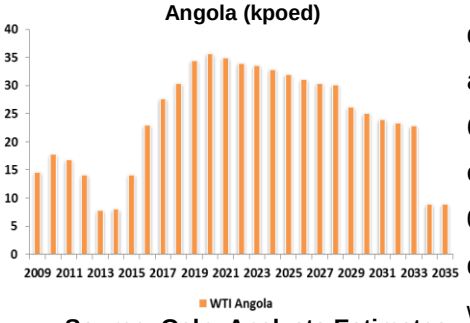
Source: Galp, Analysts Estimates

Figure 25: Galp/Total/Chevron capex comparison (M€)



Source: Galp, Chevron, Total

Figure 26: Working interest production Angola (kpoed)



Source: Galp, Analysts Estimates

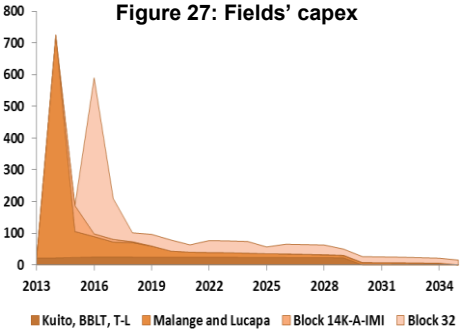
(Angola LNG II), with Sonagás as the operator. In block 14, Galp Energia has been producing since December 1999. It is composed by eight areas – Kuito, Benguela-Belize-Lobito-Tomboco (BBLT), Tômbua-Lândana (T-L), Malange, Lucapa, Gabela Menongue and Negage, although the firm's relevant participation is only located in the first five. In the case of Kuito, BBTL and T-L, these fields are already at their mature phase, with part of its reserves completely depleted. However, this fact has been partly compensated by the installation of a CPT[17] in the T-L area back in 2009. Around this period, a total of 350Mbbl in reserves were estimated, with peak production taking place in 2011. Still in block 14, Galp also has a participation in Malange and Lucapa. In Lucapa, a FPSO is expected to be developed, while in Malange, a DoC was issued back in 2010, after the drilling of the Malange-2 well. We expect these fields to hold a total of 1.200Mbbl in reserves and production to start by 2014. Galp's project in block 14k-A-IMI, in the Lianzi area, was adopted in order to connect it to the BBTL platform, thus facilitating the reduction of the amount of investment required. According to its operator, Chevron, total reserves are estimated at 300Mbbl, with production beginning in 2015.

The development plan for block 32 was approved in late 2010, with focus in the Kaombo area. Fourteen discoveries have already been made, and in 2012, an extension was authorized for the exploration period of the Central North East (NE) area for 2-3 more years to further investigate potential undiscovered prospects. Production is supposed to start in 2016, with reserves worth 1.300Mbbl. Lastly, there is block 33. In March 2005, after the seismic interpretation was taken, two exploration wells were drilled, but only one, Calulu-1, ended up as commercially viable. However, due to lack of further information, either regarding reserves and production levels, we decided not to value this block as part of Galp's portfolio in Angola.

Much like in Brazil, the exploration and production of Angolan oil fields rely on very specific regulations. Angola's tax regime is based on a Production Sharing Agreement (PSA). Here, gross revenue (based on working interest production) is divided into: (1) operating costs and capex, which is denominated cost oil, amounting for a maximum of 50% of the annual working interest production, or 65% in case development costs in need of recovery from more than four years exist; and (2) the remaining quantity, called profit oil, subject to a share between 0%-70% that will be distributed between the concessionaire and the contractor, depending on the terms of the agreement. The portion allocated to the contractor will then be subject to an income oil tax of 50%. By joining both parts, the net entitlement production is achieved. Operational costs have been increasing as

[17] Compliant Pilled Tower

Figure 27: Fields' capex



Source: Galp, Analysts Estimates

the starting of the production in some fields is approaching, which require more and more expenses associated with research and exploration. Consequently, we, like in the Brazil case, considered $20/bbl as operating cost in our valuation for Angola. These account for costs associated with wells, where we assumed an average drilling cost of $100M, and FPSOs, with a production capacity of 110kbopd. According to estimates, capex is expected to register a large growth, especially in years when fields are anticipated to begin producing (2014 and 2016).

Mozambique and others

Galp Energia's presence in Mozambique is concentrated in the offshore ultra-deep water area 4 in the Rovuma basin. In 2012, the company signed an agreement with the ENH of Mozambique, hoping to gain technical, operational and financial cooperation as well as an easier analysis in evaluating new opportunities in the region. At the same time, after eight appraisal and exploration wells were drilled, several discoveries were made in terms of NG. As a result, it is estimated an amount of natural giip equal to 75Tcf for the whole basin, with 27Tcf (or 4.666Mboe, approximately) for area 4 alone. Two new exploration wells, the Coral 3 and Mamba South 3, are expected to be drilled in the Mamba structure, especially for assessing the oil potential in the K Bulge region in the South of area 4. Moreover, other projects are being considered, such as the installation of onshore liquefied gas units, FLNG[18] and gas-to-power projects. Still in 2012, areas 4 and 1's operators (Eni and Anadarko, respectively) agreed on the development of common areas, which include the coordinated development of offshore activities and joint development of LNG units onshore, whose investment requirements are expected between 2013 and 2014. The commercial production phase is planned to start in 2018.

Figure 28: Rovuma basin in Mozambique

Basin	Rovuma
Block	Area 4
Operator	Eni
Galp participation (%)	10%
Area (km2)	13235
Location	Ultra deep water
Water depth (metres)	0 – 2600
# Blocks	1

Source: Galp

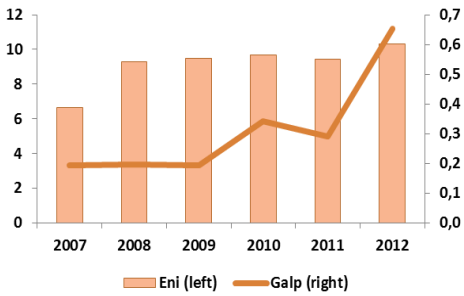
Figure 29: ENI's costs ($ per boe)

	2009	2010	2011	2012
F&D costs	28,9	19,32	18,82	17,37
Opex	5,77	6,14	7,28	7,1

Source: ENI

Once again, Mozambique's fiscal policy follows a Production Sharing Agreement. Gross revenues (based on working interest production) have to be discounted with a royalty, ranging from 2% to 8% according to certain characteristics of the site (oil or NG and onshore or offshore). Afterwards, this value is subdivided into: (1) capital expenditures and operating costs (cost recovery) that can account for a maximum of 75% of annual working interest production; and (2) the remaining amount, denominated the profit oil, which will be subject to a share that will be distributed between the government and the contractor, ranging from 45% to 85%. Finally, the share attributed to the contractor is discounted with an income tax of 32%. Regarding operational costs, Eni, as the main operator of this area, should be able to give a reasonable proxy as to what to expect in the future. But,

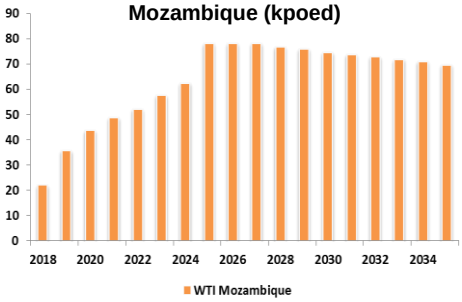
Figure 30: Galp/ENI capex comparison (M€)



Source: Galp, Eni

[18] Floating Liquified Natural Gas

Figure 31: Working interest production Mozambique (kpoed)



Source: Galp, Analysts Estimates

Figure 32: Galp's remaing activities

Basins	Blocks	%	Operator	
Namibia				
Orange	PEL 24	14%	HRT	offshore
	PEL 28	14%	HRT	
Walvis	PEL 23	14%	HRT	
Portugal				
Peniche	4	30%	Petrobras	offshore
Alentejo	3	50%	Petrobras	offshore
Aljubarrota-3	1	50%	Porto Energy	onshore
Morocco				
Tarfaya		50%	Galp	offshore
Uruguay				
Punta del Este	Block 3	20%	YPF	offshore
	Block 4	20%	Petrobras	

Source: Galp, Analysts Estimates

Figure 33: Field starting prod

Fields	Peak Prod Year
BM-S-8	2018
BM-S-11 Iara	2023
BM-S-11 Lula	2019
BM-S-21	2022
BM-S-24	2025
Block 14 Kuito	2011
Block 14 Malange	2019
Block 14K-A-IMI	2020
Block 32	2023
Area 4	2025

Source: Analysts Estimates

similar to the case in Brazil, Eni does not take into account deep water exploration areas, thus we considered higher costs than average, $12/bbl. In here, operational costs encompass pipelines and wells, which we estimate to cost approximately $1,7Bn and $100M, respectively.

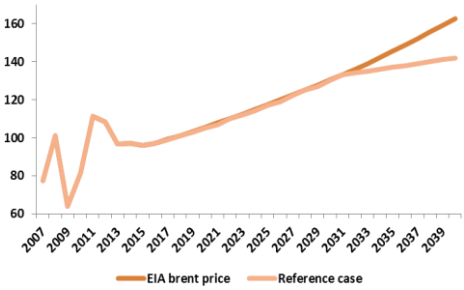
Besides these countries, Galp also holds some kind of involvement in other regions, namely Namibia, where the company signed a farm-in agreement with HRT[19] in order to participate in seven projects spread across two basins; Morocco, where Galp has another farm-in agreement with Tangiers to acquire 50% interest in eight exploration licenses located throughout the Tarfaya Offshore; Uruguay, in which the firm has been participating, since 2009, in a bidding for offshore licenses; or even Portugal, where the company has acquired a stake of 50% in a concession at the Aljubarrota-3 area. As said before, the reason why we did not account for these activities is due to the fact that the concessions, where Galp has an agreement in, are all still in a testing and preliminary phases, in which there is not relevant data available to draw any important conclusion. An example of this was the recent results related with the exploration of the Wingat-1 well in the Walvis basin in Namibia, indicating that the amount of oil found at the site was not commercially significant.

Valuation

For Galp Energia's E&P segment, we used an Adjusted Present Value (APV) approach. In doing so, we valued only fields already in production/development stages of their lives, where the company participates. For each of these fields, we computed the respective free cash-flows, discounting them with an unlevered cost of equity and then adding the value of the tax shields. Due to the fact that in none of the projects being valued, Galp is the main operator of the concession, after the total value of each field was calculated, we had to account for Galp's respective percentage share in each of them. We took into account the production starting year for each field and estimated an average life time depending on the country – 25 years for Brazil and 20 for Angola and Mozambique. In each area, we assumed the productivity of every field would increase until a certain "peak production" year, which varies between 2-10 years after first oil, depending on specific characteristics inherent to them. Also relevant, were future brent crude oil prices, which we had estimate. According to EIA[20], oil prices are expected to decrease in 2013 to $107/bbl, reaching $96/bbl in 2015. However, after this date, prices should start rising again and by 2040 a bbl should cost around $163. Even though we believe oil prices will start growing

[19] HRT Participações em Petróleo, S.A.
[20] US Energy Information Administration

Figure 34: Prices comparison



Source: Analysts Estimates, EIA

rapidly in the near future, we instead consider a more moderate forecast for 2040, expecting them to reach $140/bbl, as there is high uncertainty in the market and . Furthermore, both in Brazil and Angola, we discounted brent by 5% due to differences in API gravity[21]. For the sole case of Mozambique, being basically a NG project, we had to compute a parity between NG and oil prices. Although being distinct fuels, these are traded in similar energy markets, thus, we assumed an unchanging bbl/mmbtu[22] forever, with a 15% as oil-gas parity. Finally, we reached a share value for Galp's E&P of **€13,11/share**.

Figure 35: E&P EVs and €/share

	Normal Scenario (80%)		Scenario w/ OPEC (10%)		Scenario w/o OPEC (5%)	
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
Brazil						
BM-S-8: Carcará, Biguá and Bem-te-vi	470,43	0,57	372,34	0,45	357,66	0,43
BM-S-11: Iara	957,95	1,16	618,80	0,75	558,30	0,67
BM-S-11: Lula and Cernambi	3.509,46	4,23	2.888,91	3,48	2.782,05	3,35
BM-S-21: Caramba	429,96	0,52	216,20	0,26	176,26	0,21
BM-S-24: Jupiter	3.299,48	3,98	2.339,48	2,82	2.159,33	2,60
Tax Shield	214,54	0,26	214,54	0,26	214,54	0,26
Angola						
Block 14: Kuito, BBLT, T-L	292,27	0,35	291,74	0,35	291,74	0,35
Block 14: Malange and Lucapa	652,50	0,79	579,15	0,70	566,53	0,68
Block 14K-A-IMI: Lianzi	95,06	0,11	88,15	0,11	87,14	0,11
Block 32: Kaombo	334,47	0,40	284,78	0,34	276,00	0,33
Tax Shield	55,24	0,07	55,24	0,07	55,24	0,07
Mozambique						
Rovuma: Area 4	528,48	0,64	170,65	0,21	106,92	0,13
Tax Shield	35,51	0,04	35,51	0,04	35,51	0,04
Exploration & Production	10.875,35	13,11	8.155,47	9,83	7.667,22	9,25

Source: Analysts Estimates

Refining & Marketing

Market Overview

Figure 36: Content analysis

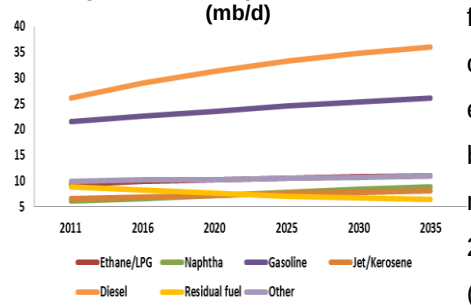
	Gasoline	Diesel
Volumetric energy content (MJ/l)	34,6	38,6
Specific energy content (MJ/kg)	44,4	45,4
Energy per CO2 (MJ/kg)	13,64-14,64	14,15
Auto-ignition temperature (ºC)	246	210
Retail price ($/gallon)	3,57	3,93

Source: EIA, OPEC, Platts

The refining industry has experienced some big changes in the previous few years, in particular, when the world financial crisis erupted in 2008. Ever since then, there has been a disproportion between the oil supply (excess) and demand (decline). Apart from these, others factors have been affecting the industry. The emissions of CO_2 have become a bigger concern to governments throughout the years. As a result, more regulations and subsidies have started and will continue being imposed on refining companies, thus limiting the production and consumption of oil. The progress of technology used in refineries has also been affecting oil demand, as more renewable and efficient alternatives

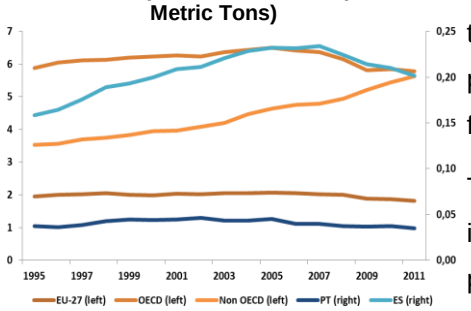
[21] API = (141,5 / g) - 131,5, where g is the density of the crude oil at 60ºF, used to measure density of oil
[22] Million British Thermal Units

Figure 37: Global product demand (mb/d)



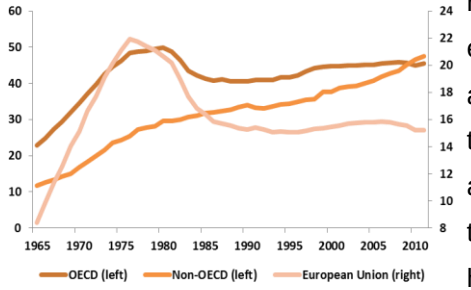
Source: EIA, OPEC

Figure 38: CO2 Emissions from the Consumption of Petroleum (M Metric Tons)



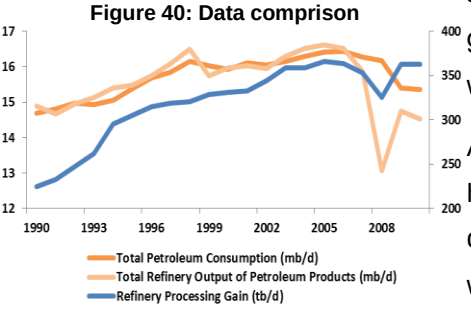
Source: EIA

Figure 39: Total oil refining supply (M barrels)



Source: EIA

Figure 40: Data comprison



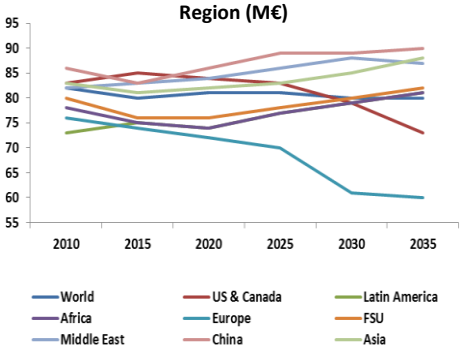
Source: EIA, OPEC

have and will cause a diminishing impact on the usage of gasoline and diesel fuels. Nonetheless, according to OPEC, nowadays, product demand's main catalysts are still gasoline (21,5mb/d) and gasoil/diesel (26mb/d), with this trend expected to persist in the long term. However, diesel is projected to register the biggest volume gain, not only compared to gasoline, but also to all other light, middle distillates and heavy products, expected to grow more than 10mb/d until 2035. On the other hand, demand for gasoline will increase in a rather lower rate (5mb/d) from 2011 to 2035. Still, naphtha is expected to display the fastest growing percentage output, mainly caused by its production in Asian developing regions. Lastly, oil used for residential purposes will remain as the sole case where an actual reduction is forecasted to happen, as its rising competition with natural gas has been harming more and more this fuel's position in the market. In the near future, developed countries are expected to suffer a decrease in their product oil demand, while in the developing ones, an opposite effect is forecasted.

Tax rates in oil products are another issue we found important to discuss, as this is one of the main factors responsible for the mentioned variations in gasoil, principally in Europe – dieselization effect. Portugal, in particular, is one of the countries in Europe with the higher prices of fuels (**annex 2**), mostly due to the large taxation these are subject to. In 2003, Council Directive 2003/96/EC (**annex 3**) was set in motion, with the main objective of terminating the most significant differences in prices of energy fuels by influencing minimum tax rates, although it ended up creating higher tax burdens on lesser quality energy products. As a result, gasoline's prices suffered a strong upsurge, being nowadays a much more expense fuel than diesel, in spite of the latter's richer energy content. In 2011, an amendment of this directive was presented, aiming at restructuring the outdated taxes on energy products by considering their energy content and CO_2 emissions and, in that way, force gasoline and diesel prices to reach similar figures. Still, as this amendment is only expected to influence minimum rates, we expect it will not have the desired impact on countries with rates already above this level, thus not resulting in similar energy tax rates throughout European countries. Consequently, in the medium run, the minimum rates in these regions will slowly start rising, especially in the case of transportation-based fuels. However, even if gasoil's prices reach levels close to those of gasoline, being a higher quality fuel, we believe that it will still retain its superiority.

As we stated before, the financial crisis and European sovereign debt situation had a huge effect on the European refining industry, with the oversupply and demand shortage of oil goods. Refineries began experiencing an overcapacity, with most of its funds being directed to conversion projects, as clear preference

Figure 41: Production/Lifting Costs by Region (M€)



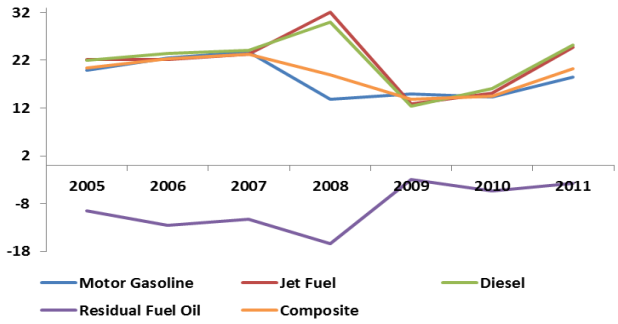
Source: EIA, OPEC

for middle distillates started taking place. Demand for light and heavy oil products also suffered the crisis effects, as its prices fell, while, at the same time, affecting refineries' desired high quality output. Furthermore, some refineries have started to close, most actually belonging to big oil companies, such as ENI or Shell. As a result, utilization rates and refining margins reached unexpected lows (around $20 a barrel during 2008), with even lower levels anticipated in the long term.

Refining

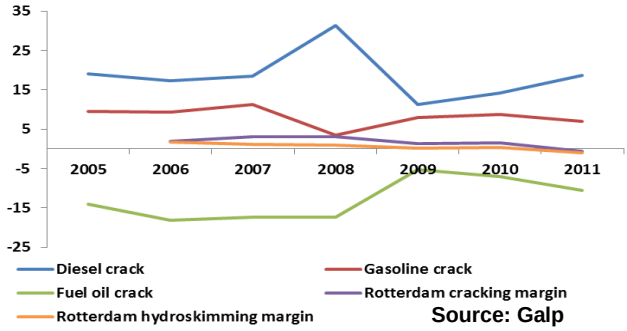
The refining activities of Galp Energia encompass the hydroskimming Matosinhos refinery and the cracking Sines refinery. After the upgrade project, which was completed in 2012, the refineries gained a capacity of 110.000kbopd and 220.000kbopd, respectively. This upgrade project, which involved an investment of €1,4Bn, was completed in the beginning of 2013, and resulted from the need to accompany the rising trend of the diesel market, especially in the Iberian Peninsula. Consequently, Galp was able to enhance its diesel production, mostly, at the expense of fuel oil, whose market value is cheaper. According to the firm's estimates, this upgrade should be able to guarantee the country

Figure 42: Global refining margins $/bbl



Source: EIA, OPEC

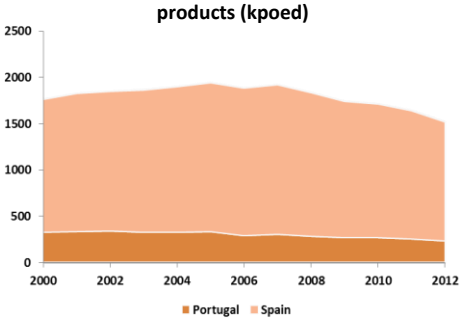
Figure 43: Galp's refining margins $/bbl



Source: Galp

autosufficiency in gasoil. Still, European margins have declining as a result of the lower demand, which in turn will also influence negatively utilization rates. However, Galp has been able sustain itself, with special attention to the growth in its refining margin in 2012 and its hydroskimming and cracking margins perfomance. Thus, the firm's margins are estimated to grow between $2-3/bbl already for 2013, which we considered the more moderate approach ($2/bbl). These movements in the refining margins are extremely important for Galp, as, generally, margins become more advantageous the closer they get to their distribution network.

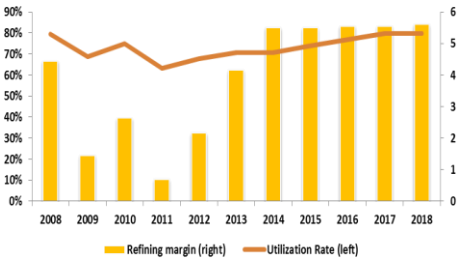
Figure 44: Iberian consumption of refined products (kpoed)



Source: EIA, OPEC

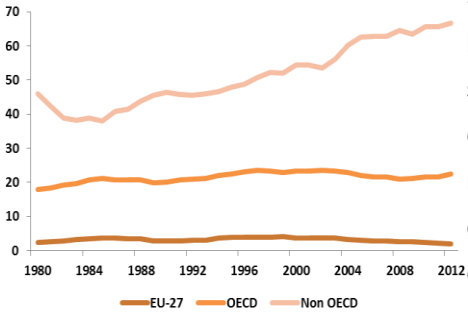
In the Iberian market, refining processing capacity is shared between Repsol, Cepsa, BP and Galp, with the latter currently holding 20%. Galp's market share in this industry has slightly been growing over the years (18,5% in 2010), especially with the recent conclusion of the conversion project in its refineries. Also, Galp has the biggest portion of market share (almost 70%) in the

Figure 45: Galp's refining margin & utilization rate ($/bbl)



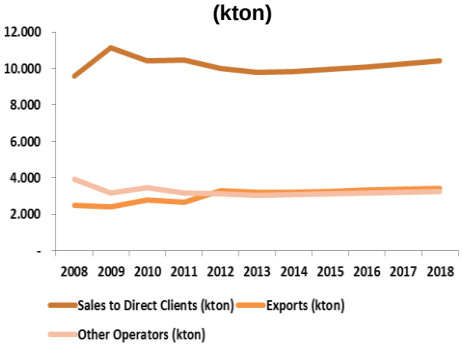
Source: Galp

Figure 46: Total oil supply (kpoed)



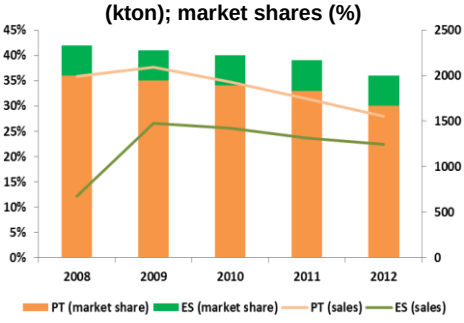
Source: EIA, OPEC

Figure 47: Total Refined Product Sales (kton)



Source: Galp

Figure 48: Iberian sales in retail segment (kton); market shares (%)



Source: Galp

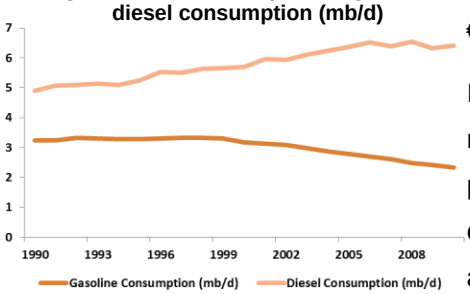
Portuguese refining market, thus providing better comparative advantages than its peers that, at the same time, depend on the supply from Galp's own refineries, which will ultimately make transportation-related expenses decrease. Utilization rates suffered a significant decline with the impact of the financial crisis in the Iberian market in 2008, falling from 79,37% in the previous year to 68,60%. This tendency persisted until 2012, while in 2013, with the finish of the conversion projects, we expect a major recovery on these rates, estimated to achieve levels of 70,80-79,80% during our forecasted period, given the greater importance of medium and heavy crudes and larger diesel production. Apart from this, Galp also prepared cogeneration projects at each of its refineries, with the one in Sines having already started in 2010, while the one in Matosinhos is supposed to become fully operational in 2013. Net operating costs of Galp's refineries have showed an inconstant, but stable, performance, and as all projects have or are expected to be completed soon, where no further requirement for investments is needed and no additional ones are predicted for the future, we expect assumed a constant level of $2,47/bbl from 2013 onwards. In addition, we expect capital expenditures to also remain relatively constant for the rest of our valuation period.

Marketing

In its marketing segment, Galp Energia sells oil products either, directly to clients in the Iberian Peninsula and selected African markets, other operators or through exports. In 2012, the company's sales accounted for 16,4Mton[23] of oil products, with 61% being sales to direct customers. Due to, on the one hand, the increase in refineries' production and, on the other hand, the Iberian market's consumption reduction, exports reached 3,3Mton (20% of oil products' sales), with gasoline and oil being the most exported ones. In the retail market, Galp has a market share of around 30% in Portugal and 6% in Spain, with a total network of 1.486 service stations and 588 convenience stores, less 16 and 7 than in the year before, respectively. In the wholesale market, sales volumes decreased 5% in the Portuguese market and 6% in the Spanish one, while in Africa, sales accounted for a total of 4% of the sector. In LPG, Galp holds a 60% partnership along with BP (35%) and Repsol (5%) in an infrastructure located in Sigás, with a storage capacity of 34.800 tonnes. Still, the downward trend present in the Iberian market persisted, although Galp was still able to secure its competitive position in this market. In 2013, the company sold to the group Auto Julio three fuel (gasoline, gasoil, …) distribution facilities for which the latter agreed to buy,

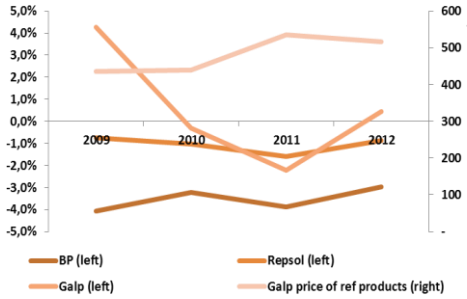
[23] Megatons

Figure 49: Global comparison gasoline / diesel consumption (mb/d)



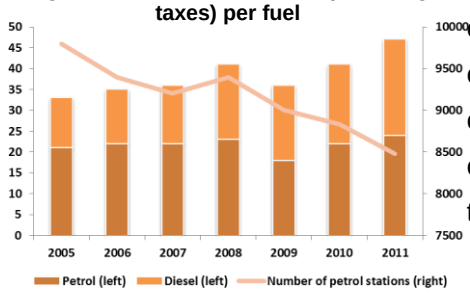
Source: EIA

Figure 50: Growth in marketing sales (%)



Source: Galp, BP, Repsol

Figure 51: Iberian retail sales (including taxes) per fuel



Source: EIA

for a 5-year period, a total of 195M liters of these fuel types for an estimated €240M which may vary according to the volatility in prices of oil.

In historical terms, the marketing segment has always showed very stable results, with no major unexpected deviations taking place in relatively short periods of time. For the several types of sales dealt in this segment, we estimated these would increase in pair with the real gdp growth rates of Portugal and Spain, according to their respective average weight for the company's caption. Moreover, since 2009, prices of refined products have varied between €435 and €535 per ton, while EBITDAs varied between €21 and €38 in terms of total refined product sales. Consequently, in our valuation, we believe this tendency should continue in the short and long term.

Market shares for oil producers have been decreasing over time, and are believed to continue following that trend, mainly due to the rising importance of supermarkets. In the UK, the contribution of total fuel sales in supermarkets went up from 37%, in 2010, to 45%, in 2011. At the same time, the number of petrol stations has also been falling, with a drop of more than 400 stations from 2010 to 2011. These are able to sell the same products at lower prices. Although these are regarded as poorer quality items, due to the lower quantity of additives they contain (which is the fundamental reason for their inferior prices), for a normal customer, these became preferable and more easily accessible. According to big oil companies, such as Galp, the (more) expensive prices practiced by them are compensated in a sense that, as fuel sold in these stores has lesser oil concentration, their products have higher longevity, especially in road transportation, i.e. larger distances can be accomplished.

Valuation

In Galp's R&M, we valued both segments individually and used a Discounted Cash Flow (DCF) approach, discounting cash flows at a computed WACC. We assumed a (constant) terminal growth, in line with the inflation rate, of 2%. Moreover, we used different tax rates for each of the sectors, resulting from the fact that, in our belief, Galp's refining business is much more concentrated in Portugal, while in marketing, activities are almost evenly divided through the Iberian Peninsula. Consequently, this approach resulted in slightly different costs of equity and betas for each. Regarding capex, after the completion of the conversion project in 2012, no major costs are expected, apart from the variation in the number of facilities (service stations and convenience stores) and maintenance-related ones. The Refining part was valued primarily through specific rates, margins and benchmark capacities which are strictly correlated with the oil demand. Marketing, as said before, is a very stable sector and should

continue that way, depending mostly on overall sales than on actual margins, whose valuation is expected to vary with the demand of oil products. We then reached a share value for Galp's R&M of **€2,31/share**.

Figure 52: R&M EVs and €/share

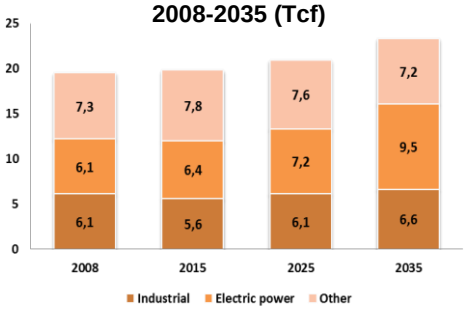
	Normal Scenario (80%)		Scenario w/ OPEC (10%)		Scenario w/o OPEC (5%)	
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
Refining	1.049,67	1,27	1.202,52	1,45	1.202,52	1,45
Marketing	866,23	1,04	1.096,27	1,32	1.096,27	1,32
Refining & Marketing	1.915,90	2,31	2.298,78	2,77	2.298,78	2,77

Source: Analysts Estimates

Gas & Power

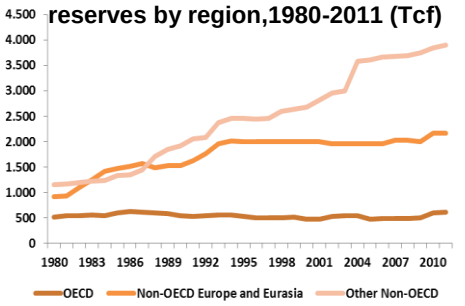
Market Overview

Figure 53: Natural gas consumption in OECD Europe by end-use sector, 2008-2035 (Tcf)



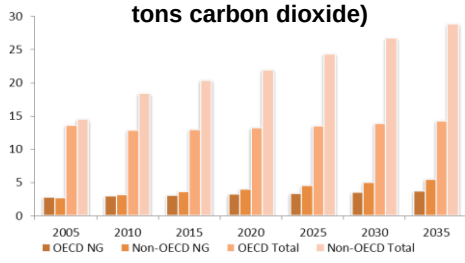
Source: OPEC, EIA

Figure 54: World natural gas reserves by region,1980-2011 (Tcf)



Source: OPEC, EIA

Figure 55: World carbon dioxide emissions by region (Million metric tons carbon dioxide)

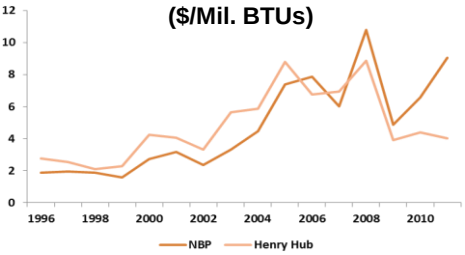


Source: EIA

NG is the fastest growing fossil fuel in the world, with an average rate of 1,6%/year from 2008 to 2035. According to OPEC, in the long run, this fuel will grow at faster rates than coal or even oil, both in quantities and percentage terms, raising its share from 23% (2010) to 26% (2035). This demand growth will be mostly concentrated in non-OECD regions, which is in fact almost three times bigger than in OECD ones. The financial crisis in 2008 had a negative impact on the demand of NG of nearly 4%. According to EIA, NG still is the fuel of choice in terms of the electrical and industrial sectors due to (1) its relevant price discount relatively to oil; and (2) to its smaller carbon intensity, when comparing to, for instance, oil or coal, which becomes a very big advantage in regions where governments are implementing regulations in order to limit emissions of CO_2 into the air. Furthermore, due to its favorable thermal efficiencies and relatively low costs, NG is considered a very worthy alternative fuel to energy producing factories, as more and more importance is given to environmental issues, and energy types, such as nuclear, are starting to no longer being regarded as stable sources of power generation (i.e. Japan's Fukushima Daiichi nuclear disaster in 2011). Regarding NG reserves, these have been increasing immensely over time, having registered a growth rate of around 50% during the last twenty years, a rate even larger than the one oil reserves have displayed, with particular emphasis in non-OECD regions. As of 2011, there were 6.675 Tcf of equivalent proved NG reserves in the world, a level much larger than in the year before that. Taking into consideration the current levels of reserves analyzed, estimates point out to a reassuring resource base that supports growth in NG markets until, at least, 2035.

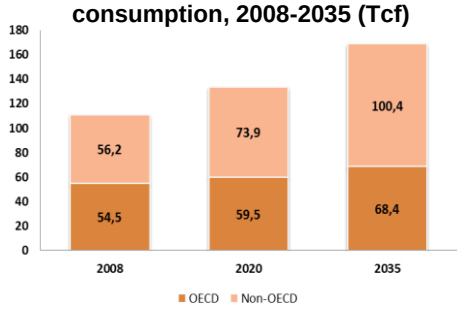
On the other hand, one of the biggest weaknesses of this fuel is the difficulty of its transportation, as large, sophisticated and expensive pipelines are required for that matter. As a result, prices depend on very specific and local markets.

Figure 56: NBP & HH spot prices ($/Mil. BTUs)



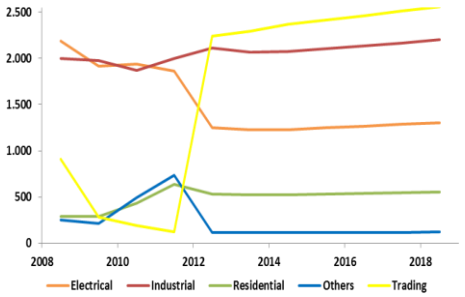
Source: EIA, Bloomberg

Figure 57: World natural gas consumption, 2008-2035 (Tcf)



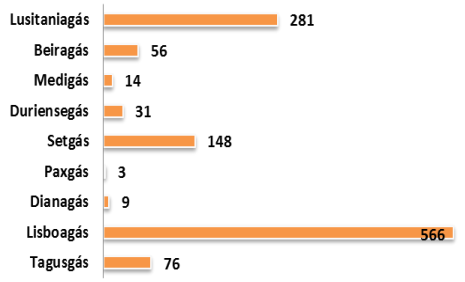
Source: EIA

Figure 58: Natural gas sales (Mm3)



Source: Galp

Figure 59: RAB



Source: Galp

Currently, the UK and US markets are the only ones whose prices are truly transparent. In the first, the NBP[24], a virtual trading location for the purchase, sale and exchange of UK natural gas, is used (£/term). For the latter, it is utilized the Henry Hub Natural Gas prices, calculated in a $/mmbtu basis (the most recent trade averaged $3,81/mmbtu). Apart from these, other markets generally use long-term contracts with their respective suppliers.

Gas

Galp Energia's natural gas segment comprises regulated and liberalized activities, which range from supply (liberalized), storage and distribution (regulated) and marketing (regulated and liberalized). In procurement, Galp signed, in 1997, three long-term agreements (20 years) for NG with NLNG[25] in Nigeria and one (23 years) for LNG with Sonatrach in Algeria; and also has purchases in the spot market. By being long-term, these contracts: (1) guarantee Galp a constant supply for this business in Portugal; and (2) grant the company advantages from participating in the LNG international market, through trading. In 2008, the firm expanded its business to the Spanish market, and in order to better explore the Iberian market, Galp intends to enter in the LNG mid and upstream businesses in Brazil and Angola. Statistically, this industry gives Galp 6 bcm[26] per year. In 2012, 56% of the company's total gas sales came from Nigeria, 32% from Algeria, through the EMPL[27] gas pipeline, Extremadura and Al-Andalus; and the remaining 12% from other sources, with supply totaling 6,3bn m^3. In addition, Galp attained 0,8bcm on the spot market.

Galp's storage part functions through a public-service concession that was awarded to the firm for a 40-years period. The current storage capacity of Galp is estimated at 40mm^3, with a regulatory asset base (RAB) worth €17M and a remuneration rate of 8%, which seems a reasonable measure, as the WACC we computed for this segment is lower than that figure). In 2010, Galp held a RAB of €1.184M, and by 2012, this figure reached €1.2Bn, resulting from the sum of all distribution companies' own RAB, subject to the specific participation Galp has in each one. For the rest of our valuation period we estimated Galp's RAB, before taxes, to grow in line with Portuguese consumer prices. Moreover, the firm has operations in two sites: (1) TGC 1S, with a storage capacity of 40mm^3; and (2) TGC-2, with a volume of approximately 752mm^3, which was completed in 2012 and should start operating in late 2013, where an incremental raise of 130mm^3 in capacity is expected.

[24] National Balancing Point
[25] Nigeria LNG
[26] Billion Cubric Meters
[27] Europe Magrebe Pipeline

Figure 60: Galp's participation in distribution firms and respective NG vol (Mm3)

RAB	Galp (%)	NG volume (Mm3)
Lisboagás	100,0%	493,8
Lusitaniagás	96,3%	671,9
Beiragás	60,0%	71
Tagusgás	41,0%	112,6
Setgás	66,9%	160,1
Duriengás	100,0%	18,1
Paxgás	100,0%	1,3
Medigás	100,0%	7,1
Dianagás	100,0%	5

Source: Galp

Galp's Portuguese distribution channel is regulated by six NG distributors, with the firm having a full participation in five of them (Lisboagás, Duriengás, Paxgás, Medigás and Dianagás) operating under 40-year concession contracts, and four other (Lusitaniagás, Beiragás, Tagusgás and Setgás), partly-owned by Galp, autonomous gas units (AGU) – operating under 20-year concession agreements. The two biggest distributors in terms of NG volume are Lisboagás and Lusitaniagás, with 493,8Mm^3 and 671,9Mm^3, respectively. Like in storage, ERSE[28] sets a remuneration rate, although of 9% for this case. In 2012, the operators, where Galp has participation in, distributed 1,5bcm of NG, through a network which expanded by 11.948 km at the end of the year. The Portuguese energy regulator, ERSE, controls the company's energy-related revenues through 40-years concession agreements. These are set in the following way: recovery of operating costs + cost of capital[29] + adjustments = allowed revenues. The adjustments result from the difference between actual and expected allowed revenues for year n-2. The concessions, agreed between Galp Energia and the Portuguese State, are responsible for the functioning of marketing and distribution of NG, granting the firm the compensation covered by the concession and the reassessment of the assets at the inflation rate. In that sense, the distribution operators are able to receive the right to seek the restoration of balanced financial terms in case, after the fifth regulatory period (15 years), the rate of return, stipulated by ERSE, does not take into account the rate of return of similar companies' assets.

In marketing of NG, Galp is one of the main operators, being the second biggest in the Iberian market in terms of clients (1,3 million as of 2012). As stated before, this sector includes both regulated and liberalized activities. The first accounts for Galp's sales in the retail segment – commercial, residential and industrial – with clients' average consumption of almost 2 million m^3 per year. In the latter, the company sells NG, again, in the industrial segment, in the trading segment and to producers of electricity. As a result of an increase in consumption of Galp's NG in the hydrocracker and cogeneration at the Sines refinery and in the cogeneration at Matosinhos, the industrial segment alone experienced a growth in sales only in 2012 (from 161mm^3 to 2.113mm^3). Especially with the start of operations of the cogeneration project in Matosinhos, we expect this upward tendency to continue for 2013 and beyond. On the other hand, consumption in the commercial and residential segments registered a fall (103mm^3 in 2012), mainly due to a loss of its Spanish customers. Moreover, there was an extension of deregulation in the Portuguese NG market, to which Galp responded with the creation of Galp On,

[28] Entidade Reguladora dos Serviços Energéticos
[29] Cost of Capital = RAB x Rate of Return + Depreciation

its first combined electricity and NG project ever, with already 100.000 customers supplied.

Valuation

Inside the Gas segment of Galp, we decided to value separately the operations correspondent to regulated and liberalized activities. As in the previous segment, we used a DCF approach, using a "country beta" in the cost of equity part and using a 2% terminal growth rate. Regulated Gas is primarily dependent on regulations in the future. Liberalized Gas depends mostly on its sales and future operating margins. For the Gas segment we reached a share value of **€4,17/share**.

Figure 61: Gas EVs and €/share

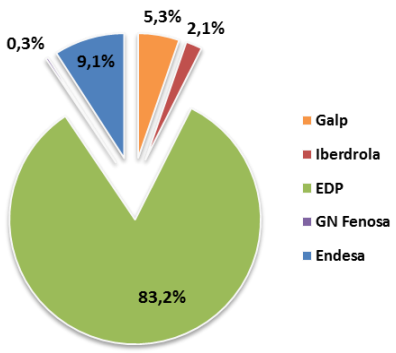
	Normal Scenario (80%)		Scenario w/ OPEC (10%)		Scenario w/o OPEC (5%)	
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
Regulated Gas	1.626,53	1,96	1.626,53	1,96	1.626,53	1,96
Liberalized Gas	1.831,31	2,21	1.831,31	2,21	1.831,31	2,21
Gas	3.457,83	4,17	3.457,83	4,17	3.457,83	4,17

Source: Analysts Estimates

Power

Galp's portfolio in the power sector includes the following businesses: renewable energy, cogeneration and sales and trade of electricity. In this segment, the company's has a very small influence in the Iberian Peninsula, as we can confirm by our analysis on the main players of the electricity market, with EDP having a clear lead in market share, primarily in terms of clients and consumption in the domestic market. In the market by consumption in the liberalized market of electricity, Galp's biggest portion accounts for the small businesses and industrial sectors, which are exactly the firm's main focus in this segment. In our belief, the firm's primary advantages in participating in this industry are: (1) the fact that it can use it to supplement its NG business, and vice-versa; and (2) benefit from the tariffs imposed by the special regime. During the last decade, renewables have grown, due to the following factors: the diminishing usage of materials such as NG, coal and oil in the production of electricity; environmental concerns; due to the fact that it helps in reducing the dependence from the exterior and in reducing the risks associated with energy supply. Galp's only participation in the renewable business is in wind power. The company holds a participation of 49% in the consortium of Ventiveste, which operates the wind farm located in Vale Grande. Having commenced operations in 2011, this facility has a 12 MW of installed capacity equivalent and participates in a project aiming at developing an additional 400 MW. However, as the firm' activity started focusing more on its oil and refineries businesses, some power-related projects were

Figure 62: Iberian % of clients per firm



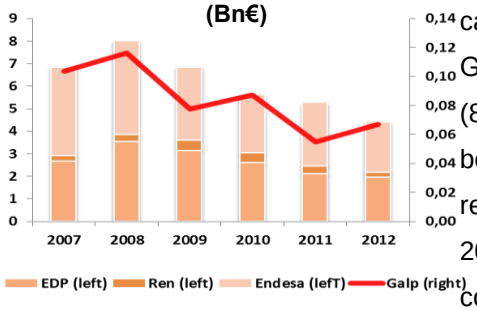
Source: Galp, Iberdola, EDP, GN Fenosa, Endesa

Figure 63: Iberian market shares per client

	Big consumers	Industrials	Small business	Domestic
Galp	1,7%	5,9%	6,5%	4,4%
EDP	35,9%	32,4%	43,4%	84,5%
Endesa	22,4%	29,0%	18,4%	8,0%
Iberdrola	19,0%	28,3%	22,7%	2,8%
GN Fenosa	5,7%	3,5%	9,0%	0,3%
AXPO	0,0%	0,8%	0,0%	0,0%
FORTIA	15,3%	0,0%	0,0%	0,0%
Others	0,0%	0,1%	0,0%	0,0%

Source: Galp, Iberdola, EDP, GN Fenosa, Endesa, Axpo Portia

Figure 64: Capex in G&P per firm (Bn€)



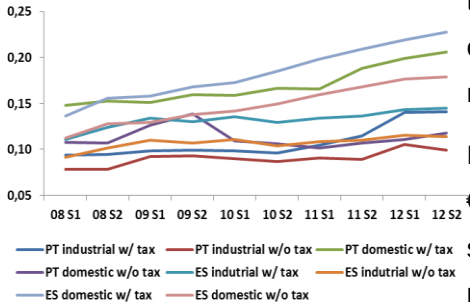
Source: Galp, Ren, EDP, Endesa

Figure 65: Galp's cogeneration plants statistics

	Installed capacity (MW)	Electricity production (GWh)	NG consumption (mm3)
Powercer	7,2	38	16
Carriço cogeração	32	244	64
Energin	42	309	93
Sinecogeração	82	641	233
Portocogeração	82	36	15

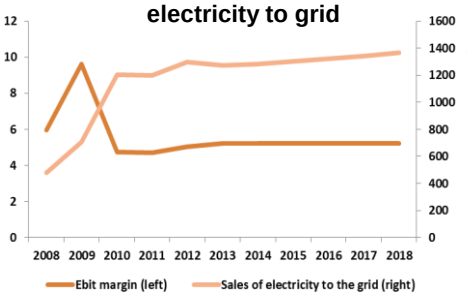
Source: Galp

Figure 66: Electricity prices per country, sector and taxes (€/ECU)



Source: Eurostat

Figure 67: EBIT margin and sales of electricity to grid



Source: Galp

abandoned, such as the building of a CCGT[30] plant expected to hold 800MW of capacity, which ended up reducing the company's production in this sector. Galp's cogeneration derives from the production of five plants – Sinecogeração (82MW), Portcogeração (82MW), Carriço, Powercer and Energin (the first two being the cogeneration plants Galp constructed in the Sines and Matosinhos refineries, respectively), with a combined capacity of more than 245 MW. In 2012, these plants had an electricity production of 1.268 GWh[31], plus a NG consumption of 421 Mm^3. In 2008, Galp formed an entity with the purpose of trading electricity and greenhouse emissions licences, operating in this market through MIBEL[32]. In 2012, a growth was recorded in the customer supply of Galp, to which it supplies power in the form of medium, high, very high and special voltages. Galp's wind and cogeneration assets operate under a special regime (annex 4), in a sense that they can access the electricity grid by selling at a regulated tariff. This regime enables the remuneration generated by the energy produced to be above the marginal costs of production. It was set in practice with the possibility of a reduction on the dependence on energy and a more environment-friendly production in mind. What resulted instead was a massive sale of electricity directly to the grid at very high prices, which primarily created a huge deficit of tariffs in Portugal. In sum, producers were able to perform the transactions with the grid under normal tariffs. However, after the intervention from Troika in June 2012, the feed-in tariffs on renewables and cogenerations are expected to start suffering a downward reappraisal, which will eventually bring them to common tariff levels.

Energy margins (Ebit/sales to the grid) have varied over time, ranging from €4,71/GW to €9,62/GW (2009). As we do not expect major changes in this segment and due to the (small) impact Galp has on the market, we expect this margin to reach a level of €5,20/GW of energy produced in 2013, assuming it will remain constant until 2018.

Valuation

The Power segment of Galp was valued according to a DCF model, assuming a constant terminal growth rate of 2%. Power activities vary mainly due to industrial margins, which, as stated before, have been negatively affected by tariffs as of 2012. Thus, we assumed these margins (after the impact of inflation) to be constant for our forecasted years. We then reached a share price for Galp's Power segment of **€0,22/share**.

[30] Combined Cycle Gas Turbine
[31] Gigawatt per hour
[32] Iberian power market, on the forward (OMIP) and spot (OMEL) markets

Figure 68: Power EVs and €/share

	Normal Scenario (80%)		Scenario w/ OPEC (10%)		Scenario w/o OPEC (5%)	
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
Power	180,45	0,22	180,45	0,22	180,45	0,22

Source: Analysts Estimates

Company valuation

After reaching each segment's enterprise value and calculating their respective price per share (829.250.635 shares outstanding), we summed them all up using a sum-of-the-parts approach. Our main goal with this was to analyse in detail each segment's risks and environments, thus being able to extract its individual contribution to Galp's portfolio. This valuation was done considering the years from 2013 to 2018 as the period for our forecasting analysis. In the three segments we used a Market Risk Premium of 6%, as it seems to be the consensus among literature review. For the unlevered betas, we took information regarding market capitalisations, net debt, effective rates and prices of some of Galp's comparables inside each business (similar exposure to market, risks, …) and compared them to the performance of the SPX Index (**annex 1**). In addition, we calculated the debt-to-equity ratio for each of these companies. For Galp, we considered an average of this ratio as well as an average of all unlevered betas found. The costs of capital were computed by using the capital asset pricing model (CAPM[33]). For the cost of debt[34], we considered recovery rates[35], probability of default and some of Galp's competitors own cost of debt. For the latter, taking into account that Galp does not possess its own market yield, we took yields from several of the company's comparables, such as EDP or Iberdrola, which have a similar rating of BBB/BB. The recovery rate was taken by doing an average of the recovery rates from bonds and bank loans, which we got a 80,3%; whereas the probability of default depends on the own probabilities of bonds with rati ng BBB/BB and being an European oil company (around 3%).

Figure 69: Segments Valuation Information

		MRP	Risk-free	βu	βl	Country β	Tax rate	Re	Rd	Wacc	D/E	g
E&P	Brazil	6%	2,39%	0,97	-	1,15	34%	9,10%	5,05%	-	22,35%	2%
	Angola	6%	2,39%	0,97	-	1,15	50%	9,98%	5,05%	-	22,35%	2%
	Mozambique	6%	2,39%	0,97	-	1,15	32%	9,98%	5,05%	-	22,35%	2%
R&M	Refining	6%	2,15%	0,83	1,17	1,22	25%	10,70%	5,05%	8,25%	54,76%	2%
	Marketing	6%	2,15%	0,83	1,16	1,22	27%	10,63%	5,05%	8,17%	54,76%	2%
G&P	Regulated Gas	6%	2,15%	0,46	0,75	1,22	25%	7,64%	5,05%	5,90%	82,23%	2%
	Liberalized Gas	6%	2,15%	0,46	0,75	1,22	25%	7,64%	5,05%	5,90%	82,23%	2%
	Power	6%	2,15%	0,31	0,69	1,22	26%	7,20%	5,05%	5,03%	167,58%	2%

Source: Analysts Estimates

For the Exploration & Production segment, according to our research, we found it more beneficial to use an APV model, which allows for studying separately both

[33] rf + (β x market risk premium)
[34] cost of debt = probdefault x recovery rate + (1- probdefault) x market yield
[35] Moody's "Corporate Defaults and Recovery Rates, 1920-2010"

the free cash flows and the non-equity part of every field, through the calculation of interest tax shields. In order to estimate the present values for these matters, we discounted the first by an unlevered cost of equity; and the latter by a cost of debt. As all fields have an estimated average life time period, no terminal values were required in this segment. The risk-free rate for the E&P, we utilized the 10-year US Treasury Bond, given that all transactions occurring in this segment are traded in USD. In order to get a more realistic approach on the market risk specific to the countries where the E&P is present, we computed a country beta by regressing the correlation between the MSCI World Index and the Brazilian Bovespa Index. For Angola and Mozambique, as these not have their own stock exchange markets or one that would be an appropriate benchmark, respectively, we decided to use one higher than the one for Brazil, due to their more volatile nature.

For both the R&M and G&P, we used a DCF approach, where we used a wacc to discount these activities' cash flows. As stated before, we utilized different tax rates for each sector, according to our view on the primary market they operate in. Moreover, as the Iberian market is still the first and fundamental marketplace where these participate, being highly exposed to the risks inherent from the impact of the European Sovereign Financial crisis; and in order to only account for systematic risk; similarly to the previous segment, we decided to add a "country beta" to our CAPM formula. In order to get it, we made a correlation between the performances of the MSCI World with the Euro Stoxx 50 and the PSI20 indexes. Regarding the risk-free rate, as the operations in these sectors occur in EUR, we took the prices of the 10-year German Bund.

Finally, in order to obtain Galp's market capitalisation, we deduced our firm's total EV by its debt proceeds, which include net debt, pensions and minorities, computed according to the available historical data and our own forecasted estimates. Thus, we got to a price for Galp of €15,02/share. Taking into account our scenarios[36] and their attributed probabilities, we achieve a final price for Galp Energia of €14,56/share.

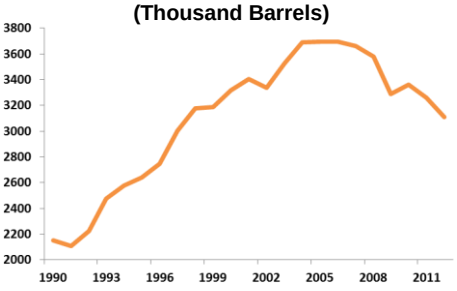
Figure 70: Galp Energia €/share

	Normal Scenario (80%)		Scenario w/ OPEC (10%)		Scenario w/o OPEC (5%)	
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
E&P	10.875,35	13,11	8.155,47	9,83	7.667,22	9,25
R&M	1.915,90	2,31	2.298,78	2,77	2.298,78	2,77
G&P	3.638,29	4,39	3.638,29	4,39	3.638,29	4,39
Net Debt Y12e	1.919,32	2,31	1.911,96	2,31	1.911,96	2,31
Pension fund Y12e	343,66	0,41	343,66	0,41	343,66	0,41
Minorities Y12e	1.707,96	2,06	1.707,96	2,06	1.707,96	2,06
Galp price	12.458,59	15,02	10.128,96	12,21	9.640,71	11,63
Galp price (expected)	14,56					

Source: Analysts Estimates

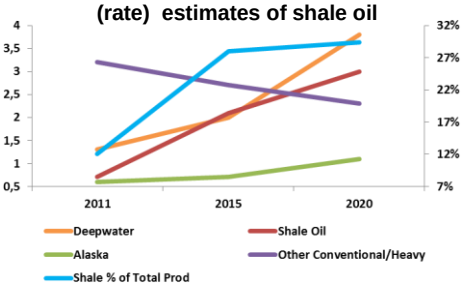
[36] Explained in the following section

Figure 71: U.S. Imports of Crude Oil (Thousand Barrels)



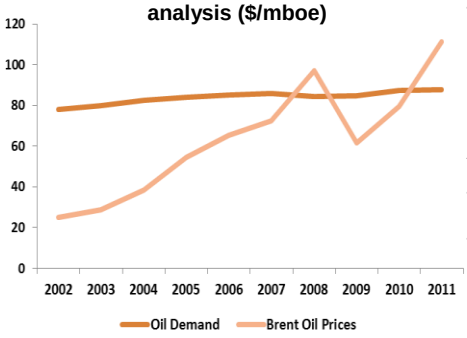
Source: EIA, OPEC

Figure 72: Citi Energy's (real) and BP's (rate) estimates of shale oil



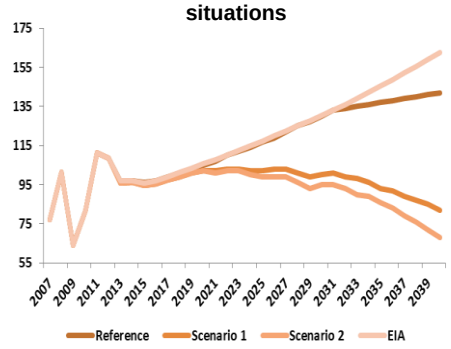
Source: Citi Energy, BP

Figure 73: Oil Demand / Brent oil prices analysis ($/mboe)



Source: OPEC, EIA

Figure 74: Analysis of oil prices in the four situations



Source: Analysts Estimates

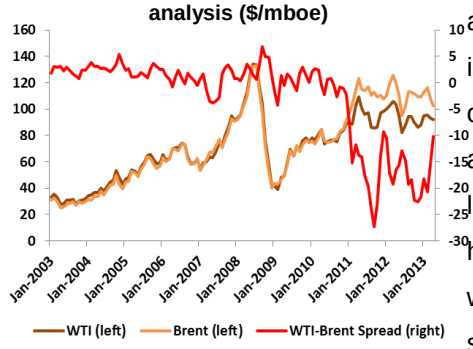
Alternative Scenarios

Scenario Analysis

Shale oil, also known as kerogen oil or light tight oil, is a type of fuel produced from oil shale, an organic-rich fine-grained sedimentary rock containing kerogen that, by using certain processes, such as hydrogenation or pyrolysis, essentially converts the kerogen into synthetic oil, thus serving as a substitute to crude oil. This kind of oil has three main advantages: it has the potential to produce a superior liquid-fuel output; it contains low sulphur content, thus being less air pollutant; and is abundantly available in countries with higher dependence of oil, such as the US. The production of shale oil in the US has been increasing and consequently pushing oil production upwards. According to EIA, in only a decade, US oil production grew from 0,14mb/d in 2002 to 1,22mb/d in 2012, just from the shale type alone. Additionally, oil imports in the US have been declining as well, which coincide with the period when tight oil started showing higher variations. EIA expects this type of oil to continue to increase, reaching its peak by 2020 with 2,81mb/d, and afterwards slightly starting to decline, projected to achieve 2,02mb/d in 2040. These projections, however, do not go that in line with the ones from others analysts, in a sense that they seem somewhat lower. BP, for instance, estimated that 24% of the US oil production (2,1mb/d) in 2012 was due to shale, whereas in 2030, world tight oil should increase by 7,5mb/d (almost half of the global supply growth), with the US production reaching 4,5mb/d. According to Citi Energy, production of shale oil will grow from 0,7mb/d, in 2011, to 3mb/d, in 2020 in the US; thus moving from being, approximately, 12% of the total oil production in this country to 29%. Credit Suisse estimated that, in the US, in 2010 there were around 300 shale oil rigs and projects a figure four times more in 2022. According to IEA[37], around the 2020s, the US will become the biggest oil producer in the world, even overcoming the Saudi Arabia, and at the same time, its tight oil production is expected to exceed the 4mb/d. Taking into consideration this analysis and according to our own research, we conclude that shale oil will most likely cause the biggest impact in the growth of oil production, as it seems a good alternative fuel, given its environmental-friendlier properties which is a subject that in our believe will be become more and more crucial in this industry. We, then, project this type of oil to achieve, proportionately, a level of 12mb/d by 2035. As a result, US oil imports dependency will decrease, while supply to countries that import oil will suffer an opposite movement. The same principle can be applied to other shale oil producing regions, such as China or Argentina,

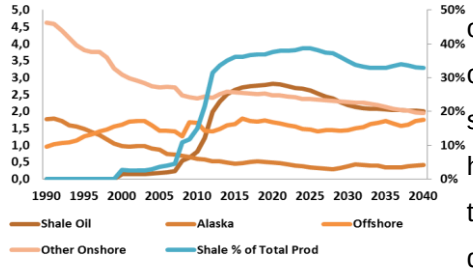
[37] International Energy Agency

Figure 75: Oil Demand / Brent oil prices analysis ($/mboe)



Source: EIA, IEA, OPEC

Figure 76: Oil Demand / Brent oil prices analysis ($/mboe)

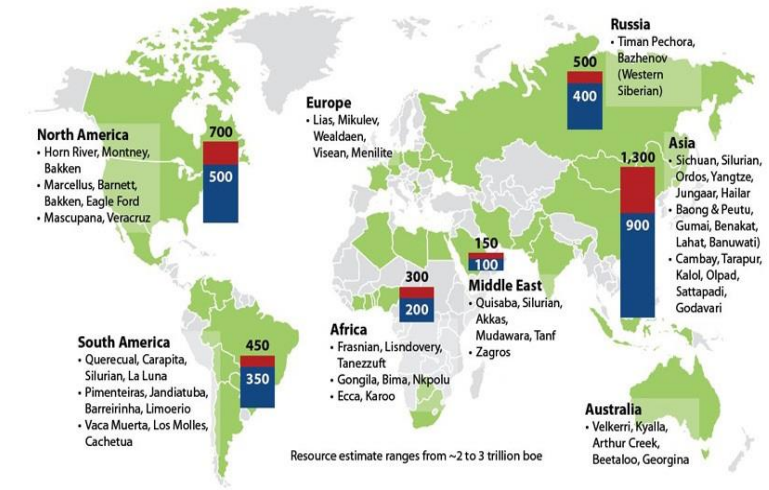


Source: EIA, IEA, OPEC

in which by increasing the production of this type of fuel, its oil imports will fall and effective supply rise. Most importantly, this sudden development in shale oil is affecting the prices of brent crude itself, pushing them to lower levels than the ones future estimates indicate. Historically, WTI[38] oil, a type of oil much lighter and with a lower sulphur content when compared to brent (0,37%), always had lower prices than the latter. However, according to recent figures, WTI prices have actually becoming higher than the ones of brent, especially in 2011, which was around the same period that the largest expansion in shale oil production started occurring.

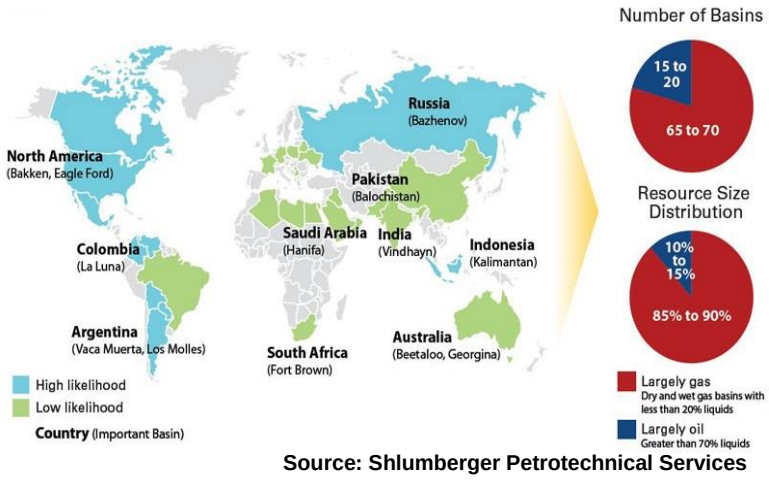
We then decided to develop two scenarios considering different circumstances on the impact of what a major increase in the production of shale oil would have in the prices of brent. In order to do that, we assumed certain assumptions that will influence our scenario. (1) As in the US case, tight oil production will increase in other regions spread around the globe, which will require an enormous amount of exploration and development in the upcoming years. (2) Considering that most of the countries where we expect this expansion to happen do not share the same economic, regulatory or even infrastructural conditions as in the US, we have to take into consideration that not all of them will experience this boost in the same manner and at the same time. (3) We also took into account that the development of shale oil is influenced by the regulatory framework (environmental concerns, …) imposed by the governments where this is happening. In other words, the larger the amount of the latter, the lower the production of tight oil is projected to be. As stated before, according to EIA, crude

Figure 77: Total Shale resources (Low and High estimates)



Source: EIA, Hart Energy, IEA, SLB, SBC

Figure: Resource potential for light tight oil

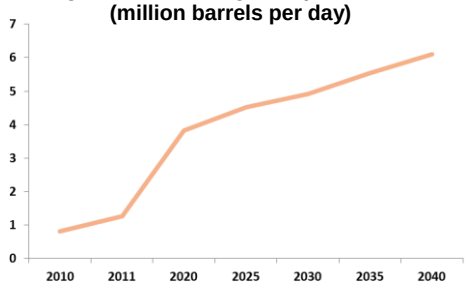


Source: Shlumberger Petrotechnical Services

oil prices are expected to reach around $163 per barrel by 2040. However, these are only reflecting EIA's own oil production forecasts, which solely take into account inputs with a high level of certainty. Being shale oil a type of resource

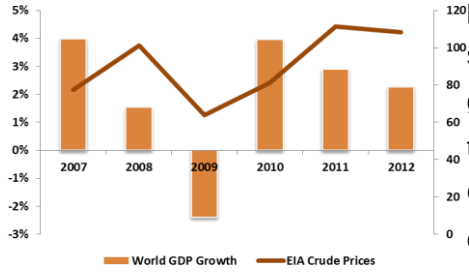
[38] West Texas Intermediate crude oil – API gravity of 39,6º; sulfur content of 0,24%

Figure 78: World tight oil production (million barrels per day)



Source: EIA

Figure79 : Analysis between real gdp growth (%) and brent prices ($/mboe)



Source: EIA, IMF

that only recently started showing signs of real development, we believe that its probable expansion is not being entirely considered by EIA. In both scenarios, we estimate a decrease in oil prices comparative to the ones EIA expects (considered in our "normal" valuation), with the big difference being the involvement of OPEC in their adjustment. This would not be the first time the organization intervenes in such situations, as in recent years, due to the civil war in Libya and sanctions in Iraq, OPEC has had a similar attitude in order to compensate for output losses incurred at the time. This decline in brent prices falls much more than the growth the oil supply is expected to achieve, which goes in accordance with empirical evidence, in a sense that demand of oil does not depend directly on changes in prices[39]. In the first scenario we estimate that OPEC, by facing the rise in shale oil, will limit its own crude production as a way to diminish oil prices, and in that way, being able to maintain it close to 2015-2018 levels. As a result, OPEC is expected to lose a portion of its market share, though individual members of the organization will retain a high level of production so that the (consequent) rising demand is met. We account this scenario with the probability of 10%, as, in our belief, is a reasonable figure, given the huge difference in prices it assumes regarding our base estimate. On the other hand, in the second scenario, we do not account for any intervention by OPEC, thus resulting in a much sharper decline in prices. Here, we assume a 5% chance of happening, taking into account the unlikelihood of an intervention by OPEC not occurring in a situation with such an impact on the oil industry. Needless to say that our "normal" scenario was assumed with a probability of 85%.

Impact on Galp Energia

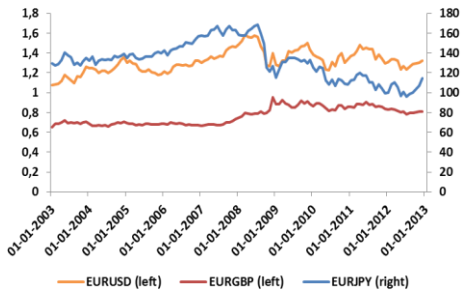
Regarding the consequences the two scenarios have for Galp, both have a negative impact in the share price of the company – the higher the reduction estimated for the prices of oil, the bigger the fall in the firm's price. It should be of no surprise that the segment most affected by these scenarios is the Exploration & Production, suffering a decline between 25% (scenario 1) and 29% (scenario 2). As stated in the previous section, we expect brent oil prices to start declining on pair with the rise in the production of shale oil, which only becomes visibly relevant around 2020. This is the sole sector where an individual valuation is done for each year, at least until 2040, due to the estimation of the average life of the oil fields, especially in Brazil. The Refining & Marketing sector is also affected by our scenarios, although in a much softer manner, as they're not so dependent on oil prices as the previous sector, and because after 2018, having assumed a

[39] "Causes and Consequences of the Oil Shock of 2007-08" – James D. Hamilton, University of California, San Diego

terminal value, it becomes harder to analyse deviations in particular variables. This fall in the share price of Galp accounts for -19% (scenario 1) or -23% (scenario 2). The Gas & Power segment is not affected in either case, simply because there's no parameter used in its analysis that depends on the prices of crude.

Sensitivity Analysis

Figure 80: Historical exchange rates



Source: Bloomberg

Given the importance and impact the financial crisis, especially with the sovereign debt crisis in Europe, has been having in the oil industry, we thought it would be interesting to study the effects a possible better/worse situation of the euro zone economy would have in the euro. With that in mind, and considering that the eur/usd exchange rate is one of the variables that most affects our business (for example, the transactions in the E&P segment) we decided to do some sensitivity analysis regarding this rate and the price of Galp, by making it appreciate/depreciate 5% and 10% for 2013 and 2014, and afterwards assuming the level achieved in the latter for the rest of our data. As in our scenario analysis, E&P and R&M segments are the only ones that are affected by the variations in the exchange rate, particularly the first, as all its transactions are traded in usd; as well as being the one that deals with a much larger period of time, thus having a greater exposition to these effects. The effect causing the deviation in the R&M come from Galp's refining margin and operating costs from refineries, which are priced in usd. G&P is not affected by the exchange rate, as all its transactions are allocated in euros and/or does not depend on any international regressors.

Figure 81: Sensitivity analysis of exchange rate

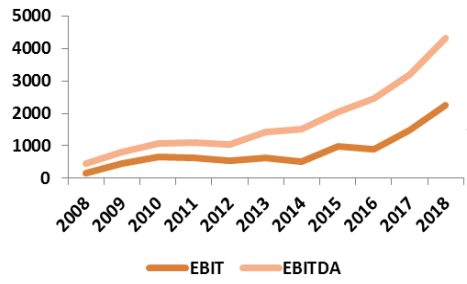
	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share	EV (€million)	Price/share
	10%		5%		0%		-5%		-10%	
Galp €/share	10.208,37	12,25	11.046,97	13,32	12.084,73	14,56	13.305,22	16,04	14.751,80	17,79

Source: Galp, Analysts Estimates

Financials

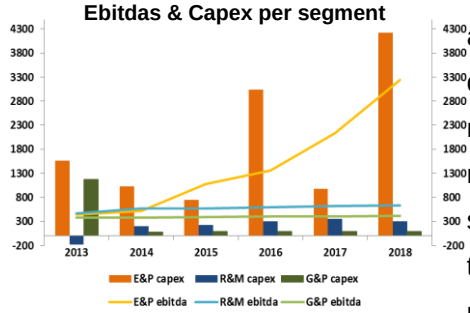
Galp Energia is expected to return experiencing growth in its ebitda and ebit in 2013. While in the first, this rising trend will persist until the end of our valuation, with an average growth rate of 27% estimated; the latter is anticipated to present a decline in both 2014 and 2016. These variations will fundamentally be fuelled by the increase in the firm's E&P segment, especially in Brazil, with the entering in the production phases of the fields in BM-S-8 and Iara in BM-S-11. However, the expected decline in 2014 can be justified by the extreme amounts of costs regarding the drilling of wells and FPSOs, not only in these fields enumerated previously, but also in the Lula and Cernambi, where production already started in 2010, which will push both amortizations and provisions up. In 2016, even though it marks the period where operation begin in two other fields – Caramba

Figure 82: Galp's historical and future Ebitdas & Ebits



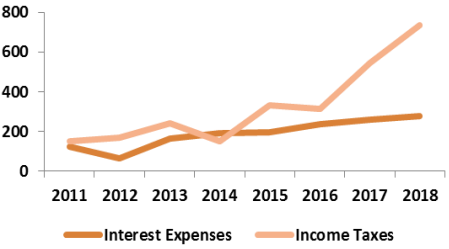
Source: Galp, Analysts Estimates

Figure 83: Galp's historical and future Ebitdas & Capex per segment



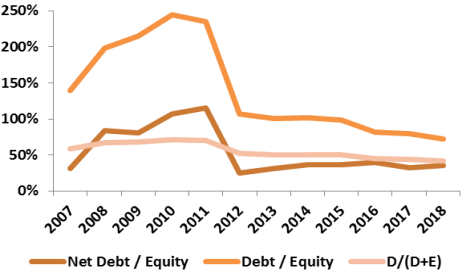
Source: Galp, Analysts Estimates

Figure 84: Galp's historical and future interest expenses and income taxes



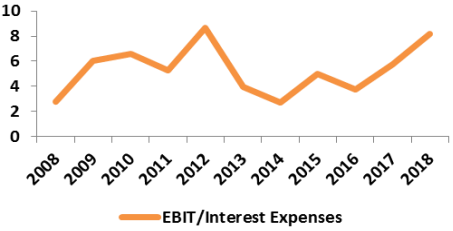
Source: Galp, Analysts Estimates

Figure 85: Galp's historical and future variation of ratios



Source: Galp, Analysts Estimates

Figure 86: Galp's historical and future variation of Ebit/interest epxenses ratio



Source: Galp, Analysts Estimates

in BM-S-21 and Jupiter in BM-S-24 – a similar situation as in 2014 will occur here as well, with capital expenditures rising brutally, coupled with a continuing decaying phase in the Angolan fields. Galp's two remaining segments will too make these captions increase. Following the upward trend of capex and ebits, net expenses and income taxes will also rise, although, once again, experiencing slight decreases in 2014 and 2016. Consequently, we expect Galp's investments to reach around €3,5Bn in 2016 and more than €4,5Bn by 2018. These will serve primarily to finance the company's assets in the Santos basin, Kaombo area (Angola) and the Rovuma basin (Mozambique), the latter starting only in 2018. As explained before, the capex applied in the remaining segments are not expected to be used in any new projects per se, but more for maintenance/functioning-related purposes. Even though in none of the concessions it participates Galp is the main operator, the company is obliged to join in the investment line whenever this shareholder so decides to.

Historically, Galp's capital structure has been characterized with a rising trend in the company's net debt relatively to its equity. By 2011, Galp's net debt reached an all-time high, with a figure higher than €3,5Bn (net debt-to-equity ratio of 115,57%), mostly caused by the requirement of the financial investments projected to be made in the fields the firm has concessions on and, in that way, ensuring the continuing company's participation in these businesses. As a response, Galp completed a successful partnership with Sinopec, where the company gave up of 30% of its share in Petrogal, causing an increase of €3.6Bn in its equity and an instant debt growth of €0,8Bn. In the following year, due to the effects of this share capital increase and a loan of €918M granted to Sinopec, net debt suffered a decline of 52%, with cash and cash equivalents caption growing 532% and minorities suffering a huge increase as well, which made the net debt-to-equity ratio drop to 25%. According to our research, the firm's ratio between net profit and its interest expenses starts declining after 2012, only recovering after 2014, reaching 2018 with 2012 similar levels. As a result, we predict that, for the following years, Galp should be able maintain a stable capital structure (around 41-52%), as no major unexpected investment need is predicted to happen.

Appendix

Annex 1: Comparables

	Ticker	Net Debt	Market Cap	D/MktE	Tax rate	Beta	Beta Unlevered
E&P							
Total SA	FP FP Equity	16259	90603,4219	17,95%	51,54%	0,82	0,75
Royal Dutch Shell PLC	RDSA LN Equity	19204	140065,73	13,71%	65,20%	0,93	0,88
Statoil ASA	STL NO Equity	39300	455019,9375	8,64%	71,64%	0,82	0,80
Rosneft OAO	ROSN RM Equity	596000	2590406,5	23,01%	22,97%	0,89	0,76
Repsol SA	REP SM Equity	12772	20916,7324	61,06%	55,04%	0,90	0,70
BP PLC	BP/ LN Equity	28683	85442,14	33,57%	51,47%	1,79	1,54
BG Group PLC	BG/ LN Equity	11073	39652,8325	27,92%	39,51%	1,00	0,85
Exxon Mobil Corp	XOM US Equity	1999	403154,125	0,50%	41,80%	0,87	0,87
Noble Energy Inc	NBL US Equity	2677	19806,9688	13,52%	22,19%	1,49	1,35
Pioneer Natural Resources Co	PXD US Equity	3971,704	16822,0977	23,61%	18,79%	1,46	1,23
R&M							
Neste Oil OYJ	NES1V FH Equity	1925	2956,3345	65,11%	48,78%	1,74	1,30
Motor Oil Hellas Corinth Refineries SA	MOH GA Equity	987,052	984,8607	100,22%	20,32%	1,38	0,76
Hellenic Petroleum SA	ELPE GA Equity	1857,31	2591,7861	71,66%	19,36%	0,96	0,61
DCC PLC	DCC ID Equity	384,56	2253,4453	17,07%	20,37%	0,53	0,47
Saras SpA	SRS IM Equity	246,612	827,37	29,81%	37,98%	1,37	1,16
ERG SpA	ERG IM Equity	1212,995	1033,45	117,37%	16,91%	0,63	0,32
Polski Koncern Naftowy Orlen S.A.	PKN PW Equity	6761,58	22946,5918	29,47%	15,01%	0,97	0,78
Grupa Lotos SA	LTS PW Equity	6122,8	5424,8105	112,87%	16,41%	1,63	0,84
Sistema JSFC	AFKS RM Equity	12668,4482	257027,75	4,93%	29,81%	1,04	1,00
Tupras Turkiye Petrol Rafinerileri AS	TUPRS TI Equity	1362,887	12621,1279	10,80%	19,59%	0,81	0,75
KOC Holding AS	KCHOL TI Equity	15419,047	23989,5957	64,27%	18,58%	0,65	0,42
BP PLC	BP/ LN Equity	28683	85442,14	33,57%	51,47%	1,79	1,54
Gas							
Spectra Energy Corp	SE US Equity	12739	19402,5586	65,66%	25,16%	0,98	0,66
Gas Natural SDG SA	GAS SM Equity	14739	15205,4746	96,93%	24,46%	0,68	0,39
ONEOK Inc	OKE US Equity	6759,779	9222,6836	73,30%	22,96%	0,95	0,60
NiSource Inc	NI US Equity	8020,1	8619,9102	93,04%	33,67%	0,32	0,20
Power							
EDP - Energias de Portugal SA	EDP PL Equity	18401	23805,6875	77,30%	32,76%	0,71	0,46
REN - Redes Energeticas Nacionais SGPS SA	RENE PL Equity	2635,79	1252,23	210,49%	31,49%	0,35	0,14
Iberdrola SA	IBE SM Equity	26308,553	8402,7236	313,10%	26,54%	0,96	0,29
Enagas SA	ENG SM Equity	3631,5	4379,5796	82,92%	29,68%	1,01	0,64
Enel SpA	ENEL IM Equity	56648	26066,1094	217,32%	39,78%	0,80	0,35
ACEA SpA	ACE IM Equity	2680,662	980,9163	273,28%	48,38%	0,31	0,13
Terna Rete Elettrica Nazionale SpA	TRN IM Equity	6468,7	6435,9941	100,51%	53,04%	0,42	0,29
Dominion Resources Inc/VA	D US Equity	21205	32273,3398	65,70%	38,72%	0,23	0,17

Annex 2: Diesel / Gasoline prices comparison

		2007	2008	2009	2010	2011	2012	2013
Gasoline	Germany	7,93	5,67	7,37	7,03	7,5	8,07	7,9
		2,98	1,57	2,47	2,66	3	3,57	3,39
		4,95	4,1	4,9	4,37	4,5	4,5	4,51
	UK	8,01	5,32	6,78	7,02	7,82	8,15	7,91
		2,87	1,64	2,4	2,55	3,12	3,28	3,19
		5,14	3,68	4,38	4,47	4,7	4,87	4,72
	US	3,28	1,87	2,85	3,3	3,52	3,62	3,82
		2,91	1,47	2,45	2,91	3,12	3,2	3,4
		0,37	0,4	0,4	0,39	0,4	0,42	0,42
	Belgium	8,12	5,76	7,33	6,97	7,54	7,79	8,06
		3,75	2,67	2,56	3	3,61	3,79	3,74
		4,37	3,09	4,77	3,97	3,93	4	4,32
	France	7,57	5,58	7,15	6,78	7,43	7,37	7,55
		3,38	2,38	2,51	2,78	3,6	3,62	3,28
		4,19	3,2	4,64	4	3,83	3,75	4,27
	Italy	7,68	5,64	7,28	6,88	7,95	8,61	8,48
		3,67	2,61	2,89	3,12	3,95	3,92	3,53
		4,01	3,03	4,39	3,76	4	4,69	4,95
	Netherlands	8,51	6,2	7,93	7,59	8,09	8,64	8,53
		3,71	2,5	2,6	2,88	3,72	3,84	3,49
		4,8	3,7	5,33	4,71	4,37	4,8	5,04
	Portugal	5,99	6,04	5,87	5,55	4,91	4,34	5,25
		3,37	3,43	3,53	3,11	2,58	2,03	2,87
		2,62	2,62	2,35	2,44	2,33	2,32	2,38
Diesel	Germany	7,41	5,58	6,15	6,2	7,11	7,38	6,83
		3,58	2,39	2,49	2,87	3,6	3,9	3,41
		3,83	3,19	3,66	3,33	3,51	3,48	3,42
	UK	8,33	6,18	6,86	7,25	8,29	8,56	8,2
		3,14	2,37	2,46	2,75	3,5	3,62	3,43
		5,19	3,81	4,4	4,5	4,79	4,94	4,77
	US	3,35	2,33	2,73	3,29	3,79	3,92	3,85
		2,9	1,86	2,27	2,85	3,32	3,44	3,37
		0,45	0,47	0,46	0,44	0,47	0,48	0,48
	Belgium	6,81	5,1	5,52	5,99	6,98	7,13	7,1
		3,75	2,67	2,56	3	3,61	3,79	3,74
		3,06	2,43	2,96	2,99	3,37	3,34	3,36
	France	6,91	5,35	5,92	5,86	6,94	6,73	6,53
		3,38	2,38	2,51	2,78	3,6	3,62	3,28
		3,53	2,97	3,41	3,08	3,34	3,11	3,25
	Italy	7,26	5,61	6,35	6,26	7,71	8,41	7,97
		3,67	2,61	2,89	3,12	3,95	3,92	3,53
		3,59	3	3,46	3,14	3,76	4,49	4,44
	Netherlands	6,97	5,36	5,89	6,02	7	7,24	6,91
		3,71	2,5	2,6	2,88	3,72	3,84	3,49
		3,26	2,86	3,29	3,14	3,28	3,4	3,42
	Portugal	6,35	5,43	5,67	6,48	7,67	7,16	6,78
		3,43	2,93	3,17	3,69	4,30	4,23	3,79
		2,92	2,50	2,49	2,79	3,38	2,94	2,98

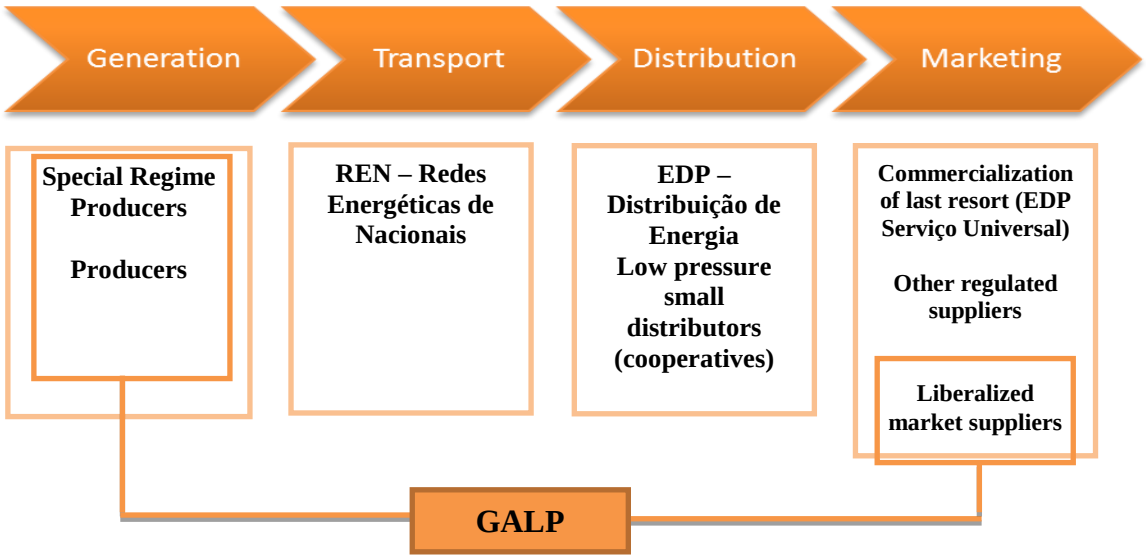
Annex 3: Directive 2003/96/EC

Directive 2003/96/EC (entered into force on 1st January 2004)	Amendment of Directive 2003/96/EC (13th April 2011) – review and overhaul previous taxation rules on energy products in the EU. It sets the minimum tax rate of CO2 at €20/ton (except for electricity), as well as the energy component rate, depending if the product' main usage is: as a motor fuel (€9,6/GJ to reached by 2018) or as motor or heating fuel, according to Article 8(2) of the ETD (€0,15/GJ starting in 2013).
Main goals:	Main goals:
• diminish distortions of competition between mineral oils and the other energy products, not yet subjected to tax legislation by the EC;	• promote energy efficiency;
• decrease distortions of competition that, due to conflicting energy associated tax rates, presently exist between Member;	• increase consumption of more environmental friendly products;
• permit Member States the offering to firms of tax incentives in return for precise undertakings to decrease emissions;	• avoid distortions of competition in the Single Market.
• incentivize the use of more efficient energy in order to shrink dependency on imported energy and co2 emissions.	

Energy product	Current minimum	Minimum to be reached by 2018
Petrol (€ /l)	0,359	0,36
Gasoil (€/l)	0,33	0,39
Kerosene (€/l)	0,33	0,392
LPG (€/kg)	0,125	0,5
Natural gas (€/GJ)	2,6	10,7

Energy Product	Current minimum	Minimum starting in 2013
Gasoil (€/l)	0,02	0,06
Heavy fuel oil (€/kg)	0,02	0,07
Kerosene (€/l)	0,00	0,06
LPG (€/kg)	0,00	0,06
Natural gas (€/GJ)	0,15	1,27
Coal and coke (€/GJ)	0,15	2,04
Electricity (€/MWh)	0,50	0,54

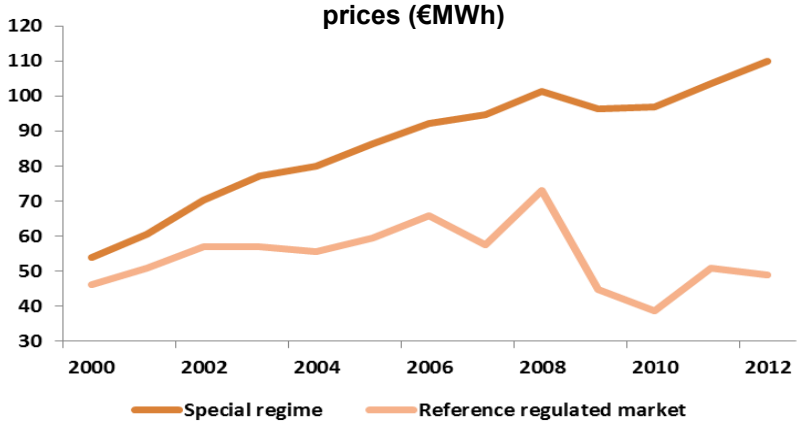
Annex 4: Special Regime



Average Annual Cost per technology (€MWh)

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Other Cogeneration	47,6	56,2	66,7	76,6	78,9	91,4	103	100,1	121,6	97,8	104,2	118,9	132,8
Renweable cogeneration	43,6	47,5	55,2	79,5	80,9	78,1	81,5	85,4	90,4	89,8	90,5	95,1	99,7
Biogas	53,2	55	45	52,5	69,5	94,9	106,2	105,7	109	106,4	107,2	110,5	111,5
Photovoltaic	-	-	-	542,7	543,7	542	379,7	330,2	338,5	327,4	330,2	343,7	346,3
Hidro	64,3	65,3	75,1	78	79,4	81,5	84,3	88,6	88,7	87,5	88,6	91,4	93,9
Biomass	59,5	63	66,6	69,3	72,3	102,1	110,8	109,9	111,9	110,1	108,1	112,9	116,1
RSU	55,7	65,7	68,5	70,9	72,7	74,7	76,9	78,2	80,9	80,3	80,8	84	85,8
Wind	60,2	61,9	80,1	84,1	87,5	88,8	92	94,5	94,7	93,7	91,6	93,5	96,6

Special Regime prices and normal Regulated market prices (€MWh)



Source: ERSE

Financial Statements

Balance Sheet	2012	2013E	2014E	2015E	2016E	2017E	2018E
Tangible Assets	**4.490**	**5.751**	**6.270**	**6.583**	**8.362**	**8.749**	**11.163**
Goodwill and Intangible Assets	**1.690**	**2.177**	**2.358**	**2.460**	**3.125**	**3.236**	**4.140**
Associates and Financial Investments	**1.320**	**653**	**695**	**720**	**867**	**892**	**1.092**
Inventories	**1.976**	**1.431**	**1.483**	**1.517**	**1.679**	**1.739**	**1.962**
Current Other Assets	4.082	3.689	3.805	3.902	4.302	4.474	4.988
Non-current Other Assets	440	328	341	350	392	406	464
Other Assets	**4.522**	**4.017**	**4.147**	**4.252**	**4.694**	**4.880**	**5.453**
Cash and cash equivalents	**1.887**	**1.657**	**1.295**	**1.248**	**21**	**801**	**62**
Total Assets	**13.909**	**14.255**	**14.765**	**15.262**	**17.069**	**18.558**	**21.909**
Interest bearing debt	**3.583**	**3.576**	**3.710**	**3.793**	**4.532**	**4.755**	**5.657**
Current Liabilities	2.474	2.637	2.736	2.797	2.973	3.138	3.286
Non-current Liabilities	1.146	939	975	996	1.059	1.118	1.171
Total Liabilities	**7.203**	**7.152**	**7.420**	**7.586**	**8.565**	**9.011**	**10.114**
Shareholders' Equity	**5.049**	**5.093**	**5.155**	**5.169**	**5.615**	**5.881**	**7.004**
Minorities	**1.305**	**1.708**	**1.950**	**1.959**	**2.454**	**2.845**	**3.502**
Consolidated net profit attributable to equity holders of the parent	**343**	**293**	**231**	**539**	**425**	**812**	**1.281**
Other Equity	**9**	**9**	**9**	**9**	**9**	**9**	**9**
Total Equity	**6.706**	**7.103**	**7.345**	**7.677**	**8.504**	**9.547**	**11.795**

Income Statement	2012	2013E	2014E	2015E	2016E	2017E	2018E
Operating Income	**18.644**	**17.905**	**18.692**	**19.653**	**21.078**	**22.917**	**24.983**
Cost of sales	16.196	14.795	15.349	15.691	16.679	17.600	18.431
Operating Costs	**17.606**	**16.610**	**17.232**	**17.616**	**18.725**	**19.759**	**20.693**
EBITDA	**1.038**	**1.296**	**1.460**	**2.037**	**2.353**	**3.158**	**4.291**
Amortisation, depreciation and impairment losses	(426)	(510)	(563)	(596)	(781)	(821)	(1.076)
Provision and impairment loss on receivables	(69)	(215)	(422)	(462)	(678)	(799)	(979)
EBIT	**542**	**570**	**475**	**980**	**894**	**1.537**	**2.235**
Results of investments in associates	82	94	93	95	95	96	97
Interest Expenses	(63)	(153)	(188)	(197)	(236)	(262)	(295)
Other non-operating results	0	-	-	-	-	-	-
Profit before Income Tax	**561**	**511**	**381**	**878**	**753**	**1.372**	**2.037**
Income tax	(171)	(210)	(141)	(330)	(319)	(550)	(747)
Profit before Non-Controlling Interests	**390**	**301**	**240**	**548**	**434**	**821**	**1.290**
Non Controlling Interest	(47)	(9)	(9)	(9)	(9)	(9)	(10)
Consolidated net profit	**343**	**293**	**231**	**539**	**425**	**812**	**1.281**

Cash Flow Statement	2012	2013E	2014E	2015E	2016E	2017E	2018E
EBITDA	**1.119**	**1.390**	**1.553**	**2.132**	**2.448**	**3.254**	**4.387**
D&A and Provisions	496	725	985	1.058	1.459	1.621	2.056
EBIT	**623**	**664**	**568**	**1.074**	**989**	**1.633**	**2.332**
Tax	190	273	210	404	418	655	855
NOPLAT	**434**	**391**	**358**	**670**	**571**	**978**	**1.477**
D&A and Provisions	496	725	985	1.058	1.459	1.621	2.056
Δ Non Controlling Interest	(47)	(9)	(9)	(9)	(9)	(9)	(10)
Δ Working Capital	594	(341)	440	497	902	807	1.345
Net Working Capital	1.608	1.052	1.070	1.105	1.329	1.336	1.702
CF from Operating Activities	**289**	**1.449**	**895**	**1.222**	**1.118**	**1.783**	**2.178**
Capital Expenditures	1.927	1.592	1.305	1.035	3.372	1.344	4.594
Other Non-current Investments	65	(112)	13	8	42	14	58
CF from Investing Activities	**1.992**	**1.480**	**1.318**	**1.044**	**3.414**	**1.358**	**4.652**
Free Cash Flow to the Firm	**(1.703)**	**(31)**	**(423)**	**178**	**(2.295)**	**424**	**(2.474)**
Financial Expenses (Interest Paid)	(63)	(153)	(188)	(197)	(236)	(262)	(295)
Interest Tax Shield	(19)	(63)	(69)	(74)	(100)	(105)	(108)
Net Changes in Equity	2.163	(299)	(231)	(217)	(92)	(160)	311
Δ Minorities	1.249	403	242	10	495	390	657
Δ Debt	(220)	(7)	134	83	739	223	901
Other Liabilities	51	(207)	35	22	63	59	53
CF from Financing Activities	**3.200**	**(199)**	**62**	**(225)**	**1.068**	**356**	**1.735**
Δ Cash and cash equivalents	**1.498**	**(230)**	**(362)**	**(47)**	**(1.227)**	**780**	**(739)**

Disclosures and Disclaimer

Research Recommendations

Buy	Expected total return (including dividends) of more than 15% over a 12-month period.
Hold	Expected total return (including dividends) between 0% and 15% over a 12-month period.
Sell	Expected negative total return (including dividends) over a 12-month period.

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