A Work Project, presented as part of the requirements for the Award of a Master Degree in Economics / Finance / Management from the NOVA – School of Business and Economics.

# GALP: TRANSITIONING INTO A GREENER FUTURE

ADAPTING TO A NEW CHALLENGE

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# Abstract

Galp Energia, SA. is a Portuguese energy company with four different segments: Commercial, Upstream, Industrial & Energy Management and Renewables and New Business.

This paper is part of an Equity Research and will take a deeper look at the last three mentioned segments, its financials and valuation.

The company was valuated using the Discounting Cash Flow method and a Sum of all Parts, supported by a Multiples Analysis and a Sensitive Analysis.

Our final recommendation is BUY. Our price target at 31st Dec.23 is 30.90€, that gives an investor return of 158%.

Keywords: Equity Research, Valuation, Galp, Finance

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# Introduction

In this Equity Research report we will valuate Galp giving a price target at 31st December 2023.

This research is divided in two sections. The first is will cover the company description, Industry overview, the market conditions surrounding net zero 2050, Galp's strategy towards it, a swot analysis, the discount rates, and the first of four segments of Galp: Commercial.

The second part of the research is covered in this paper, it will analyse the three other segments: Upstream, Industrial and Energy Management and Renewables, and also, Aurora, a joint venture that was decided to be valued on its own and will forecast the cashflows of the previously mentioned segments. Afterwards, the financials of the company: Capital Expenditures, Net Working Capital, and Depreciations and Amortizations will be analysed and forecasted. Finally, the final valuation will be presented as well of the Cash Flow Map of the Segments and Financial Debt. The valuation will be supported by a Multiples Analysis and a Scenario Analysis.

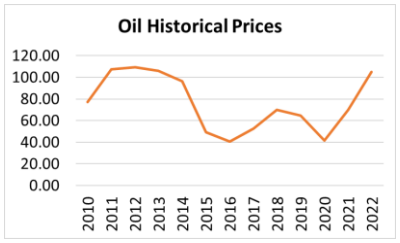


**Figure 24 - Oil Historical Prices**

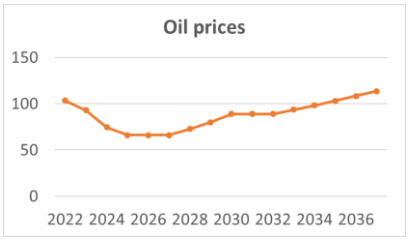


**Figure 25 - Oil Prices Forecast**

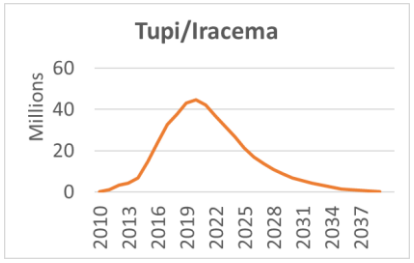


**Figure 26 - Tupi/Iracema boe prodcution**

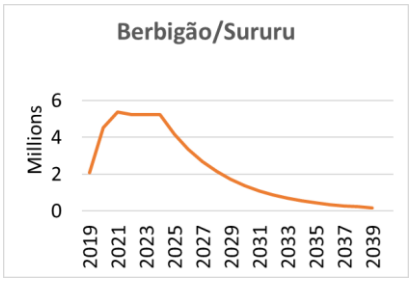


**Figure 27 - Berbigão/Sururu boe production**

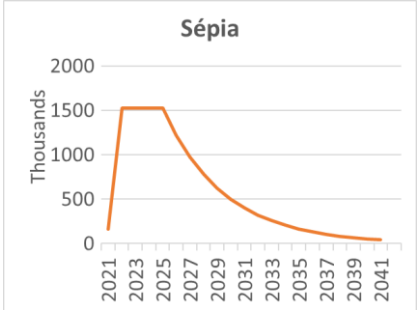


**Figure 28 - Sépia boe production**

## *Upstream*

The Upstream business value is largely determined by the cost at which a company can extract oil, the price that it can sell it (the higher the larger the margin), and the value of the dollar, the currency that most of the world uses to buy oil, the more powerful the dollar the costlier it is for countries to import oil. The dollar has recently greatly appreciated against other currencies mostly because of the fast and aggressive interest rate hikes from the Federal Reserve of the U.S. in comparison to other major Central Banks like the European Central Bank. Highlighting this importance, we will add a sensitivity analysis on the Dollar to Euro conversion rate.

Oil is not distributed equally among nations according to the BP Statistical Review of World Energy 93.5% of known oil reserves are discovered in the top 14 countries the larger share is held by OPEC countries such as Libya, Nigeria, Iraq, UAE, Saudi Arabia, Venezuela, Kuwait, Iran, and the other part in non-OPEC members such as Canada, Russia, China, United States, and Qatar. This gives an immense advantage to these countries that are not dependent on still such an important energy source.

To talk about the market environment of oil we need to mention OPEC: an intergovernmental organization between some of the world's top oil producers that functions as a powerful cartel to control the supply of oil manipulating the price to the alliance's benefit. It comprises 13 members (following Qatar's exit in 2019) at the moment with the bigger spotlight on Saudi Arabia the country with the second biggest oil reserve only behind Venezuela but with much cheaper access giving a lower breakeven price and because of that more powerful in influencing markets. Besides OPEC it is important to mention non-OPEC countries that are also important players like the United States, Russia, and Qatar, having said that some non-OPEC countries also sometimes align their interests with OPEC countries in what is called the OPEC+ which are made of countries such as Russia, Azerbaijan, or Mexico.

important to the company's near future. Galp also has had an important presence in Angola although oil flows have been declining as the blocks are near their life expectancy end.

The upstream segment is one of the most important ones of Galp given its high cashflow income. Upstream ventures are based on working interest production model where the operator takes the day-to-day decisions but consults the partners in an important decision. Galp isn't the operator in any of its ventures but all parties share the profits and costs regarding the % participation they have in the venture. In our analysis, **we chose to not evaluate future projects that still have very high uncertainty in places like São Tomé e Principe or Namibia or even other ventures in already well-established countries for Galp**.

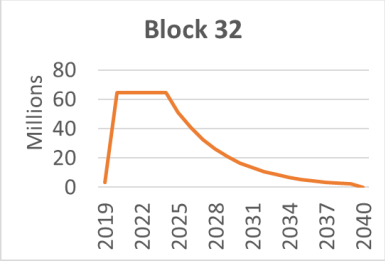


**Figure 29 - Block 32 boe production**

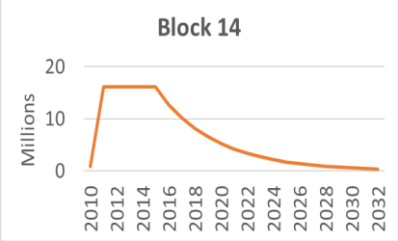


**Figure 30 - Block 14 boe production**

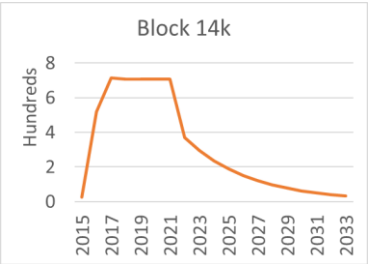


**Figure 31 - Block 14k boe production**

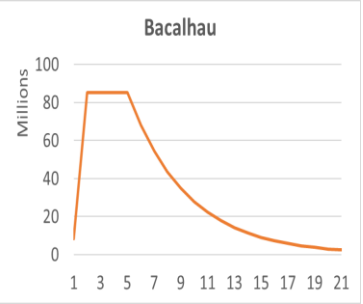


**Figure 32 - Bacalhau boe production**

Galp is present in Brazil where it has brought significant income and has been highly profitable and the new project in Bacalhau one of the higher reserves in the world, seems very promising with 220 kboe per day and a low breakeven price of 20$ boe the sight is going to be very important to the company's near future. This presence in the pre-salt field in Brazil is the main value of Galp's Upstream business. Galp also has had an important presence in Angola although oil flows have been declining as the blocks are near their life expectancy end.

**Galp projects are usually done with FPSOs** (Floating Production Storage and Offloading). As onshore discoveries declined FPSO's became widely common in Upstream companies because they operate offshore since they are essentially a vessel that can move between areas. FPSO's extract hydrocarbons through flowlines that are then separated into oil, gas, and water, then can store the resources until eventually they are offloaded.

To calculate the costs of producing oil we based ourselves on Galp's and peer reports like Petrobas who is the main operator in Brazil,the lifting costs of 2.5$ in Brazil and 7.5$ in Angola per barrel corporate overheads of 6$ per barrel and oil transportation costs of 3$ for operational costs. For capital expenditures, we assume costs of well development of 2.6$ subsea equipment of 2.4$ and Exploration & Appraisal costs of 1.1$ boe. **These are very competitive prices as they provide Galp with a solid margin and a break-even price of 19.3$ in Brazil and 24.3$ in Angola**.

The average API of Galp's oil (the crude's density) is 30º which implies a 5% discount on the sale of oil. Lastly, we assumed that each boe extracted is a mixture of 80% of oil and 20% of gas which is the historical average in the area where Galp

| Operational Costs | | |
|---|---|---|
| | Brazil | Angola |
| Lifting costs | 2.5 | 7.5 |
| Corporate overheads | 6 | 6 |
| Oil transportation costs | 3 | 3 |
| **Capital Costs** | | |
| | Brazil | Angola |
| FPSO | 1.7 | 1.7 |
| Well Development | 2.6 | 2.6 |
| Subsea equipment | 2.4 | 2.4 |
| Exploration & Appraisal | 1.1 | 1.1 |
| Total Costs | 19.3 | 24.3 |

**Figure 33 - Costs per boe in $**

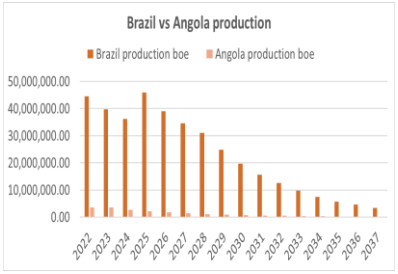


**Figure 34 - Brazil vs Angola boe production**

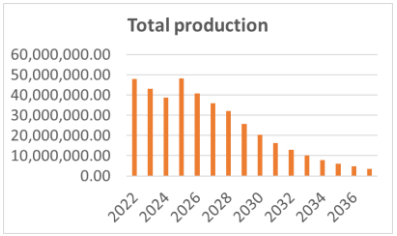


**Figure 35 - Total boe production**

| Comparables Valuation | | |
|---|---|---|
| | Exxon Area 4 Rovuna | Total MZ LNG |
| Price paid | 2800 | 3900 |
| Stake | 0.25 | 0.265 |
| Capacity (mta) | 15.2 | 12.9 |

| | |
|---|---|
| Price per mta | 938.85 |
| Galp's stake | 0.10 |
| Galp's Mta | 1.41 |
| Galp's Value | 1319.08 |
| Uncertainty factor | 0.30 |
| Grey Sky | 0.5 |
| Blue Sky | 0.20 |
| Value per share | 923.36 |
| Share $ | 1.11 |
| Dollar to Euro | 1.02 |
| Share € | 1.09 |
| Grey Sky | 0.78 |
| Blue Sky | 1.25 |

**Figure 36 - Area 4 Valuation**

is present. We based ourselves in the EIA forecasts for the price of oil and for gas prices, the natural gas intelligence forecast.

To compute the production of barrels of oil equivalent we saw the ANP reports for each FPSO in which Galp has an interest and multiplied each year of production by Galp's corresponding stake. Afterwards, each producing FPSO was summed to its respective oil field computing so the production of each oil field. **We assumed a plateau of 4 years, a ramp-up of 13 months, and a lifetime of 20 years** which were all the averages observed in Galp's more developed projects. For Angola and Bacalhau projects we assumed a linear relationship between the oil flow capacity and oil production to calculate the latest.

Our calculation has oil production peaking in 2025 (the same in Galp's reports) when ramp-up is complete in the Bacalhau field and many other fields are still at their peak. (Figure 35)

Lastly, to get the net revenues of Galp's Upstream business unit we multiplied the combined production of each year of Brazil and Angola (separately since they have different costs) by the expected oil price in the future and subtracted the cost of production.

Another project with exciting prospects is Area 4 situated in the north of Mozambique. The area has been plagued with natural disasters and political and social instability with terrorism presence, but the country seems to have gotten rid of these problems and now seems safe for business. **Area 4 block has one of the highest gas reserves in the world** and other major players like Exxon and Chevron have invested in the Area. To value this venture we made a comparable valuation. Given the values of investment in the area we were able to determine an average value for Mta of the reserves in the area, we then based on Galp's stake were able how much Mta of gas Galp was intituled to afterword we capitalized the value given an uncertainty rate of 30% due to the still uncertainty surrounding the project and the field's gas capacity and came to the value-added per share of 1.09€

**The Upstream business is essential for Galp and will provide great value for the company in the short-medium term peaking in 2025**. Galp's strategic presence in Brazil has provided and will continue to provide cashflows. Galp has low costs giving them a resilient break-even price and the Bacalhau field is one of

the best quality in the world. **The high prices in oil markets will provide big returns for Galp and help provide the cashflows necessary for Galp's environmental path transition.**

## *Industrial & Energy Management*

Refining, biofuels, logistics, and cogeneration go under the Industrial division of Galp's Industrial & Energy Management unit, while oil, gas, and power delivery and trade fall under Energy Management.

This segment has three main value drivers: Refining, natural gas and liquid natural gas trade and cogeneration.

- *Refining*

Following the decision to shut down the Matosinhos refinery Galp now only operates the Sines refinery the only in Portugal and one of the few in Iberia. Located in a strategic location near the coast and with port infrastructure that facilitates both the import of raw materials and the export of final products, Sines is one of the biggest in Iberia only being San Roque (operated by Cepsa) at 240 kbp/d while Sines, Cartagena and Bilbao produce at 220 kbp/d. We expect the Sines refinery to operate without constrains producing 80 million barrels of oil equivalent per year throughout our forecasting period following pandemic constrains in the previous years.

To calculate the net revenues, we guided ourselves by the margin provided in Galp's report nowadays at 3.3$ per barrel. Galp plans to turn the Sines refinery into a green hydrogen hub by 2030. **Hydrogen will be a crucial component in the upcoming world's energy mix** powering Automotives especially big transportation vehicles like buses, this signals Galp's strategy to not stay behind in a changing world. Recent news of gas pipe connection to central Europe also favors Galp. In the first phase, the pipes will transport natural gas but, in the future, they will transport Hydrogen which will favor Galp. With this transformation Galp not only will reduce carbon emissions but will also prevent lower margins with rising oil prices in the future.

**Refining margin:**
**2020-25 3.3$ boe**
**2025-30 3.5$ boe**
**2030 onwards 4$ boe**

Galp's refining margins will increase. **Up to 3.5$ in 2025 when the company will start to process more bio-fuels products in line with the latest report and because of diminishing competitors in Iberia following the shutdown of refinery competitors in the region** according to S&P. **In 2030, when the hydrogen hub transformation will be complete it is believed to further go up to 4$ boe** according to an IEA report. Hydrogen demand is growing and presents lower costs compared to standard refineries, additionally, there are fewer competitors contrary to the highly competitive refinery business.

- *LNG/NG Contracts*

| NG/LNG contracts | | | | |
|---|---|---|---|---|
| **Contract** | **Country** | **Period** | **Start** | **TWh** |
| **Sonatrach** | Algeria | 5 | 2019 | 12 |
| **NLNG II** | Nigeria | 20 | 2003 | 12 |
| **NLNG III** | Nigeria | 20 | 2006 | 22 |
| **NLNG IV** | Nigeria | 10 | 2020 | 16 |
| **Venture Global** | U.S. | 20 | 2023 | 16 |
| | | | **Total** | 78 |
| | | | **% of trading** | 0.47 |

**Figure 37 - NG/LNG contracts**

Currently, Galp has 5 ongoing contracts for the supply of NG/LNG, one in Algeria Sonatrach, three in Nigeria NLNG II, III, and IV, and finally, a more recent one starting in 2023 with the United States: Venture Global, this last one is significantly important since it translates in an **improvement of diversification of NG/LNG sourcing** which used to be only done with Algeria and Nigeria who Galp has traditionally relied on and renewed contracts. This was proven relevant by the recent supply disruptions with Nigeria which were struck by heavy floods that damaged the nation's infrastructure, Nigeria has announced that it predicts not be able to fulfill all of its contracts but, since it is impossible to quantify the damage this situation can bring as of now we decided to not include in our evaluation also because any disruptions are believed to be periodical and will not impact in the medium to long term future.

Considering all of these contracts, **Galp has a capacity for 70 TWh worth of natural gas** of which after internal needs **trades 47% according to the company's reports.** To value this trading activity, we measured trading to grow in proportion to European GDP growth being that Europe is the main source of Galp's trading activity, we also believe that Galp, as it has been so historically, will be able to renew its supply contracts since they are quite stable and long-term throughout our forecasting period.

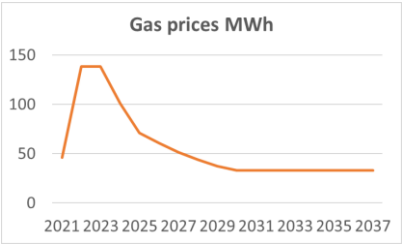


**Figure 38 - Gas prices in MWh**

Following the Russian invasion of Ukraine gas prices have skyrocketed because of European sanctions and Putin's energy war against Europe of declining the supply of natural gas to Europe as mentioned before.

**This has skyrocketed natural gas prices, in 2022 they averaged 134€ per MWh compared to 46€ per MWh in 2021**. We used the European benchmark for natural gas prices: the Dutch Transfer Facility (TTF) futures to compute the price until 2025. From there onwards we have the prices declining until they stabilize at 31€ per MWh, according to Rystad Energy forecasts (Figure 38).

**Higher prices mean higher margins for Galp, who has largely benefitted from these market conditions**, has such we adjusted proportionally the EBITDA margin to reflect these changes.

- *Cogeneration*

Finally, the Industrial and Energy Management segment includes the cogeneration business. The installed capacity, utilization rate of the plant and the special regulated regime at which Galp sells electricity to Portugal's grid the ERSE tariff are the value drivers in this business.

Same as the refining business the capacity of Galp took a hit after the Matosinhos refinery closed. Galp now only operates in Sines. **The plant has a capacity of 91 MW** and at the time of writing, Galp didn't disclose on the reports any plans to increase capacity as such we assumed it to be the same throughout our forecasting period.

Regarding the utilization rate, we expect it to be at 88% following historical utilization rates. Galp will continue to use this form of green energy in line with Galp's strategy of reducing carbon emissions we believe the utilization rate to maintain during our forecasting period. **This translates into a yearly production of 980 GWh as reported by Galp.**

**The price at which Galp sells the produced electricity is regulated at the ERSE tariff and gives priority to the electricity produced in the plant to be sold to the grid** meaning every electricity produced is sold at the state fixed price of 0.055 per GWh. This regime offers stability to the business seeing that it is not exposed to energy price fluctuations but also limits any bigger profit opportunities in energy price rises.

Finally, to calculate the EBITDA we used the historical average of margin EBITDA to earnings of 4% because as we said it is a stable business and there aren't any

plans for expansion or restructuring now, so we expect it to maintain throughout our forecasting period.

This business doesn't offer growth opportunities, but it is important for Galp's environmental path and provides stable net revenues.

## *Aurora*

Aurora is an equally shared joint venture with Northvolt and its aim is to develop a lithium conversion factory. **This type of factories is expected to be highly relevant since it produces a critical component to electrical car batteries** that has said before will have a growing market share in the automotive sector in the future.

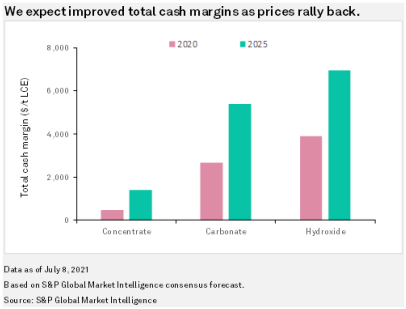


**Figure 39 - Lithium Margins**

**We decided to value Aurora on its own** for simplistic reasons and then add the FCF corresponding to Galp in the Industrial and Energy Management segment since although Galp hasn't mention Aurora's segment it seems the most appropriate one due to it dealing with industrial raw non-renewable materials. The half of the FCF in the investment corresponding to Aurora was then added to our income attributable to non-controlling interest forecast.

The factory will import lithium and convert it to lithium hydroxide as explained in the picture above. Galp expects production to be 35000 tons and according to Goldman Sachs the margin expected for this kind of production is 7000$ per produced ton (Figure 39). Other assumptions for computing Aurora's FCF was using a 10-year straight-line method for depreciation, also we estimated the investment (700$m) to take place next year in 2023 and 3 years to build the factory similar to other lithium conversion facilities so operations star in 2026.

This business venture is a testament to Galp's strategy of adapting its business to new opportunities.

## *Renewables*

The goal of the Renewables & New Businesses unit is to create a sustainable and diverse portfolio of renewable energy generation that can benefit from synergies with the remaining energy businesses of the company, namely Commercial, and further the company's goals for carbon intensity reduction and energy transition.

Between 2021 and 2025, the Company anticipates allocating, on average, 30% of the Group's estimated annual net capital expenditures to the expansion of its portfolio of renewable energy sources. For the development of solar power plants and the installation of EV charging stations in Iberia in 2021, Galp obtained up to €732 m from the European Investment Bank (EIB). This was a significant step in accelerating the development of such projects and assisting the Company in hastening the incorporation of low-to-no-carbon energy alternatives in its businesses.

| Equity Value Model | | |
|---|---|---|
| Price paid for 25% of Titan | 140.00 | €m |
| Total titan portfolio | 1.15 | GW |
| Additional expected 2024 portfolio | 1.60 | GW |
| Total titan portfolio 2024 | 2.75 | GW |
| Price per GW | 203.64 | €m/GW |
| 2030 valuation (12GW) | 2443.64 | €m |
| Uncertainty factor | 0.30 | % |
| Grey Sky | 0.5 | % |
| Blue Sky | 0.2 | % |
| 2022 value | 1386.67 | €m |
| Value added per share | 1.67 | € |
| Grey Sky | 1.19 | € |
| Blue Sky | 1.91 | € |

**Figure 40 - Renewables Value Model**

This segment is quite recent (started operations in 2019) but is crucial to Galp's long term strategy of focusing on renewable energy. With this Galp will be able to "survive" the switch of energy sources that the world will witness in the coming years with governments committed to reducing carbon emissions, it will also make the company in the future much more stable since it won't be so affected by commodity price swings and will have a much more diversified portfolio when it comes to energy sources. According to Barclays, **Galp is growing their renewables capacity quicker than its peers.**

To value the Renewables and New energies segment we opted for a **equity value model** due to the lack of cashflows the segment produces at this stage being an early phase.

For this method we guided ourselves on the recent acquisition of the full ownership (acquired the last 24.99% it didn't own) of Titan solar (Titan 2020 S.A.). Titan has 1.15 GW of solar power and has an additional expected capacity of 1.6 GW in 2024 which makes the total portfolio in 2024 of 2.75 GW. From this operation we were able to compute the price per GW at market value of about 203 million € per GW.

**Galp is aiming to have 4 GW by 2025 and in 2030 12 GW**. It is an ambitious goal, and it shows the company's commitment to being greener and reducing its

carbon footprint and we believe Galp to being on track on its 2025 having about 1 GW today and around 4.7 GW in construction. This being said, it is still not certain that Galp will reach that goal and much less certain it will reach the even more ambitious 2030 target. Because of this we decided to apply a 30% discount uncertainty rate to our model that we believe to be appropriate to account for Galp not reaching is target or changing factors in this still early business.

The Renewables segment 2022 equity value that we got by discounting the value with the segment WACC is 1235.5 million € that translates to about 1.49€ added value per share.

## Financials

### *Capital Expenditures*

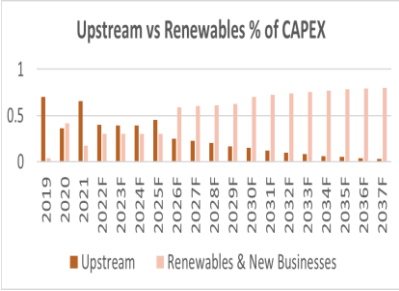


**Figure 41 - Upstrean vs Renewables % of CAPEX**

Capital expenditures were calculated individually for each segment but also taking into account the strategy of the whole company. In the latest reports **Galp announced that it is targeting to increase weight of Renewables in the company's CAPEX** since it regards as a very important segment crucial for the company's future as such Galp expects Renewables to account for 30% of CAPEX until 2025 and we expect that value to keep increasing in our forecast window up until more than 50% expecting CAPEX of Renewables to be a function of GW capacity that will grow threefold from 2025 to 2030.

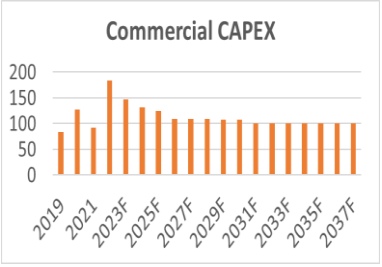


**Figure 42 - Commercial CAPEX**

**Regarding Upstream we expect CAPEX to gradually decrease** as production of oil decreases and as the company pivots to be greener and more sustainable also freeing investment to flow to the Renewable business. **For Industrial & Energy Management we expect CAPEX to grow until 2030** when Galp is expecting to transform the Sines refinery into a Green Hydrogen refinery that being said we expect the expenditures to be much substantial since it won´t entail a complete transformation of the refinery and we expect it to be gradual instead of a more sudden process. Lastly the **Commercial's segment CAPEX was calculated as a function of the growth of service stations and charging points** that Galp is planning on having.

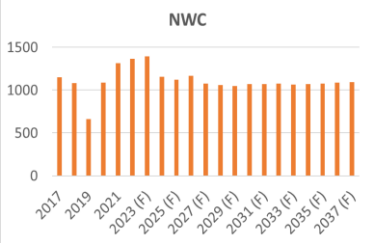


**Figure 43 - NWC**

### *Net Working Capital*

Net Working Capital was calculated first for the whole company as the sum of Operating Cash, Account Receivables and Inventories and then subtracting Account Payables. Each segment was then "awarded" a certain percentage of Galp's total NWC based on the percentage of revenues each segment had in the total revenues.

### *DD&A*

For Depreciations and amortizations our calculations were based on the tangible fixed assets computed by our capex forecasts for the segments of Upstream Commercial and Industrial and Energy Management. Given the tangible fixed assets forecasts we used the average of depreciation over the former in each of the mentioned segments in the last 5 years excluding 2020 which we believe is a non-representing year due to the Covid 19 pandemic. With all this inputs we were able to forecast DD&A for each segment.

## Valuation

### *DCF + SOP*

For our valuation we used a Discounting Cashflow method combined with a sum of all parts approach. After calculating the EBIT of the Upstream (without Area 4), Commercial and Industrial & Energy Management segments we subtracted the tax applying the company's tax rate of 31.5% which we assumed to remain the same throughout our forecasting period, we then added Depreciation and subtracted CAPEX and NWC to reach to our Operating Free

Cashflow of each year.

To compute the value of enterprise we discounted the cashflows with the according WACC of the segment with a growth of 1% limited to the Portugal's GDP expected growth (according to Statista). For the Upstream segment however, there won't be

any growth beyond our forecasting period, in line with the company's objectives.

| Valuation | |
|---|---|
| Debt | -9825 |
| Value of Equity without Area 4 and Renewables | 22943 |
| Non-controlling interests | 389 |
| Number of shares outstanding | 829250635 |
| Price of Share without Area 4 and Renewables | 28,14 |
| Area 4 added value | 1,09 |
| Renewables added value | 1,67 |
| Price of Share | 30,90 |
| Price at 15/12/2022 | 11,98 |
| Return | 158% |
| Reccommendation | BUY |

**Figure 44 - Final Valuation**

Furthermore, we summed the value of enterprise value of the mentioned segments subtracting the income attributable to non-controlling interests and the value of financial debt, which was discounted at our computed cost of debt, the final value of debt is in line with the company's current debt to equity structure which isn't expected to change.

At last, we divided the former by the number of outstanding shares and summed the added price of share of the Renewables segment and the Area 4 valuation.

**Our final forecasted price is 30.90€ which given the current price of 11.98€ gives a return of 158% hence our recommendation is BUY.**

The high value is explained by two-fold. **In the short term, Galp is very well positioned to take advantage of the favourable market conditions such as high gas and oil prices in the short-medium term.** This won't last forever though and contrary to most of the industry, Galp has a clear strategy and is ahead of its peers in currently transforming the company in order to be able to adapt. **Changes in most of its segments like charging stations in commercial, hydrogen plant in Industrial and Energy Management and the growth of Renewables segment will provide long term value** when Upstream won't be as profitable.

## *Scenario Analysis*

| Base Case Scenario | |
|---|---|
| Oil prices 2025 | 66 |
| Gas prices MWh/€ 2025 | 100 |
| Gas prices MMBtu/$ | 3.63 |
| Refining margin 2025 | 3.5 |
| $ to € 2025 | 1.2 |
| Uncertainty factor | 0.3 |

**Figure 45 - Base Case Scenario**

For our scenario analysis we decided to change some of our assumptions from 2025 onwards believing that any time before that these values are already influenced by today's factors and probably won't change. That isn't the case for 2025 onwards though so we thought it was important to incorporate a "grey skies" (bad scenario) and "blue skies" (good scenario) scenarios in order to grasp how these figures could change the valuation apart from our base scenario.

For the grey skies' scenario, we inputted oil prices to stagnate at 50$ per barrel following a decline in the world demand and for oil Gas prices to come back to pre–Ukrainian Russian war prices sooner returning to 33€ per MWh and 3$ per MMBtu.

| Grey Sky Scenario | |
|---|---|
| Oil prices 2025 | 50 |
| Gas prices MWh/€ 2025 | 33 |
| Gas prices MMBtu/$ | 3 |
| Refining margin 2025 | 3.3 |
| $ to € 2025 | 1.3 |
| Uncertainty factor | 0.5 |

**Figure 46 - Grey Sky Scenario**

Other changing assumption are the refining margin which in this case doesn't improve and stays at 3.3$ per barrel, dollar to euro exchange rate at 1.3 and the uncertainty factor discounting Area 4 and Renewables

increasing to 0.5.

For the blue skies' scenario, we took the opposite approach and were very optimistic about the assumptions mentioned before, note that this is optimistic in Galp's perspective and not exactly for general economy. For this scenario our assumptions are as follows: oil prices and gas prices stay high at 80$ per barrel and 120€ per MWh and 5$ per MMBtu respectively, this could be because oil demand stays high as countries fail to meet their targets for decarbonization or a prolonged Ukrainian Russia war and Europe's failure to diversify from Russian energy dependence. Furthermore, the refining margin would evolve better than we expect following a rapid integration in Sines refinery also, the dollar would stay strong, and the euro wouldn't recover to its previous value lastly, the uncertainty factor is downed to 0.2.

| Blue Sky Scenario | |
|---|---|
| Oil prices 2025 | 80 |
| Gas prices MWh/€ 2025 | 120 |
| Gas prices MMBtu/$ | 5 |
| Refining margin 2025 | 4 |
| $ to € 2025 | 0.8 |
| Uncertainty factor | 0.2 |

**Figure 47 - Blue Sky Scenario**

For both scenarios the recommendation is still BUY, for grey sky scenario the price target is 20.82€ with a return of 74% and for blue skies scenario the recommendation jumps to 37.43€ with a return of 212%. **This proves the resilience of Galp and the strength of its fundamentals. Galp is indeed a valuable company and is not just inflated by good market conditions.**

## *Multiple Analysis*

We decided to do a multiple analysis to complement our previous forecasts, but we don't consider the best valuation method to be used on its own. This analysis can give us a perception of how the industry is valued and how Galp compares against its peers. As we can see in the picture Galp is above average looking at EV/EBITDA, which points to Galp being overvalued in relation to its peers but an EV/EBITDA value bellow 10 is considered good. On the contrary **Galp is below average when looking at P/SALES, so it is generating more revenue per euro invested**. (Figure 49)

Looking at the other graph (Figure 48) we can see Galp is indeed above average in most categories except for the categories that involve sales, that being said none of the ratios are bad so it points to the industry being a good investment.

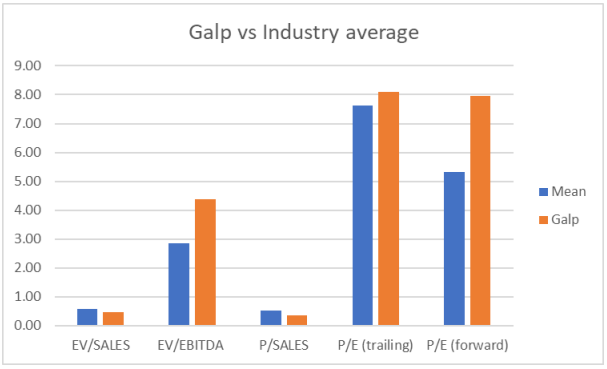


**Figure 48 - Galp vs Industry average**

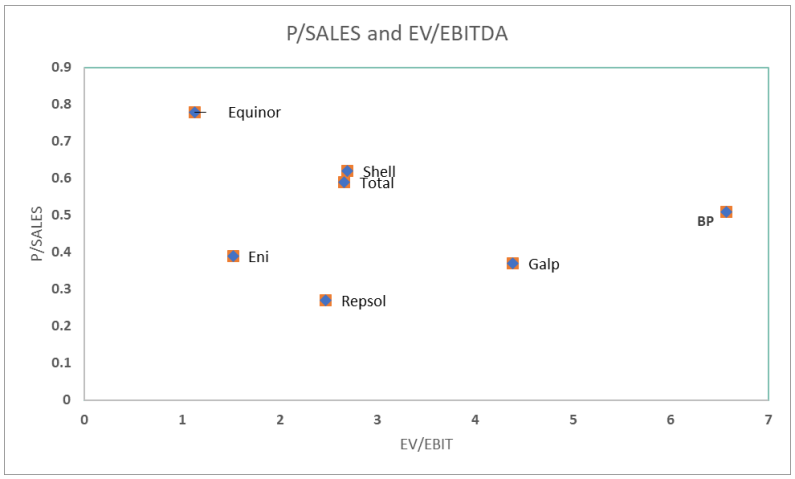


**Figure 49 - P/SALES and EV/EBITDA**

# "GALP ENERGIA"

*"ENERGY SECTOR"*

# COMPANY REPORT

15 DECEMBER 2022

STUDENTS: VASCO NEVES, PEDRO MORGADO

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493142@novasbe.pt

## Galp: Transitioning into a Greener Future

- Great market conditions offer short and medium term revenue and Galp has a strong strategy towards decarbonization with strong growth in the renewables segment.
- Despite the oil products' sales decrease starting in 2025, commercial revenues are projected to continuously grow until 2037 due to the increase of total sales volume of natural gas and electricity.
- Upstream segment continues to offer great value. Bacalhau field to start operation in 2024 offers great quality producing over 80 million barrels of oil per annum at its peak
- Industrial & Energy Management segment is structurally improving with refining margin growing while also decarbonising with the hydrogen hub planned for 2030
- Renewables segment growing rapidily with expected capacity 4 GW by 2025 and 9 GW by 2030. Major part of the company's strategy accounting for 30% of capital expenditures by 2025.

**Company description**

With four distinct business areas, the company is today a Portugal-based integrated multi-energy operator. With a current market cap of 7,934 million Euros (€m), Galp Energia is currently one of the most actively traded stocks on NYSE Euronext Lisbon, and also makes up a significant portion of the PSI-20, the primary stock index for Portugal.

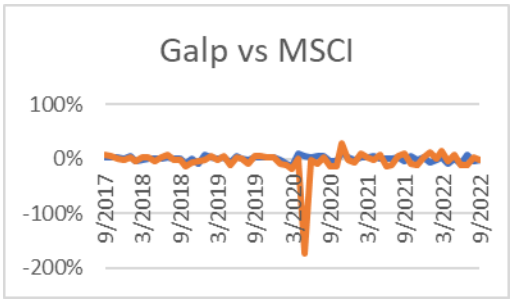
The business's operations are organized in four categories: Upstream, Industrial and Energy Management, Commercial, and Renewables and New Businesses.

| | |
|---|---|
| **Recommendation:** | **BUY** |
| **Price Target FY23:** | **30.90 €** |
| **Price (as of 16-Dec-22)** | **11.02 €** |

Reuters: GALP. LS, Bloomberg: GALP. LI

| | |
|---|---|
| 52-week range (€) | 08.06-13.06 |
| Market Cap (€m) | 9,777 |
| Outstanding Shares (m) | 829.25 |

Source: Yahoo Finance




Source: Yahoo Finance

| (Values in € millions) | 2021 | 2022F | 2023F |
|---|---|---|---|
| Revenues | 16117 | 20524 | 20965 |
| EBITDA | 2698 | 3857 | 3857 |
| Net Profit | 4 | 2801 | 2761 |
| EPS | 0 | 3.38 | 3.33 |
| P/E | | | |
| ROIC | 33% | 30% | 29% |
| mboea | 50 | 48 | 43 |

Source: Galp reports and analysts' calculations

# Table of Contents

# List of Abreviations

| | |
|---|---|
| ANP | Agência Nacional do Petróleo |
| Boe | Barrel of Oil Equivalent |
| EIA | Energy Information Administration |
| EV | Electrical Vehicles |
| FPSO | Floating Production Storage and Offloading |
| GDP | Gross Domestic Product |
| GWh | Gigawatt per hour |
| IEA | International Energy Agency |
| Kboe | Thousand Barrels of Oil Equivalent |
| Kbp/d | Thousand Barrels per day |
| MMBtu | Million British Thermal Units |
| Mtpa | Million Tonnes per year |
| MW | Megawatt |
| MWh | Megawatt per hour |
| NZE | Net Zero Emission |
| O&G | Oil and Gas |
| OPEC | Organisation of the Petroleum Producing Countries |
| Mtpa | Million Tonnes per year |
| Mboea | Million Barrels of Oil Equivalent per year |
| TWh | Terawatt per hour |

## Company Description

In order to reorganize the Portuguese energy industry, Galp Energia was founded in 1999. The firm was created to operate at various levels of the oil and gas value chain by merging Petrogal (Oil & Gas) and Gás de Portugal. Starting by being entirely owned by the Portuguese government, Galp Energia began to be privatized in the same year. With four distinct business areas, the company is today a Portugal-based integrated multi-energy operator. With a current market cap of 7,934 million Euros (€m), Galp Energia is currently one of the most actively traded stocks on NYSE Euronext Lisbon, and also makes up a significant portion of the PSI-20, the primary stock index for Portugal.

The business's operations are organized in four categories: Upstream, Industrial and Energy Management, Commercial, and Renewables and New Businesses.

## Industry Overview

As the global population and economy continue to grow, there is likely to be an increase in demand for energy. This presents opportunities for energy companies to expand their operations and develop new sources of energy to meet this demand. **World population is projected to reach 9.7 billion by 2050** (Figure 1), and this is significant for the energy industry since rising fossil fuel use and global GDP have traditionally been correlated. Additionally, **733 million people globally still lack access to power**. By 2030, 670 million people would still lack access to electricity, an increase of 10 million over the previous year's forecast (Figure 2). Furthermore, 2.6 billion people use polluting fuels to heat or cook their homes, which is bad for their environment and their health.

On that account, improving energy efficiency, such as through the use of energy-saving technologies and practices, can reduce the amount of energy needed to power homes and businesses. This presents opportunities for

TABLE I. POPULATION OF THE WORLD AND MAJOR AREAS, 2015, 2030, 2050 AND 2100, ACCORDING TO THE MEDIUM-VARIANT PROJECTION

| *Major area* | *Population (millions)* | | | |
|---|---|---|---|---|
| | *2015* | *2030* | *2050* | *2100* |
| World | 7 349 | 8 501 | 9 725 | 11 213 |
| Africa | 1 186 | 1 679 | 2 478 | 4 387 |
| Asia | 4 393 | 4 923 | 5 267 | 4 889 |
| Europe | 738 | 734 | 707 | 646 |
| Latin America and the Caribbean | 634 | 721 | 784 | 721 |
| Northern America | 358 | 396 | 433 | 500 |
| Oceania | 39 | 47 | 57 | 71 |

*Source:* United Nations, Department of Economic and Social Affairs, Population Division (2015).

**Figure 1 - Projected World Population until 2050**

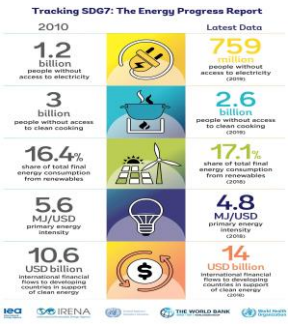



**Figure 2 - Global access to electricity**

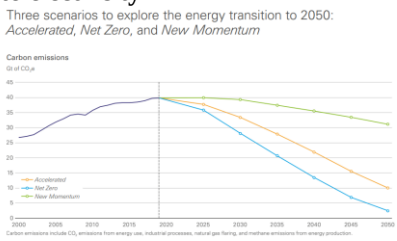



**Figure 3 - Net Zero Emission by 2050**

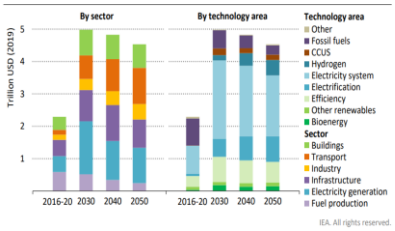



**Figure 4 - O&G business' investments in clean energy**

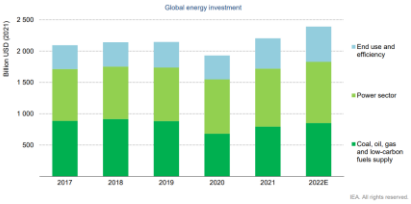



**Figure 5 - Annual average capital investment in the NZE**

companies in the energy sector to develop and provide these solutions, as well as helping to reduce greenhouse gas emissions. In order to achieve these improvements, energy is increasingly developing. The investments, inventions, and innovative industries that serve as the foundations of employment, inclusive growth, and joint wealth for entire economies are made possible by energy.

## Net Zero by 2050

The **Net Zero Emissions by 2050 Scenario** (Figure 3) comes up is a hypothetical IEA scenario that outlines a route for the world's energy sector to **attain net zero CO2 emissions by 2050**, with industrialized economies achieving net zero emissions ahead of others. In addition to achieving net-zero CO2 emissions, the NZE also **aims to lower non-CO2 emissions from the energy sector**. For instance, the amount of methane released during the production and use of fossil fuels decreases from 115 million tons (Mt) in 2020 to 30 Mt in 2030 and 10 Mt in 2050. Redirecting current funds to clean energy technology and significantly raising overall energy investment levels are two ways to pay for the investment required in the NZE. The majority of this rise in investment is from private sources, encouraged by governmental policies that construct suitable regulatory frameworks, offer incentives, and modify energy taxes. In order to fulfill these targets, O&G businesses' investments in clean energy have **increased by an average of 12% annually** since 2010 and are **anticipated to represent 5% of all O&G expenditures** in 2022, up from less than 2% in 2020. To simplify, the NZE increases yearly energy investment from an average of little over USD 2 trillion worldwide over the previous five years to an estimated **USD 5 trillion in 2030 as well as USD 4.5 trillion by 2050** (Figure 4 & 5). Direct government funding is nonetheless also required to promote the creation of new infrastructure initiatives and to quicken the pace of innovation in technologies that are now in the demonstration or prototype stage.

By reaching universal access to energy by 2030 and significant improvements in air quality, the NZE **satisfies important energy-related Sustainable**

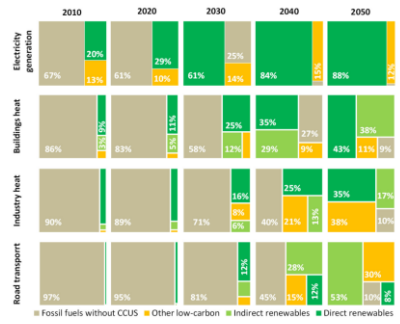



**Figure 6: Fuel shares in total energy use in selected applications in the NZE**

**Development Goals (SDGs)**. It is also compatible with keeping **temperature increase to a minimum of 1.5 °C**. Renewable energy technologies are essential for lowering emissions from the world's electrical supply and the **NZE's energy mix will be considerably more varied in 2050 than it is now.** Despite hydropower being a leading low-emission source for some decades, wind and solar energy development will expand renewable energy output in the NZE by more than eight times by 2050. The percentage of **renewable energy in the world's total power output rises from 29% in 2020 to over 60% in 2030 and to almost 90% in 2050** (Figure 6). Additionally, the amount of energy produced by nuclear power is expected to roughly double from 2020 to 2050. In order to do this, yearly wind, and solar capacity additions from 2020 to 2050 must be five times larger than they have been on average during the previous three years. Along with additional low carbon generating, energy storage, and robust power networks, dispatchable renewables are essential to maintaining electricity safety.

## Galp's Strategy

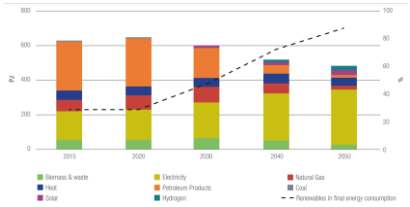


**Figure 7 - Evolution of final energy consumption, up to 2050 in Portugal**

Due to the need for O&G firms to address the effects of their activities on climate change, this industry poses a danger to the environment. All CO2 polluting sectors (with a specific priority on the energy sector) are required to make numerous adjustments on the carbon footprint of their activities in order to meet the objectives for the reduction of CO2 emissions in Europe (less 40% by 2030 vs. 1990 levels). **Galp holds competitive positions primarily in Spain and Portugal, both of which have Net Zero commitments** (Figures 7 & 8).

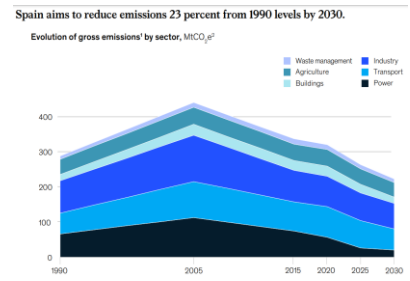



**Figure 8 - Spain evolution of gross emissions by sector**

At this point, looking at Galp's strategic plan we can see that the company's initiatives are primarily concentrated on **scaling up the renewables sector and developing distinctive and innovative energy sources to speed up the fulfillment of the decarbonization goals**, which refers to the elimination or decrease of carbon dioxide output into the atmosphere. The firm's main focus is on the potential to combine its further expansion with the goal of creating a carbon-neutral corporation by the year 2050.


**Figure 9 - Galp Decarbonisation Roadmap**

Galp expects that the implementation of the key strategic directives it has stated will be the primary means of achieving the new long-term targets and roadmap toward carbon emissions reduction. The major objectives to be met by 2030 are a **reduction of 20% of all downstream sales carbon intensity, 40% of production carbon intensity, and 40% of absolute emissions from operations (Scope 1 and 2 emissions).** These objectives are a part of Galp's goal to achieve Net Zero Emissions by 2050 (scopes 1, 2, and 3) (Figure 9).

Galp's energy transition plan still benefits from more transparency since the corporation did not offer specific low-carbon activities for the various units or extra intermediate goals until 2030 or 2050

In **2021**, Galp recorded an absolute **emission reduction (scopes 1 & 2) of 26%, a production-based carbon intensity reduction of 13% and a downstream sales-based carbon intensity reduction of 3% when compared to 2017**.

## SWOT Analysis

Given the growing social demand for a "greener" recovery, the Oil & Gas industry may enter a new energy regime and period in the coming years. The current environment will put many O&G firms to the test, and thus the downstream and upstream characteristics will determine Galp's future stance and share price behavior inside this sector.

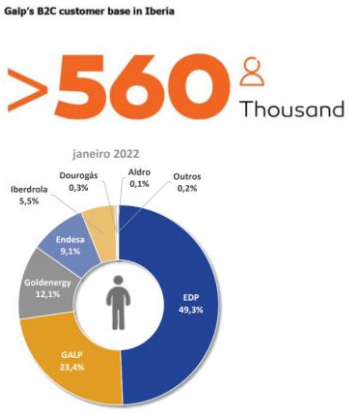



**Figure 10 - Galp's B2C customers Iberia and market share**

### *Strengths*

- Galp supplies natural gas and electricity to more than **560 thousand B2C customers in Iberia**. The Company is one of the key players in the region, with a **market share of c.23% in natural gas** (Figure 10).
- **Strong customer-base-growing cooperation with Sonae**, a worldwide corporation that manages a diverse business portfolio in financial services, retail, technology, real estate, and telecoms.

- **In terms of oil products**, Galp preserved its market dominance in Portugal and a significant presence in Iberia in 2021, achieving **market shares of almost 28% in Portugal and 4% in Spain.**
- Galp is **recognized by DJSI as the most sustainable business in the world for its industry** (Figure 11). The Dow Jones Sustainability Indices for the Oil & Gas Upstream & Integrated sector places the Portuguese energy business at the top of its global sustainability rankings. Galp has achieved its greatest score since participating in these indices ten years ago with the #1 position, which highlights the finest practices in the domains of environmental, social, and governance.
- **High quality oil products and leader of customer satisfaction** for the 6th year in a row in Electricity and Natural Gas Products by ECSI Portugal.


**Figure 11 - Galp's recognition by DJSI**

### *Weaknesses:*

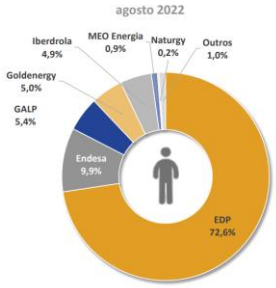



**Figure 12 - Galp market share electricity market**

- Galp **only has a 5,4% market share in the electricity market in Portugal** (Figure 12).
- **Brazil contributes for more than 90% of the overall upstream output**, a value that we predict to grow in the next 15 years, which indicates a serious **lack of regional diversity**.
- As a non-operator in its Upstream sector, Galp has no influence over the scheduling of operations and output deliveries, which might have an impact on refining operations and sales.

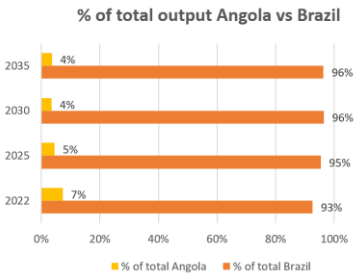



**Figure 13 - Brazil & Angola % of upstream output**

- Galp **plans to increase its Upstream output by 25% by 2025**, which **isn't consistent with the carbon restriction and the 1,5oC limit scenario** (the IEA's 1,5oC scenario calls for the global WIP kboep/d to have peaked by now).

### *Opportunities:*

- All areas of the economy are facing difficulties because of society's drive to reduce its carbon footprint. Therefore, Galp **revised their strategic plan in 2021 to make a strong investment case in an expedited energy transition.**

Galp wants to reorganize its portfolio and develop into a dynamic, digitally connected, customer-focused business with a significant stake in renewable and new energies, as well as industrial activities that are gradually decarbonizing and becoming a centre for green energy.

- In order to **turn the Sines refinery into a Green Energy Hub, Galp is working to decarbonize it.** Galp is dedicated to increasing the refinery's efficiency and resilience as it works to decarbonize Sines. Additionally, the firm now **has a sufficient financial cushion to invest in energy transition technologies** to increase the Sines plant's resilience toward the intended decarbonization plan thanks to the shutdown of the Matosinhos refinery.
- Galp has **increased production efficiency and reduced costs in Brazil,** which resulted in **lower breakeven in barrels compared to competitors** due to recent technology advancements and Petrobras' decreased lifting expenses.
- The continuous replacement of fuel automobiles by electric ones. Galp is projecting a **fast expansion of its offer of electric vehicle charging points, achieving c.10k in Iberia by 2025**.

### *Threats:*

- **Volatile commodity prices**. The prices of oil and gas are subject to significant fluctuations, which can impact the profitability of these companies. **High oil prices can make it economically viable to extract oil** from challenging environments, such as deep-water offshore wells or oil sands, but **low prices can make these operations unprofitable.**
- The European conflict, as well as **shortages of food, fuel, and oil, as well as rising inflation, are all putting pressure on the world economy**. Each problem has made the one before it worse. The upcoming winter in Europe is the main source of worry. Cold weather poses **a threat to lives and enterprises**, together with an **oil and gas scarcity** brought on by European sanctions on Russia because of its invasion of Ukraine.
- Environmental regulations. The extraction and production of oil and gas can have significant environmental impacts, such as air and water pollution and greenhouse gas emissions. As a result, **oil and gas companies must comply**

**with a range of environmental regulations, which can add costs and pose challenges.**

## Discount Rates

### *Cost of Debt*

| | |
|---|---|
| BBB | 0.016 |
| German 10 year bond | 0.007 |
| Difference between portugal and spain | 0.005 |
| Cost of debt | 0.027 |

**Figure 14 - Cost of debt**

Since Galp doesn't have a credit rating we had to compute a synthetic one looking at comparable companies in the sector furthermore we added the net country specific risk to account for the extra credit risk Galp has by being a company based in Portugal.

For the comparable companies we used Repsol with a respective credit rating of BBB, our rationale for choosing this particular comparable company was that they have a similar D/EV ratio and has a very similar structure and segments to Galp also operating in Iberia commercially. Regarding Portugal's specific risk we based ourselves on the reports of Standard & Poors and Fitch which both point out to a rating of BBB and subtracted the credit risk of Spain (A) to account for the extra risk of operating in Portugal. With this in mind we came to a cost of debt of 0.04278 which is the sum of the previous two and the German 10-year bond which is AAA that we found is the best risk-free rate for companies in Europe.

### *Cost of Capital (WACC)*

To reach the discount rate we calculated the WACC (weighted average cost of capital) for this we calculated the 5-year historical monthly returns of the market (we used MSCI index to get a global representation of the market) and regressed them with each of the 5-year historical monthly returns of Galp and peers in general and in each segment to get their Betas. After this we unlevered the Beta of Galp and each of its segments and relevered them again to compute each segment WACC. For commercial the comparable companies used were EDP, Repsol and Naturgy; for Industrial and Energy Management Hellenic Energy and PKN Orlen and for Renewables EDP Renováveis, ERG Spa and Iberdola.

The Upstream WACC was an exception since we used the PV10 cost of equity that is common in the segment of 10% because oil and gas reserves are calculated with such rate. The cost of equity was then levered to account for the company's cost of debt.

**Commercial**

| | Betas | Alpha | Adjusted Beta | Market Cap | Debt (minus cash) | EV | E/EV | D/EV | weight | Unlevered Beta |
|---|---|---|---|---|---|---|---|---|---|---|
| EDP | 0.107734 | -0.02143 | 0.405156116 | 17.209 | 18.56 | 35.78 | 0.480967 | 0.518726 | 0.299798 | 0.371233415 |
| Repsol | 0.469522 | -0.0127 | 0.646347841 | 15.353 | 5.67 | 22.01 | 0.697547 | 0.25761 | 0.267465 | 0.53844518 |
| Naturgy | 0.266873 | -0.02326 | 0.511248735 | 24.84 | 12.15 | 35.31 | 0.703483 | 0.344095 | 0.432738 | 0.476647368 |
| | | | | 57.402 | | | | | | 0.461573209 |

| | | | | | |
|---|---|---|---|---|---|
| Beta debt | 0.34 | Cost of equity levered (Re) | 0.03127796 | | |
| Industry Beta unlevered | 0.461573 | Cost of equity unlevered (Ru) | 0.034394393 | Commercial WACC | 0.0279 |
| Beta levered | 0.409633 | Cost of debt (Rd) | 0.0271 | | |

**Refining & Midstream**

| | Betas | Alpha | Adjusted Beta | Market Cap | Debt (minus cash) | EV | E/EV | D/EV | weight | Unlevered Beta |
|---|---|---|---|---|---|---|---|---|---|---|
| Hellenic Energy | 0.468196 | -0.03106 | 0.645463791 | 2.103 | 2.16 | 4.26 | 0.493662 | 0.507042 | 0.220764 | 0.491035294 |
| PKN Orlen | 1.220609 | -0.03321 | 1.147072684 | 7.423 | 3.629 | 10.99 | 0.675432 | 0.330209 | 0.779236 | 0.887040995 |
| | | | | 9.526 | | | | | | 0.799617103 |

| | | | | | |
|---|---|---|---|---|---|
| Beta debt | 0.34 | Cost of equity levered (Re) | 0.042895106 | | |
| Industry Beta unlevered | 0.799617 | Cost of equity unlevered (Ru) | 0.054677026 | Refining & Midstream WACC | 0.0362 |
| Beta levered | 0.603252 | Cost of debt (Rd) | 0.0271 | | |

**Renewables**

| | Betas | Alpha | Adjusted Beta | Market Cap | Debt (minus cash) | EV | E/EV | D/EV | weight | Unlevered Beta |
|---|---|---|---|---|---|---|---|---|---|---|
| EDP Renováveis | 0.141669 | -0.01228 | 0.427779258 | 20.354 | 6.23 | 26.09 | 0.780146 | 0.238789 | 0.232336 | 0.414918322 |
| ERG Spa | 0.701998 | -0.01932 | 0.801332029 | 4.657 | 1.09 | 5.87 | 0.793356 | 0.18569 | 0.053158 | 0.698876194 |
| Iberdola | 0.116468 | -0.02223 | 0.410978706 | 62.595 | 41.9 | 104.16 | 0.60095 | 0.402266 | 0.714506 | 0.383748196 |
| | | | | 87.606 | | | | | | 0.407741848 |

| | | | | | |
|---|---|---|---|---|---|
| Beta debt | 0.34 | Cost of equity levered (Re) | 0.029428002 | | |
| Industry Beta unlevered | 0.407742 | Cost of equity unlevered (Ru) | 0.031164511 | Renewables WACC | 0.0266 |
| Beta levered | 0.3788 | Cost of debt (Rd) | 0.0271 | | |

**Upstream**

| | | | |
|---|---|---|---|
| Cost of debt | 0.0271 | Upstream PV10 WACC | 0.08 |
| Cost of equity | 0.1 | | |

**Figure 15 - WACC per segment**

# Segments

## *Commercial*

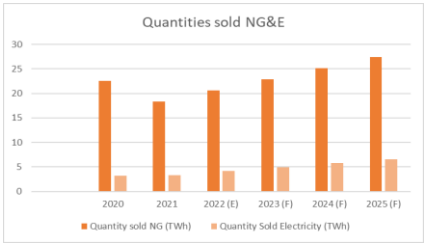



**Figure 16 - NG&E quantities sold (TWh)**


**Figure 17 - Average wholesale selling price of NG and Electricity (€/TWh)**

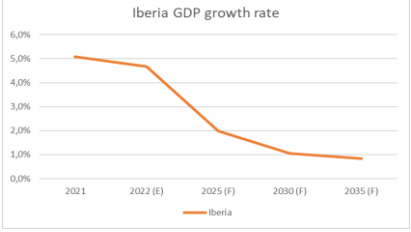



**Figure 18 - Iberia GDP growth rate**

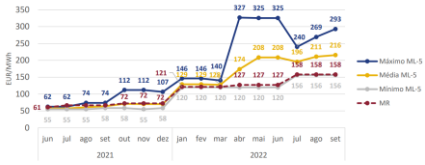



**Figure 19 - Average Energy Prices liberalized Marketplace Portugal**

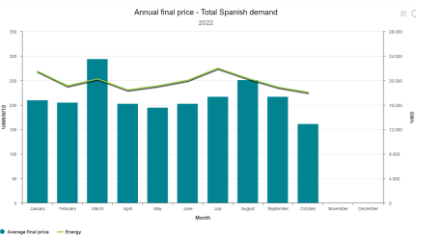



**Figure 20 - Average Energy Prices Spain**

Galp's Commercial Business offers its customers a comprehensive and integrated range of services, including oil products, gas, electricity, and other conveniences. Galp has a customer-centered mindset at its heart, provides solutions for businesses and customers across various locations by utilizing the strong Galp's brand position in Iberia and a number of African nations. With an emphasis on providing more sustainable and digitally oriented goods and services, Galp is continuously adjusting to new consumer habits.

**The oil products were evaluated apart from the Natural Gas and Electricity (NG+E) businesses** under Galp's commercial sector because we believe various factors affect the profitability of each segment differently.

Concerning NG, Galp estimates that in 2025, there will be **sold 1,5x the quantities sold in 2021 (18,3TWh to 27,45TWh)**, so, we assumed that the increase in those quantities would be the same each year from 2022 to 2025. We did the same process in **Electricity, where Galp estimates that in 2025 there will be sold 2x the quantities sold in 2021** (3,3TWh to 6,6TWh) (Figure 17). In the years after 2025, we assumed that the **quantities sold would be driven by the Iberian GDP growth** (Figure 18).

We used the ERSE data and the OMIE (Figures 19 & 20) statistics for Portugal and Spain respectively as the foundation for our energy prices for the liberalized marketplace. The average of the monthly average energy selling prices inside the liberalized market, charged **by the top-5 Portuguese domestic energy suppliers, yielded an ASP of €109,14/Mwh** and we assumed this value would be our forecasted selling price in 2022. Regarding Spain's predicted average selling price we used the same method and ended up with a **value of €143,4/Mwh**. It is important to note that in 2022, the energy's ASP were substantially higher than last years' due to the Ukraine and Russia war and some other factors. Therefore, to normalize the energy ASP we made an average of the prices of the last two years.

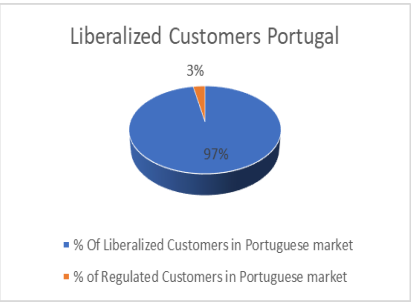



**Figure 21 - Liberalized Customers Portugal**

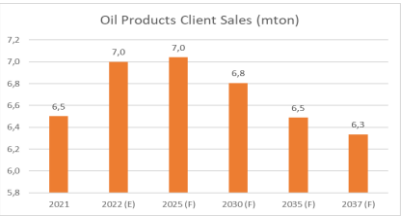



**Figure 22 - Oil Product Client Sales (mton)**

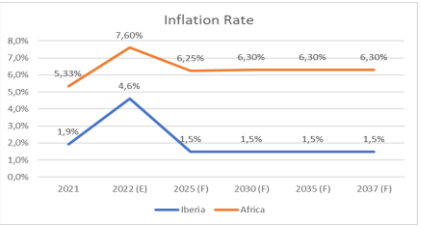



**Figure 23 - Inflatio rate Africe & Iberia**

Finally, using Galp's reports we found that **97% of Galp's total NG+E customers in Portugal were liberalized** and the remaining **3% were regulated**. In Spain, we assumed all customers were liberalized (Figure 21).

Regarding Oil Products, we think that the **Portuguese and Spanish inflation rate**, together with the **quantity of retail locations and service stations** that Galp maintains in Portugal, Spain, and Africa, are the **major factors influencing the refined products' portion EBITs**. We choose to split and evaluate the total amount of oil products sold according to region, i.e., **Iberia vs. Africa.**

We used the **World Oil Outlook 2021** made by the Organization of the Petroleum Exporting Countries to forecast the oil products sales in the next years (Figure 22). We could observe that in the **next 15 years we will have a decrease in the consumption of oil products in Europe** due to various factors such as the huge increase in electric vehicles and the increase in oil products' prices.

Contrarily, in Africa, the oil products consumption is set to increase in the next decades.

To help estimating **the future selling price of oil products**, we considered that it was determined by the **average inflation rates of Iberia and Africa**, the two regions where Galp conducts business, proportional to the quantities of sales conducted in each (Figure 23).

Finally, to compute this business unit's EBIT, we used the previous reports and calculated an average margin that compared EBIT to revenues and assumed that this margin would keep constant throughout the years.

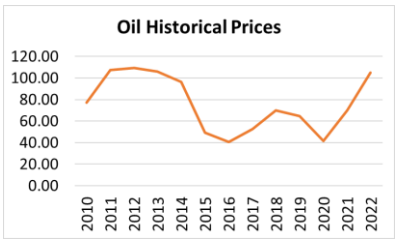



**Figure 24 - Oil Historical Prices**

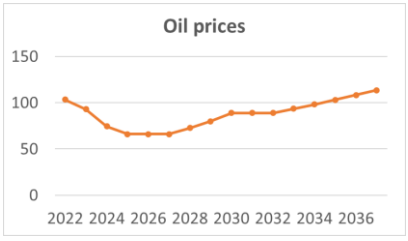



**Figure 25 - Oil Prices Forecast**

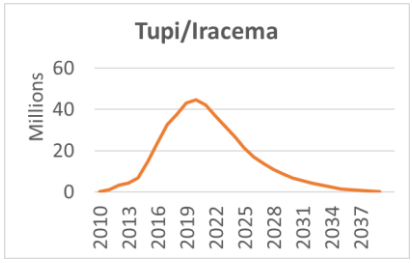



**Figure 26 - Tupi/Iracema boe prodcution**

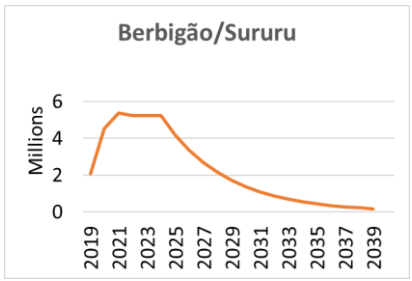



**Figure 27 - Berbigão/Sururu boe production**

## *Upstream*

The Upstream business value is largely determined by the cost at which a company can extract oil, the price that it can sell it (the higher the larger the margin), and the value of the dollar, the currency that most of the world uses to buy oil, the more powerful the dollar the costlier it is for countries to import oil. The dollar has recently greatly appreciated against other currencies mostly because of the fast and aggressive interest rate hikes from the Federal Reserve of the U.S. in comparison to other major Central Banks like the European Central Bank. Highlighting this importance, we will add a sensitivity analysis on the Dollar to Euro conversion rate.

Oil is not distributed equally among nations according to the BP Statistical Review of World Energy 93.5% of known oil reserves are discovered in the top 14 countries the larger share is held by OPEC countries such as Libya, Nigeria, Iraq, UAE, Saudi Arabia, Venezuela, Kuwait, Iran, and the other part in non-OPEC members such as Canada, Russia, China, United States, and Qatar. This gives an immense advantage to these countries that are not dependent on still such an important energy source.

To talk about the market environment of oil we need to mention OPEC: an intergovernmental organization between some of the world's top oil producers that functions as a powerful cartel to control the supply of oil manipulating the price to the alliance's benefit. It comprises 13 members (following Qatar's exit in 2019) at the moment with the bigger spotlight on Saudi Arabia the country with the second biggest oil reserve only behind Venezuela but with much cheaper access giving a lower breakeven price and because of that more powerful in influencing markets. Besides OPEC it is important to mention non-OPEC countries that are also important players like the United States, Russia, and Qatar, having said that some non-OPEC countries also sometimes align their interests with OPEC countries in what is called the OPEC+ which are made of countries such as Russia, Azerbaijan, or Mexico.

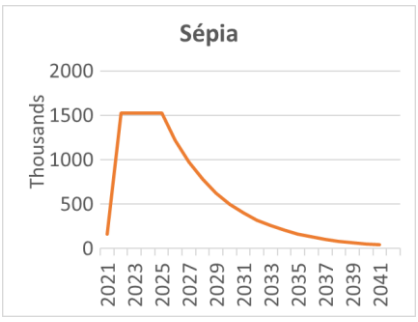



**Figure 28 - Sépia boe production**

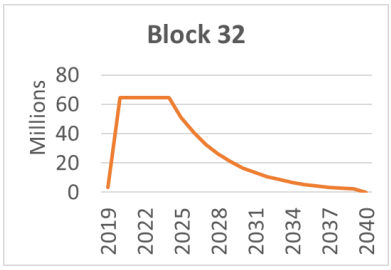



**Figure 29 - Block 32 boe production**

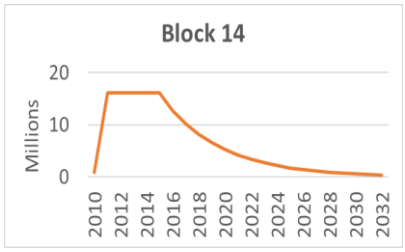



**Figure 30 - Block 14 boe production**

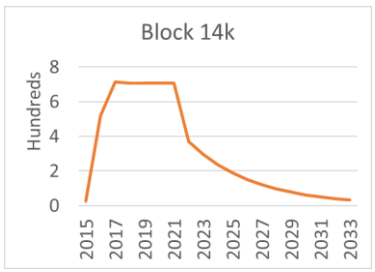



**Figure 31 - Block 14k boe production**

important to the company's near future. Galp also has had an important presence in Angola although oil flows have been declining as the blocks are near their life expectancy end.

The upstream segment is one of the most important ones of Galp given its high cashflow income. Upstream ventures are based on working interest production model where the operator takes the day-to-day decisions but consults the partners in an important decision. Galp isn't the operator in any of its ventures but all parties share the profits and costs regarding the % participation they have in the venture. In our analysis, **we chose to not evaluate future projects that still have very high uncertainty in places like São Tomé e Principe or Namibia or even other ventures in already well-established countries for Galp**.

Galp is present in Brazil where it has brought significant income and has been highly profitable and the new project in Bacalhau one of the higher reserves in the world, seems very promising with 220 kboe per day and a low breakeven price of 20$ boe the sight is going to be very important to the company's near future. This presence in the pre-salt field in Brazil is the main value of Galp's Upstream business. Galp also has had an important presence in Angola although oil flows have been declining as the blocks are near their life expectancy end.

**Galp projects are usually done with FPSOs** (Floating Production Storage and Offloading). As onshore discoveries declined FPSO's became widely common in Upstream companies because they operate offshore since they are essentially a vessel that can move between areas. FPSO's extract hydrocarbons through flowlines that are then separated into oil, gas, and water, then can store the resources until eventually they are offloaded.

To calculate the costs of producing oil we based ourselves on Galp's and peer reports like Petrobas who is the main operator in Brazil,the lifting costs of 2.5$ in Brazil and 7.5$ in Angola per barrel corporate overheads of 6$ per barrel and oil transportation costs of 3$ for operational costs. For capital expenditures, we assume costs of well development of 2.6$ subsea equipment of 2.4$ and Exploration & Appraisal costs of 1.1$ boe. **These are very**

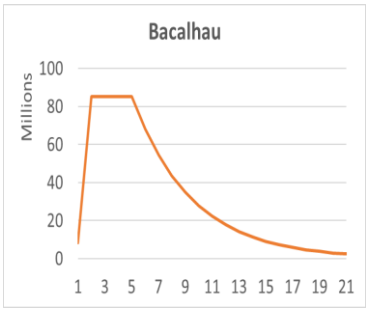



**Figure 32 - Bacalhau boe production**

| Operational Costs | | |
|---|---|---|
| | Brazil | Angola |
| Lifting costs | 2.5 | 7.5 |
| Corporate overheads | 6 | 6 |
| Oil transportation costs | 3 | 3 |
| **Capital Costs** | | |
| | Brazil | Angola |
| FPSO | 1.7 | 1.7 |
| Well Development | 2.6 | 2.6 |
| Subsea equipment | 2.4 | 2.4 |
| Exploration & Appraisal | 1.1 | 1.1 |
| Total Costs | 19.3 | 24.3 |

**Figure 33 - Costs per boe in $**

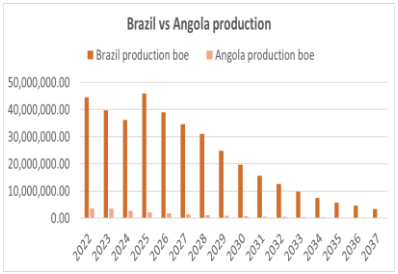



**Figure 34 - Brazil vs Angola boe production**

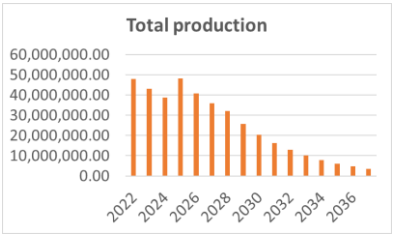



**Figure 35 - Total boe production**

**competitive prices as they provide Galp with a solid margin and a break-even price of 19.3$ in Brazil and 24.3$ in Angola**.

The average API of Galp's oil (the crude's density) is 30º which implies a 5% discount on the sale of oil. Lastly, we assumed that each boe extracted is a mixture of 80% of oil and 20% of gas which is the historical average in the area where Galp is present. We based ourselves in the EIA forecasts for the price of oil and for gas prices, the natural gas intelligence forecast.

To compute the production of barrels of oil equivalent we saw the ANP reports for each FPSO in which Galp has an interest and multiplied each year of production by Galp's corresponding stake. Afterwards, each producing FPSO was summed to its respective oil field computing so the production of each oil field. **We assumed a plateau of 4 years, a ramp-up of 13 months, and a lifetime of 20 years** which were all the averages observed in Galp's more developed projects. For Angola and Bacalhau projects we assumed a linear relationship between the oil flow capacity and oil production to calculate the latest.

Our calculation has oil production peaking in 2025 (the same in Galp's reports) when ramp-up is complete in the Bacalhau field and many other fields are still at their peak. (Figure 35)

Lastly, to get the net revenues of Galp's Upstream business unit we multiplied the combined production of each year of Brazil and Angola (separately since they have different costs) by the expected oil price in the future and subtracted the cost of production.

Another project with exciting prospects is Area 4 situated in the north of Mozambique. The area has been plagued with natural disasters and political and social instability with terrorism presence, but the country seems to have gotten rid of these problems and now seems safe for business. **Area 4 block has one of the highest gas reserves in the world** and other major players like Exxon and Chevron have invested in the Area. To value this venture we made a comparable valuation. Given the values of investment in the area we were able to determine an average value for Mta of the reserves in the area, we then based on Galp's stake were able how much Mta of gas Galp was intituled to

| Comparables Valuation | | |
|---|---|---|
| | Exxon Area 4 Rovuna | Total MZ LNG |
| Price paid | 2800 | 3900 |
| Stake | 0.25 | 0.265 |
| Capacity (mta) | 15.2 | 12.9 |

| | |
|---|---|
| Price per mta | 938.85 |
| Galp's stake | 0.10 |
| Galp's Mta | 1.41 |
| Galp's Value | 1319.08 |
| Uncertainty factor | 0.30 |
| Grey Sky | 0.5 |
| Blue Sky | 0.20 |
| Value per share | 923.36 |
| Share $ | 1.11 |
| Dollar to Euro | 1.02 |
| Share € | 1.09 |
| Grey Sky | 0.78 |
| Blue Sky | 1.25 |

**Figure 36 - Area 4 Valuation**

afterword we capitalized the value given an uncertainty rate of 30% due to the still uncertainty surrounding the project and the field's gas capacity and came to the value-added per share of 1.09€

**The Upstream business is essential for Galp and will provide great value for the company in the short-medium term peaking in 2025**. Galp's strategic presence in Brazil has provided and will continue to provide cashflows. Galp has low costs giving them a resilient break-even price and the Bacalhau field is one of the best quality in the world. **The high prices in oil markets will provide big returns for Galp and help provide the cashflows necessary for Galp's environmental path transition.**

## *Industrial & Energy Management*

Refining, biofuels, logistics, and cogeneration go under the Industrial division of Galp's Industrial & Energy Management unit, while oil, gas, and power delivery and trade fall under Energy Management.

This segment has three main value drivers: Refining, natural gas and liquid natural gas trade and cogeneration.

- *Refining*

Following the decision to shut down the Matosinhos refinery Galp now only operates the Sines refinery the only in Portugal and one of the few in Iberia. Located in a strategic location near the coast and with port infrastructure that facilitates both the import of raw materials and the export of final products, Sines is one of the biggest in Iberia only being San Roque (operated by Cepsa) at 240 kbp/d while Sines, Cartagena and Bilbao produce at 220 kbp/d. We expect the Sines refinery to operate without constrains producing 80 million barrels of oil equivalent per year throughout our forecasting period following pandemic constrains in the previous years.

To calculate the net revenues, we guided ourselves by the margin provided in Galp's report nowadays at 3.3$ per barrel. Galp plans to turn the Sines refinery into a green hydrogen hub by 2030. **Hydrogen will be a crucial**

**component in the upcoming world's energy mix** powering Automotives especially big transportation vehicles like buses, this signals Galp's strategy to not stay behind in a changing world. Recent news of gas pipe connection to central Europe also favors Galp. In the first phase, the pipes will transport natural gas but, in the future, they will transport Hydrogen which will favor Galp. With this transformation Galp not only will reduce carbon emissions but will also prevent lower margins with rising oil prices in the future.

**Refining margin:**
**2020-25 3.3$ boe**
**2025-30 3.5$ boe**
**2030 onwards 4$ boe**

Galp's refining margins will increase. **Up to 3.5$ in 2025 when the company will start to process more bio-fuels products in line with the latest report and because of diminishing competitors in Iberia following the shutdown of refinery competitors in the region** according to S&P. **In 2030, when the hydrogen hub transformation will be complete it is believed to further go up to 4$ boe** according to an IEA report. Hydrogen demand is growing and presents lower costs compared to standard refineries, additionally, there are fewer competitors contrary to the highly competitive refinery business.

- *LNG/NG Contracts*

Currently, Galp has 5 ongoing contracts for the supply of NG/LNG, one in Algeria Sonatrach, three in Nigeria NLNG II, III, and IV, and finally, a more recent one starting in 2023 with the United States: Venture Global, this last one is significantly important since it translates in an **improvement of diversification of NG/LNG sourcing** which used to be only done with Algeria and Nigeria who Galp has traditionally relied on and renewed contracts. This was proven relevant by the recent supply disruptions with Nigeria which were struck by heavy floods that damaged the nation's infrastructure, Nigeria has announced that it predicts not be able to fulfill all of its contracts but, since it is impossible to quantify the damage this situation can bring as of now we decided to not include in our evaluation also because any disruptions are believed to be periodical and will not impact in the medium to long term future.

| NG/LNG contracts | | | | |
|---|---|---|---|---|
| Contract | Country | Period | Start | TWh |
| Sonatrach | Algeria | 5 | 2019 | 12 |
| NLNG II | Nigeria | 20 | 2003 | 12 |
| NLNG III | Nigeria | 20 | 2006 | 22 |
| NLNG IV | Nigeria | 10 | 2020 | 16 |
| Venture Global | U.S. | 20 | 2023 | 16 |
| | | | Total | 78 |
| | | | % of trading | 0.47 |

**Figure 37 - NG/LNG contracts**

Considering all of these contracts, **Galp has a capacity for 70 TWh worth of natural gas** of which after internal needs **trades 47% according to the**

**company's reports.** To value this trading activity, we measured trading to grow in proportion to European GDP growth being that Europe is the main source of Galp's trading activity, we also believe that Galp, as it has been so historically, will be able to renew its supply contracts since they are quite stable and long-term throughout our forecasting period.

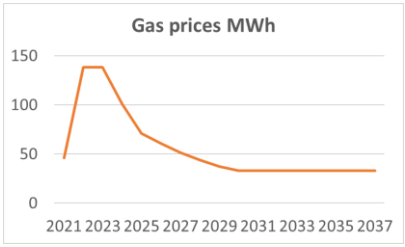



**Figure 38 - Gas prices in MWh**

Following the Russian invasion of Ukraine gas prices have skyrocketed because of European sanctions and Putin's energy war against Europe of declining the supply of natural gas to Europe as mentioned before.

**This has skyrocketed natural gas prices, in 2022 they averaged 134€ per MWh compared to 46€ per MWh in 2021**. We used the European benchmark for natural gas prices: the Dutch Transfer Facility (TTF) futures to compute the price until 2025. From there onwards we have the prices declining until they stabilize at 31€ per MWh, according to Rystad Energy forecasts (Figure 38).

**Higher prices mean higher margins for Galp, who has largely benefitted from these market conditions**, has such we adjusted proportionally the EBITDA margin to reflect these changes.

- *Cogeneration*

Finally, the Industrial and Energy Management segment includes the cogeneration business. The installed capacity, utilization rate of the plant and the special regulated regime at which Galp sells electricity to Portugal's grid the ERSE tariff are the value drivers in this business.

Same as the refining business the capacity of Galp took a hit after the Matosinhos refinery closed. Galp now only operates in Sines. **The plant has a capacity of 91 MW** and at the time of writing, Galp didn't disclose on the reports any plans to increase capacity as such we assumed it to be the same throughout our forecasting period.

Regarding the utilization rate, we expect it to be at 88% following historical utilization rates. Galp will continue to use this form of green energy in line with Galp's strategy of reducing carbon emissions we believe the utilization rate to maintain during our forecasting period. **This translates into a yearly production of 980 GWh as reported by Galp.**

**The price at which Galp sells the produced electricity is regulated at the ERSE tariff and gives priority to the electricity produced in the plant to be sold to the grid** meaning every electricity produced is sold at the state fixed price of 0.055 per GWh. This regime offers stability to the business seeing that it is not exposed to energy price fluctuations but also limits any bigger profit opportunities in energy price rises.

Finally, to calculate the EBITDA we used the historical average of margin EBITDA to earnings of 4% because as we said it is a stable business and there aren't any plans for expansion or restructuring now, so we expect it to maintain throughout our forecasting period.

This business doesn't offer growth opportunities, but it is important for Galp's environmental path and provides stable net revenues.

## *Aurora*

Aurora is an equally shared joint venture with Northvolt and its aim is to develop a lithium conversion factory. **This type of factories is expected to be highly relevant since it produces a critical component to electrical car batteries** that has said before will have a growing market share in the automotive sector in the future.

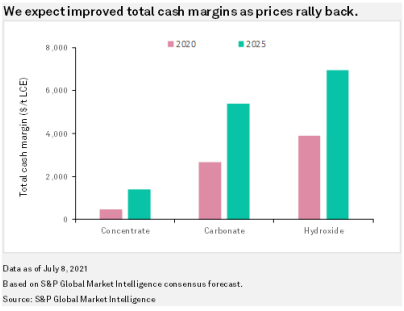



**Figure 39 - Lithium Margins**

**We decided to value Aurora on its own** for simplistic reasons and then add the FCF corresponding to Galp in the Industrial and Energy Management segment since although Galp hasn't mention Aurora's segment it seems the most appropriate one due to it dealing with industrial raw non-renewable materials. The half of the FCF in the investment corresponding to Aurora was then added to our income attributable to non-controlling interest forecast.

The factory will import lithium and convert it to lithium hydroxide as explained in the picture above. Galp expects production to be 35000 tons and according to Goldman Sachs the margin expected for this kind of production is 7000$ per produced ton (Figure 39). Other assumptions for computing Aurora's FCF was using a 10-year straight-line method for depreciation, also we estimated the investment (700$m) to take place next year in 2023 and 3

years to build the factory similar to other lithium conversion facilities so operations star in 2026.

This business venture is a testament to Galp's strategy of adapting its business to new opportunities.

## *Renewables*

The goal of the Renewables & New Businesses unit is to create a sustainable and diverse portfolio of renewable energy generation that can benefit from synergies with the remaining energy businesses of the company, namely Commercial, and further the company's goals for carbon intensity reduction and energy transition.

| Equity Value Model | | |
|---|---|---|
| Price paid for 25% of Titan | 140.00 | €m |
| Total titan portfolio | 1.15 | GW |
| Additional expected 2024 portfolio | 1.60 | GW |
| Total titan portfolio 2024 | 2.75 | GW |
| Price per GW | 203.64 | €m/GW |
| 2030 valuation (12GW) | 2443.64 | €m |
| Uncertainty factor | 0.30 | % |
| Grey Sky | 0.5 | % |
| Blue Sky | 0.2 | % |
| 2022 value | 1386.67 | €m |
| Value added per share | 1.67 | € |
| Grey Sky | 1.19 | € |
| Blue Sky | 1.91 | € |

**Figure 40 - Renewables Value Model**

Between 2021 and 2025, the Company anticipates allocating, on average, 30% of the Group's estimated annual net capital expenditures to the expansion of its portfolio of renewable energy sources. For the development of solar power plants and the installation of EV charging stations in Iberia in 2021, Galp obtained up to €732 m from the European Investment Bank (EIB). This was a significant step in accelerating the development of such projects and assisting the Company in hastening the incorporation of low-to-no-carbon energy alternatives in its businesses.

This segment is quite recent (started operations in 2019) but is crucial to Galp's long term strategy of focusing on renewable energy. With this Galp will be able to "survive" the switch of energy sources that the world will witness in the coming years with governments committed to reducing carbon emissions, it will also make the company in the future much more stable since it won't be so affected by commodity price swings and will have a much more diversified portfolio when it comes to energy sources. According to Barclays, **Galp is growing their renewables capacity quicker than its peers.**

To value the Renewables and New energies segment we opted for a **equity value model** due to the lack of cashflows the segment produces at this stage being an early phase.

For this method we guided ourselves on the recent acquisition of the full ownership (acquired the last 24.99% it didn't own) of Titan solar (Titan 2020 S.A.). Titan has 1.15 GW of solar power and has an additional expected capacity of 1.6 GW in 2024 which makes the total portfolio in 2024 of 2.75 GW. From this operation we were able to compute the price per GW at market value of about 203 million € per GW.

**Galp is aiming to have 4 GW by 2025 and in 2030 12 GW**. It is an ambitious goal, and it shows the company's commitment to being greener and reducing its carbon footprint and we believe Galp to being on track on its 2025 having about 1 GW today and around 4.7 GW in construction. This being said, it is still not certain that Galp will reach that goal and much less certain it will reach the even more ambitious 2030 target. Because of this we decided to apply a 30% discount uncertainty rate to our model that we believe to be appropriate to account for Galp not reaching is target or changing factors in this still early business.

The Renewables segment 2022 equity value that we got by discounting the value with the segment WACC is 1235.5 million € that translates to about 1.49€ added value per share.

## Financials

### *Capital Expenditures*

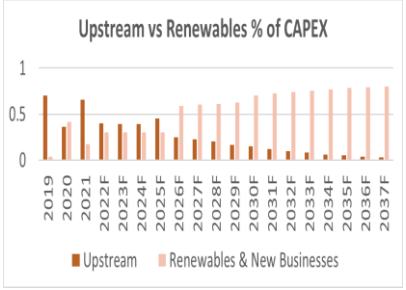



**Figure 41 - Upstrean vs Renewables % of CAPEX**

Capital expenditures were calculated individually for each segment but also taking into account the strategy of the whole company. In the latest reports **Galp announced that it is targeting to increase weight of Renewables in the company's CAPEX** since it regards as a very important segment crucial for the company's future as such Galp expects Renewables to account for 30% of CAPEX until 2025 and we expect that value to keep increasing in our forecast window up until more than 50% expecting CAPEX of Renewables to be a function of GW capacity that will grow threefold from 2025 to 2030.

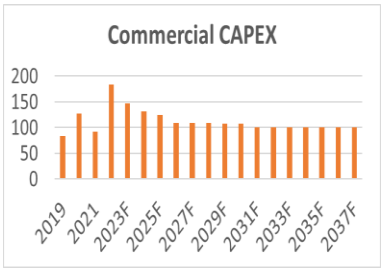



**Figure 42 - Commercial CAPEX**

**Regarding Upstream we expect CAPEX to gradually decrease** as production of oil decreases and as the company pivots to be greener and more sustainable also freeing investment to flow to the Renewable business. **For Industrial & Energy Management we expect CAPEX to grow until 2030** when Galp is expecting to transform the Sines refinery into a Green Hydrogen refinery that being said we expect the expenditures to be much substantial since it won´t entail a complete transformation of the refinery and we expect it to be gradual instead of a more sudden process. Lastly the **Commercial's segment CAPEX was calculated as a function of the growth of service stations and charging points** that Galp is planning on having.

## *Net Working Capital*

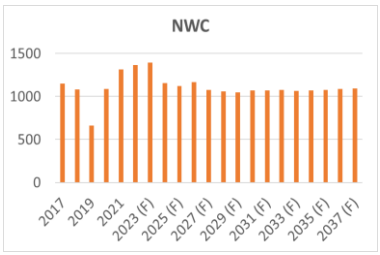



**Figure 43 - NWC**

Net Working Capital was calculated first for the whole company as the sum of Operating Cash, Account Receivables and Inventories and then subtracting Account Payables. Each segment was then "awarded" a certain percentage of Galp's total NWC based on the percentage of revenues each segment had in the total revenues.

## *DD&A*

For Depreciations and amortizations our calculations were based on the tangible fixed assets computed by our capex forecasts for the segments of Upstream Commercial and Industrial and Energy Management. Given the tangible fixed assets forecasts we used the average of depreciation over the former in each of the mentioned segments in the last 5 years excluding 2020 which we believe is a non-representing year due to the Covid 19 pandemic. With all this inputs we were able to forecast DD&A for each segment.

# Valuation

## *DCF + SOP*

| Valuation | |
|---|---|
| Debt | -9825 |
| Value of Equity without Area 4 and Renewables | 22943 |
| Non-controlling interests | 389 |
| Number of shares outstanding | 829250635 |
| Price of Share without Area 4 and Renewables | 28,14 |
| Area 4 added value | 1,09 |
| Renewables added value | 1,67 |
| Price of Share | 30,90 |
| Price at 15/12/2022 | 11,98 |
| Return | 158% |
| Reccommendation | BUY |

**Figure 44 - Final Valuation**

For our valuation we used a Discounting Cashflow method combined with a sum of all parts approach. After calculating the EBIT of the Upstream (without Area 4), Commercial and Industrial & Energy Management segments we subtracted the tax applying the company's tax rate of 31.5% which we assumed to remain the same throughout our forecasting period, we then added Depreciation and subtracted CAPEX and NWC to reach to our Operating Free Cashflow of each year.

To compute the value of enterprise we discounted the cashflows with the according WACC of the segment with a growth of 1% limited to the Portugal's GDP expected growth (according to Statista). For the Upstream segment however, there won't be any growth beyond our forecasting period, in line with the company's objectives.

Furthermore, we summed the value of enterprise value of the mentioned segments subtracting the income attributable to non-controlling interests and the value of financial debt, which was discounted at our computed cost of debt, the final value of debt is in line with the company's current debt to equity structure which isn't expected to change.

At last, we divided the former by the number of outstanding shares and summed the added price of share of the Renewables segment and the Area 4 valuation.

**Our final forecasted price is 30.90€ which given the current price of 11.98€ gives a return of 158% hence our recommendation is BUY.**

The high value is explained by two-fold. **In the short term, Galp is very well positioned to take advantage of the favourable market conditions such as high gas and oil prices in the short-medium term.** This won't last forever though and contrary to most of the industry, Galp has a clear strategy and is ahead of its peers in currently transforming the company in order to be able to

adapt. **Changes in most of its segments like charging stations in commercial, hydrogen plant in Industrial and Energy Management and the growth of Renewables segment will provide long term value** when Upstream won't be as profitable.

## *Scenario Analysis*

| Base Case Scenario | |
|---|---|
| Oil prices 2025 | 66 |
| Gas prices MWh/€ 2025 | 100 |
| Gas prices MMBtu/$ | 3.63 |
| Refining margin 2025 | 3.5 |
| $ to € 2025 | 1.2 |
| Uncertainty factor | 0.3 |

**Figure 45 - Base Case Scenario**

For our scenario analysis we decided to change some of our assumptions from 2025 onwards believing that any time before that these values are already influenced by today's factors and probably won't change. That isn't the case for 2025 onwards though so we thought it was important to incorporate a "grey skies" (bad scenario) and "blue skies" (good scenario) scenarios in order to grasp how these figures could change the valuation apart from our base scenario.

| Grey Sky Scenario | |
|---|---|
| Oil prices 2025 | 50 |
| Gas prices MWh/€ 2025 | 33 |
| Gas prices MMBtu/$ | 3 |
| Refining margin 2025 | 3.3 |
| $ to € 2025 | 1.3 |
| Uncertainty factor | 0.5 |

**Figure 46 - Grey Sky Scenario**

For the grey skies' scenario, we inputted oil prices to stagnate at 50$ per barrel following a decline in the world demand and for oil Gas prices to come back to pre–Ukrainian Russian war prices sooner returning to 33€ per MWh and 3$ per MMBtu. Other changing assumption are the refining margin which in this case doesn't improve and stays at 3.3$ per barrel, dollar to euro exchange rate at 1.3 and the uncertainty factor discounting Area 4 and Renewables increasing to 0.5.

| Blue Sky Scenario | |
|---|---|
| Oil prices 2025 | 80 |
| Gas prices MWh/€ 2025 | 120 |
| Gas prices MMBtu/$ | 5 |
| Refining margin 2025 | 4 |
| $ to € 2025 | 0.8 |
| Uncertainty factor | 0.2 |

**Figure 47- Blue Sky Scenario**

For the blue skies' scenario, we took the opposite approach and were very optimistic about the assumptions mentioned before, note that this is optimistic in Galp's perspective and not exactly for general economy. For this scenario our assumptions are as follows: oil prices and gas prices stay high at 80$ per barrel and 120€ per MWh and 5$ per MMBtu respectively, this could be because oil demand stays high as countries fail to meet their targets for decarbonization or a prolonged Ukrainian Russia war and Europe's failure to diversify from Russian energy dependence. Furthermore, the refining margin would evolve better than we expect following a rapid integration in Sines refinery also, the dollar would stay strong, and the euro wouldn't recover to its previous value lastly, the uncertainty factor is downed to 0.2.

For both scenarios the recommendation is still BUY, for grey sky scenario the price target is 20.82€ with a return of 74% and for blue skies scenario the recommendation jumps to 37.43€ with a return of 212%. **This proves the resilience of Galp and the strength of its fundamentals. Galp is indeed a valuable company and is not just inflated by good market conditions.**

## *Multiple Analysis*

We decided to do a multiple analysis to complement our previous forecasts, but we don't consider the best valuation method to be used on its own. This analysis can give us a perception of how the industry is valued and how Galp compares against its peers. As we can see in the picture Galp is above average looking at EV/EBITDA, which points to Galp being overvalued in relation to its peers but an EV/EBITDA value bellow 10 is considered good. On the contrary **Galp is below average when looking at P/SALES, so it is generating more revenue per euro invested**. (Figure 49)

Looking at the other graph (Figure 48) we can see Galp is indeed above average in most categories except for the categories that involve sales, that being said none of the ratios are bad so it points to the industry being a good investment.

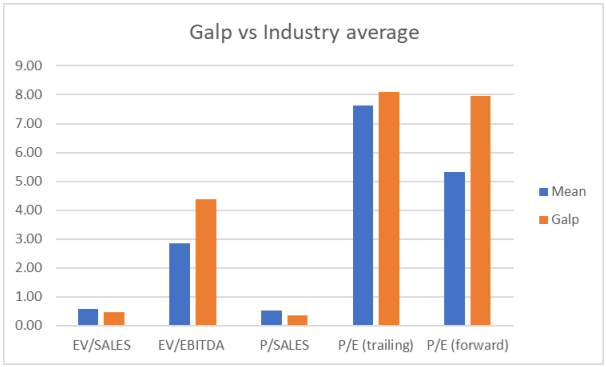



**Figure 48 - Galp vs Industry average**

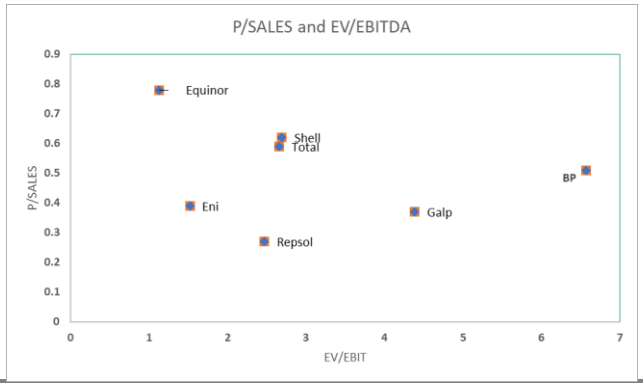



**Figure 49 - P/SALES and EV/EBITDA**

# Appendix

## Appendix 1: Balance Sheet

| REFORMULATED BALANCE SHEET AND FORECAST | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| in millions | 2017 | 2018 | 2019 | 2020 | 2021 | 2022F | 2023F | 2024F | 2025F | 2026F | 2027F | 2028F | 2029F | 2030F | 2031F | 2032F | 2033F | 2034F | 2035F | 2036F | 2037F |
| **CORE** | | | | | | | | | | | | | | | | | | | | | |
| Operating Cash | 24 | 30 | 29 | 34 | 39 | 43 | 44 | 37 | 35 | 34 | 33 | 33 | 32 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| % of reveneus | 0.2% | 0.2% | 0.2% | 0.3% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% | 0.2% |
| Accounts receivable | 2016 | 1852 | 1915 | 1759 | 2267 | 2806 | 2865 | 2409 | 2365 | 2315 | 2204 | 2175 | 2150 | 2202 | 2198 | 2191 | 2185 | 2200 | 2212 | 2227 | 2240 |
| Inventories | 970 | 1171 | 1055 | 708 | 1007 | 1555 | 1588 | 1341 | 1265 | 1211 | 1191 | 1182 | 1165 | 1189 | 1181 | 1178 | 1180 | 1188 | 1193 | 1201 | 1207 |
| Prepaid expenses and other current assets | 66 | 200 | 174 | 190 | 992 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 | 324 |
| Property and equipment | 5193 | 5333 | 5671 | 4878 | 5169 | 5512 | 5484 | 5437 | 5462 | 6151 | 6714 | 7190 | 7602 | 7750 | 7835 | 7876 | 7884 | 7867 | 7833 | 7788 | 7738 |
| Operating lease right-of-use assets | 0 | 0 | 1167 | 1002 | 1079 | 812 | 1015 | 977 | 971 | 944 | 977 | 967 | 965 | 963 | 968 | 966 | 965 | 965 | 966 | 966 | 966 |
| Intangible assets | 407 | 547 | 577 | 532 | 645 | 542 | 542 | 564 | 567 | 565 | 571 | 558 | 561 | 564 | 564 | 564 | 564 | 563 | 563 | 564 | 564 |
| Accounts payable | -1858 | -1973 | -2336 | -1413 | -2001 | -3039 | -3104 | -2629 | -2544 | -2395 | -2351 | -2332 | -2301 | -2352 | -2339 | -2328 | -2332 | -2348 | -2359 | -2375 | -2387 |
| Deferred income taxes | 350 | 369 | 367 | 509 | 485 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Goodwill | 84 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 | 85 |
| **Invested Capital Core Business** | 7252 | 7614 | 8704 | 8284 | 9767 | 8639 | 8844 | 8544 | 8530 | 9234 | 9747 | 10183 | 10583 | 10759 | 10849 | 10889 | 10888 | 10877 | 10850 | 10813 | 10770 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| **NON CORE** | | | | | | | | | | | | | | | | | | | | | |
| Loan to Sinopec | 459 | 176 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Other long-term assets | 1772 | 1626 | 1298 | 1151 | 1242 | 1329 | 1255 | 1244 | 1268 | 1274 | 1260 | 1262 | 1266 | 1265 | 1263 | 1264 | 1265 | 1264 | 1264 | 1264 | 1264 |
| Other current liabilities | -21 | -102 | -84 | -130 | -1069 | -281 | -333 | -379 | -439 | -500 | -387 | -408 | -423 | -431 | -430 | -415 | -421 | -424 | -424 | -423 | -422 |
| Other long-term liabilities | -691 | -663 | -757 | -1009 | -1184 | -861 | -895 | -941 | -978 | -972 | -929 | -943 | -953 | -955 | -950 | -946 | -949 | -951 | -950 | -949 | -949 |
| **Invested Capital Non Core Business** | 1060 | 861 | 457 | 12 | -1011 | 187 | 27 | -76 | -149 | -198 | -56 | -89 | -109 | -121 | -117 | -97 | -106 | -110 | -110 | -108 | -106 |
| | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | |
| **FINANCIAL** | | | | | | | | | | | | | | | | | | | | | |
| Excess of Cash | 1173 | 1478 | 1431 | 1644 | 1903 | 2070 | 2114 | 1781 | 1699 | 1632 | 1592 | 1583 | 1561 | 1594 | 1584 | 1580 | 1581 | 1585 | 1592 | 1603 | 1611 |
| Current maturities of long term debt | -551 | -559 | -278 | -539 | -1305 | -656 | -659 | -629 | -623 | -671 | -720 | -750 | -778 | -791 | -798 | -802 | -801 | -800 | -798 | -795 | -792 |
| % of debt | 22% | 21% | 11% | 17% | 44% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% | 23% |
| Long term debt | -2532 | -2686 | -2616 | -3204 | -2995 | -2887 | -2901 | -2770 | -2741 | -2956 | -3170 | -3302 | -3426 | -3480 | -3510 | -3530 | -3527 | -3522 | -3513 | -3501 | -3488 |
| % of invested capital | -30% | -32% | -29% | -39% | -34% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% | -33% |
| Total operating liabilities | 0 | 0 | -1224 | -1089 | -1179 | -1156 | -1162 | -1109 | -1098 | -1184 | -1269 | -1322 | -1372 | -1393 | -1406 | -1414 | -1412 | -1410 | -1407 | -1402 | -1397 |
| % of debt | 0% | 0% | 47% | 34% | 39% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% | 40% |
| **Net Financial Assets** | -1910 | -1767 | -2687 | -3187 | -3575 | -2629 | -2608 | -2728 | -2763 | -3179 | -3567 | -3791 | -4015 | -4070 | -4129 | -4165 | -4159 | -4147 | -4125 | -4096 | -4066 |
| Change in Net Financial Assets | | 143 | -920 | -500 | -388 | 946 | 21 | -119 | -36 | -416 | -388 | -223 | -225 | -54 | -60 | -36 | 6 | 12 | 21 | 29 | 31 |
| | | | | | | | | | | | | | | | | | | | | | |
| **Total Stockholders' equity** | 5779 | 6047 | 5657 | 4100 | 3970 | 6771 | 9532 | 11850 | 13216 | 14296 | 15274 | 16094 | 16893 | 17588 | 18248 | 18801 | 19278 | 19698 | 20074 | 20420 | 20754 |

## Appendix 2: Income Statement

| REFORMULATED INCOME STATEMENT AND FORECAST | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **in millions** | **2017** | **2018** | **2019** | **2020** | **2021** | | **2022F** | **2023F** | **2024F** | **2025F** | **2026F** | **2027F** | **2028F** | **2029F** | **2030F** | **2031F** | **2032F** | **2033F** | **2034F** | **2035F** | **2036F** | **2037F** |
| | | | | | | | | | | | | | | | | | | | | | | |
| **CORE** | | | | | | | | | | | | | | | | | | | | | | |
| Revenues | 15202 | 17182 | 16570 | 11381 | 16117 | | 20524 | 20965 | 17658 | 16847 | 16182 | 15791 | 15700 | 15476 | 15807 | 15713 | 15665 | 15679 | 15722 | 15791 | 15895 | 15980 |
| Costs of Goods Sold | -12996 | -14543 | -14242 | -9934 | -13315 | Operational Costs | -17824 | -18120 | -15303 | -15609 | -15207 | -15084 | -15156 | -14937 | -15385 | -15296 | -15351 | -15433 | -15504 | -15590 | -15699 | -15769 |
| Selling, General and Administrative Expenses | -320 | -321 | -346 | -356 | -310 | | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Depreciation, Amortisation and Impairments | -762 | -691 | -979 | -1289 | -961 | | -958 | -814 | -779 | -746 | -720 | -719 | -713 | -707 | -702 | -666 | -628 | -590 | -553 | -518 | -485 | -454 |
| Core Result Before Taxes | 1124 | 1627 | 1003 | -198 | 1531 | | 3658 | 3658 | 3134 | 1984 | 1695 | 1426 | 1258 | 1247 | 1125 | 1083 | 942 | 836 | 771 | 719 | 681 | 665 |
| Statutory Taxes | -389 | -577 | -582 | -190 | -511 | | -1152 | -1152 | -987 | -625 | -534 | -449 | -396 | -393 | -354 | -341 | -297 | -263 | -243 | -227 | -214 | -209 |
| Energy Sector Contribution Taxes | -50 | -47 | -45 | -35 | -32 | | -42 | -39 | -36 | -38 | -39 | -38 | -38 | -38 | -38 | -38 | -38 | -38 | -38 | -38 | -38 | -38 |
| Core Result | 685 | 1003 | 376 | -424 | 988 | | 2464 | 2467 | 2110 | 1321 | 1122 | 939 | 824 | 816 | 732 | 704 | 607 | 534 | 490 | 455 | 428 | 417 |
| | | | | | | | | | | | | | | | | | | | | | | |
| **NON CORE** | | | | | | | | | | | | | | | | | | | | | | |
| Restructuring and Impairment Charges | -15 | -14 | 1 | -8 | -7 | | -9 | -9 | -7 | -6 | -8 | -8 | -8 | -8 | -8 | -7 | -7 | -8 | -8 | -8 | -8 | -8 |
| Provisions | -22 | 9 | -8 | -106 | -67 | | -39 | -39 | -42 | -52 | -58 | -48 | -46 | -48 | -47 | -49 | -50 | -49 | -48 | -48 | -49 | -49 |
| Other Income | 105 | 141 | 368 | 187 | 324 | | 225 | 225 | 249 | 266 | 242 | 258 | 241 | 248 | 247 | 251 | 250 | 248 | 249 | 247 | 249 | 249 |
| Other Costs | -78 | -134 | -132 | -156 | -111 | | -122 | -122 | -131 | -129 | -128 | -123 | -126 | -127 | -127 | -127 | -127 | -126 | -126 | -127 | -127 | -127 |
| Net Income From Associates | 163 | 129 | 121 | 220 | 83 | | 143 | 143 | 139 | 142 | 146 | 130 | 143 | 140 | 141 | 140 | 140 | 140 | 139 | 141 | 140 | 140 |
| Non Core Result Before Taxes | 153 | 131 | 350 | 137 | 222 | | 199 | 199 | 208 | 221 | 193 | 210 | 204 | 206 | 206 | 207 | 207 | 204 | 206 | 206 | 206 | 206 |
| Statutory Taxes | -136 | -202 | -203 | -66 | -178 | | -63 | -63 | -65 | -70 | -61 | -66 | -64 | -65 | -65 | -65 | -65 | -64 | -65 | -65 | -65 | -65 |
| Energy Sector Contribution Taxes | -18 | -16 | -16 | -12 | -11 | | -15 | -15 | -14 | -14 | -13 | -14 | -14 | -14 | -14 | -14 | -14 | -14 | -14 | -14 | -14 | -14 |
| **Non Core Result** | **0** | **-87** | **131** | **59** | **33** | | 121 | 121 | 128 | 138 | 119 | 130 | 126 | 127 | 127 | 128 | 128 | 126 | 128 | 127 | 127 | 127 |
| | | | | | | | | | | | | | | | | | | | | | | |
| **FINANCIAL** | | | | | | | | | | | | | | | | | | | | | | |
| Financial Result Before Taxes | -32 | -70 | -74 | -186 | -911 | | -255 | -310 | -356 | -415 | -458 | -334 | -359 | -375 | -385 | -388 | -382 | -368 | -378 | -380 | -380 | -379 |
| % of debt | 6% | 13% | 27% | 35% | 70% | | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| Statutory Taxes | 29 | 43 | 43 | 14 | 38 | | 80 | 98 | 112 | 131 | 144 | 105 | 113 | 118 | 121 | 122 | 120 | 116 | 119 | 120 | 120 | 119 |
| Energy Sector Contribution Taxes | 4 | 3 | 3 | 3 | 2 | | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 |
| **Financial Result** | **0** | **-24** | **-27** | **-170** | **-871** | | -171 | -209 | -241 | -282 | -311 | -226 | -243 | -254 | -261 | -263 | -259 | -249 | -256 | -257 | -258 | -257 |
| | | | | | | | | | | | | | | | | | | | | | | |
| Income attributable to non-controlling interests | -88 | -151 | -90 | -16 | -146 | | 387 | 382 | 321 | 189 | 149 | 135 | 113 | 111 | 96 | 91 | 76 | 66 | 58 | 52 | 48 | 46 |
| % of profit | 15% | 20% | 23% | -3% | 3650% | | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% | 13.8% |
| **Net income** | 597 | 741 | 389 | -551 | 4 | | 2801 | 2761 | 2318 | 1366 | 1079 | 978 | 820 | 800 | 695 | 660 | 552 | 477 | 420 | 376 | 346 | 334 |

# Appendix 3: Cash Flow Map

| Commercial | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2022 F | 2023 F | 2024 F | 2025 F | 2026 F | 2027 F | 2028 F | 2029 F | 2030 F | 2031 F | 2032 F | 2033 F | 2034 F | 2035 F | 2036 F | 2037 F |
| EBIT | 249 | 266 | 283 | 299 | 305 | 312 | 319 | 325 | 332 | 338 | 343 | 349 | 355 | 361 | 367 | 372 |
| Tax rate | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% |
| DD&A | 337 | 305 | 279 | 258 | 242 | 229 | 221 | 216 | 200 | 185 | 173 | 162 | 153 | 145 | 138 | 132 |
| CAPEX | 184 | 146 | 132 | 125 | 109 | 109 | 108 | 108 | 107 | 101 | 101 | 101 | 101 | 101 | 101 | 101 |
| NWC | 46 | 36 | 24 | 42 | 68 | -22 | 6 | 15 | 15 | 17 | 16 | 6 | 12 | 13 | 13 | 13 |
| Operating FCF | 277 | 305 | 316 | 296 | 274 | 356 | 325 | 316 | 304 | 299 | 292 | 295 | 284 | 278 | 276 | 274 |
| Levered EV | 13876 | 13959 | 14032 | 14128 | 14248 | 14290 | 14363 | 14448 | 14547 | 14655 | 14772 | 14889 | 15021 | 15162 | 15309 | |

| Upstream | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2022 F | 2023 F | 2024 F | 2025 F | 2026 F | 2027 F | 2028 F | 2029 F | 2030 F | 2031 F | 2032 F | 2033 F | 2034 F | 2035 F | 2036 F | 2037 F |
| EBIT | 2898 | 2272 | 1350 | 1172 | 927 | 776 | 777 | 665 | 572 | 413 | 291 | 211 | 145 | 94 | 66 | 24 |
| Tax rate | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% |
| DD&A | 207 | 226 | 238 | 247 | 273 | 286 | 292 | 294 | 287 | 275 | 259 | 242 | 223 | 205 | 186 | 168 |
| CAPEX | 363 | 320 | 309 | 450 | 381 | 336 | 301 | 241 | 190 | 152 | 122 | 95 | 73 | 56 | 45 | 32 |
| NWC | -104 | -52 | -62 | 19 | -14 | -26 | -4 | -16 | -14 | -19 | -16 | -12 | -10 | -8 | -5 | -7 |
| Operating FCF | 1932 | 1515 | 916 | 580 | 541 | 507 | 528 | 524 | 502 | 425 | 352 | 304 | 260 | 221 | 192 | 159 |
| Levered EV | 5859 | 4794 | 4246 | 3992 | 3757 | 3539 | 3282 | 3010 | 2739 | 2525 | 2366 | 2244 | 2157 | 2101 | 2071 | |

| Industrial & Energy Management + Aurora | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2022 F | 2023 F | 2024 F | 2025 F | 2026 F | 2027 F | 2028 F | 2029 F | 2030 F | 2031 F | 2032 F | 2033 F | 2034 F | 2035 F | 2036 F | 2037 F |
| EBIT | 511 | 595 | 352 | 225 | 194 | 170 | 151 | 135 | 179 | 191 | 202 | 211 | 219 | 226 | 232 | 238 |
| Tax rate | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% | 31.5% |
| DD&A | 270 | 248 | 229 | 215 | 205 | 198 | 194 | 193 | 179 | 168 | 158 | 149 | 142 | 135 | 130 | 125 |
| CAPEX | 95 | 105 | 115 | 126 | 139 | 153 | 168 | 185 | 95 | 95 | 95 | 95 | 95 | 95 | 95 | 95 |
| Δ NWC | 106 | 45 | -199 | -97 | -6 | -40 | -20 | -12 | 24 | 2 | 2 | -2 | 0 | 1 | 1 | 1 |
| Operating FCF | 420 | -194 | 576 | 362 | 389 | 391 | 339 | 302 | 373 | 391 | 389 | 390 | 369 | 362 | 361 | 360 |
| Levered EV | 12005 | 12633 | 12514 | 12605 | 12672 | 12738 | 12860 | 13024 | 13122 | 13205 | 13294 | 13384 | 13499 | 13625 | 13757 | |

| Others | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| EBIT | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Tax rate | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 | 0.315 |
| DD&A | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 | 12.4 |
| CAPEX | 9 | 8 | 7 | 9 | 14 | 14 | 14 | 13 | 12 | 12 | 11 | 11 | 11 | 11 | 11 | 11 |
| Δ NWC | 0 | 0 | -2 | 0 | 0 | -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Operating FCF | 4 | 5 | 8 | 4 | -2 | 0 | -1 | 0 | 1 | 1 | 2 | 2 | 2 | 2 | 2 | 2 |
| Levered EV | 85 | 82 | 78 | 76 | 80 | 83 | 87 | 90 | 92 | 94 | 96 | 97 | 98 | 99 | 101 | |

| Financial Debt | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 |
| CF Financial Debt | 775 | -150 | -329 | -277 | -697 | -699 | -449 | -468 | -308 | -320 | -299 | -253 | -237 | -234 | -228 | -227 |
| = Value Financial Debt | -9887 | -10005 | -9947 | -9940 | -9512 | -9071 | -8867 | -8640 | -8566 | -8478 | -8408 | -8383 | -8374 | -8366 | -8365 | |

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| | |
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