RISK SCREENING FOR WATER USE

GALP'S WATER RISK ASSESSMENT

SAFETY AND SUSTAINABILITY DEPARTMENT

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CONTENTS

TABLES

ACRONYMS AND ABBREVIATIONS

E&P	Exploration and Production
FAO	Food and Agriculture Organization
G&P	Gas and Power
GWT	Global Water Tool
IPIECA	Global oil and gas industry association for environmental and social issues
TRWR	Total Renewable Water Resources
UNH	University of New Hampshire
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute

1. INTRODUCTION

Water is an essential natural resource for the operation of all industrial activities. The current trends of population growth and consequent urbanization and industrialization have resulted in this resource being increasingly subject to numerous pressures - locally, regionally and globally -, which threaten its sustainability.

In that sense, companies are increasingly concerned with assessing the future availability of water in the areas where they operate and in determining the risks and impacts inherent in the use of water in their activities. In recent years, various tools and methodologies have been developed to help companies respond to this challenge.

The Safety and Sustainability Department of Galp, whilst aware of the need to highlight these topics in its corporate activities, has drawn up and published strategic plans and support studies related with potential impacts of its operations, demonstrating its permanent concern with this theme.

Once the Global Water Tool (GWT) used in previous reports has been discontinued, we have been using, since 2019, the WWF Water Risk Filter and the WRI Aqueduct Water Tool. The Water Risk Filter developed by WWF and the German finance institution DEG and supported by the World Business Council for Sustainable Development (WBCSD), has become a leading and trusted source of water risk data for multinational corporations, SMEs, and financial institutions. This tool helps companies and investors assess and respond to water-related risks facing their operations and investments across the globe. The WRI Aqueduct Water Tool was developed with the support of the Aqueduct Alliance, a coalition of companies, governments and foundations at the cutting edge of water stewardship. This tool map water risks such as floods, droughts, and stress, using open-source, peer reviewed data. It is used to identify and evaluate water risks around the world.

These tools have the advantage of being available online, free of charge, and useful for companies to assess and disclose the use of water and qualitative risks associated with it, in terms of availability and access to water.

The application of the tools presented can be interesting as a first approach to the dissemination of the use of water in Galp and to a risk assessment. However, for the proper management of risks associated with water quality and availability, it is necessary to complement the results obtained in the application of this tool with studies and specific instruments of operational management of the risks and impacts to the facilities at a local scale.

2. SCOPE AND LIMITATIONS

At Galp, any scarcity or uncertainty related with resources, in particular water, both in the present and in the future, represents an operational and strategic concern. In this sense, the knowledge of the risks associated with the use of water in the various regions where it operates or holds a stake is fundamental to the sustainable growth of the Company.

The present document has been prepared with the purpose of presenting the risks associated with water resources, in all locations where Galp Energia oerates, through the results obtained from the application of the WWF Water Risk Filter and the WRI Aqueduct Water Tool. Thus, the scope of the study extends to all facilities in which Galp Energia operates or holds a stake, except for the Retail department. On the other hand, this analysis also includes the upstream projects portfolio of the Company, including projects at different stages of development (operation, sanctioned and/or pre-sanctioned, etc...), in order to accompany the strong growth of the upstream segment. In total **85 sites were analysed according to the Company's activities**, organized into the following areas:

- Biofuel units (3);
- Exploration & Production (E&P) (32) (3 *onshore* and 29 *offshore*);
- Renewable Energy Sources (22);
- Storage Facilities (SF) & Terminals (24);
- Refining (2);
- Cogeneration Units (2).

The list of sites under consideration can be consulted in detail in Annex I, as well as the respective coordinates used in the application of the WWF Water Risk Filter and the WRI Aqueduct Water Tool.

The indicators applied to the tool and analysed in this document are divided into two large groups, indicators per use/availability of water of the countries and indicators per watershed.

Indicators per use/availability of water of the countries:

- Total Renewable Water Resources - TRWR in 2019 and projections scenarios for 2025 and 2050;
- Total Water Withdrawal in 2002 (average);

- Industrial Water Withdrawal as part of Total Water Withdrawal in 2002 (average);
- Dependency Ratio;
- Population Served with Improved Water in 2019;
- Population Served with Improved Sanitation in 2019;

Watershed Indicators:

- *Annual Renewable Water Supply* in 2008 and projections scenarios for 2025;
- Baseline Water Stress Index in 2019;
- Physical Water Scarcity (Quantity) in 2019.

The meaning of these indicators can be better understood by reading the corresponding definitions available in the Glossary.

The results for the 2025 and 2050 projections are based on the application of the GWT, before it was discontinued. The indicators 'Water Withdrawal' and 'Annual Renewable Water Supply' are also based on the application of this tool. The use of the GWT entails several limitations, which must be considered when interpreting study results. The potential effects of climate change on water resources are not considered in GWT projections, owing to the complexity of this subject. As such, these projections should be viewed as rough indicators, given the uncertainty involved.

Offshore E&P blocks were only considered for the purpose of assessing eventual risks for the corresponding geographical land areas that are associated with or near them. It should be note that in the most of offshore blocks, the freshwater consumption is represented by a small portion of the total amount of water used in upstream activities. This fresh water has the main purpose human supply, representing no significant volume for the activity, which main use/consumption comes from saltwater. Since saltwater, not classed as scarce, is predominantly used, the risks associated with these facilities are negligible. Therefore, the conclusions reached within the scope of risk analysis by country should be considered. Regarding risk analysis by watershed, these sites shall be included in the "No Data" category.

3. RESULTS AND DISCUSSION

In this chapter we present the results obtained per activity of Galp, also taking into account the countries where these activities are in place. Subsequently, in each approach there are nine water indicators, which are grouped into two categories: water indicators per country (6) and water indicators per watershed (3).

In Annex II also present the values of the specific indicators for each site, grouped by type of activity. These tables are a summary of the results presented in the document, which allows a better distinction between sites located in areas of greatest risk associated with availability/use of water.

We present the results of the sites under analysis, synthesized according to the area of activity of each one. The areas of activity are broken down as follows:

- Biofuels
- Exploration & Production
- Renewables & New Businesses
- Storage Facilities & Terminals
- Refining
- Gas and Power

Biofuels

In the biofuel's activity, it is analysed a production plant of second-generation biofuels - Enerfuel (Portugal) - and two fields with crop plantations for the production of biofuels (Brazil).

Indicators by country

Total Renewable Water Resources:

- For the three scenarios, the countries where the sites are located presented values of abundant water availability.

Total Water Withdrawal (industrial, domestic and agricultural):

- Portugal is a country characterized as medium-high in terms of total withdrawal.
- In Brazil the level of Total Water Withdrawal is considered low.

Industrial Water Withdrawal:

- Countries characterized with low percentage of withdrawal in this sector.

Dependency Ratio:

- Countries characterized with an average Dependency Ratio.

Population Served with safe drinking water:

- Both countries characterized with high percentage of population served.

Population Served with Improved Sanitation:

- Portugal: High percentage of population served.
- Brazil: medium-high percentage of population served.

Watershed Indicators

Annual Renewable Water Supply *per capita*:

- For both scenarios, current (2008) and medium-term (2025), the watersheds where the sites are located presented values of water availability characterized as abundant.

Baseline Water Stress Index:

- The two Brazil sites under analysis are located in watersheds whose index is classified as low, thus revealing that for these sites, water consumption at current levels does not put in risk the sustainability of existing water resources. On the other hand, Enerfuel was classified as extremely-high index.

Physical Water Risk (Quantity):

- Palma crops (Tomé-açu/Pará) is characterized as having high risk, and Palma crops (Tailândia/Pará) and Enerfuel as having some physical water risk.

Note: The sites associated with the biofuels activity do not have water risks. Although within the scope of this study there are no water risks related, water monitoring campaign to these sites may be done, in order to check the sensitivities to which they may be subject to.

Exploration & Production

In the E&P area, Galp holds a stake in Blocks located in Angola (3), Brazil (21), Mozambique (2), Namibia (2), S. Tome and Principe (3) and East Timor (1), totalling a set of 32 blocks.

In this study, we are reminded that in the blocks of offshore E&P the analysis follows a merely informative purpose regarding water risks, since they are located in the ocean and the data presented here are associated with terrestrial geographical areas located nearby. Note also that in most offshore Blocks, the consumption of water from sources of fresh water corresponds to a small fraction of the activity's consumption, which aims to supply water for human consumption, whereby it represents negligible volumes, where the main consumption/use comes from salt water. Thus, the water risks associated with the sites under these conditions are practically negligible, since the main use comes from a water source whose use is not characterized as being scarce – unlike freshwater.

Indicators by country

Total Renewable Water Resources:

- Current scenario – All the countries where Galp has activity in the E&P area do not have, currently, water risks. For East Timor it has not been possible to obtain information.
- Medium (2025) and long-term (2050) scenario – E&P Blocks, for both scenarios, are located in countries where water availability is abundant or sufficient (Angola Block's).

Total Water Withdrawal (industrial, domestic and agricultural):

- Smaller withdrawal volumes are recorded in countries located in Africa (Angola, Mozambique, Namibia and Sao Tome and Principe).
- Larger volumes of water withdrawal can be seen in the remaining countries.
- No information was obtained for East Timor.

Industrial Water Withdrawal:

- Similar results in all countries, with a low percentage of withdrawal in this sector (below 20%).
- No information was obtained for East Timor.

Dependency Ratio:

- Greater external dependence on water: Mozambique and Namibia.
- Zero water dependency: Angola and São Tomé and Principe.
- Medium external dependency: Brazil.
- No information was obtained for East Timor.

Population Served with safe drinking water:

- Low percentage of population served: Angola and Mozambique.
- Medium percentage of population served: Namibia.
- High percentage of population served: Sao Tome and Principe, and Brazil.

Population Served with Improved Sanitation:

- Low percentage of population served: Angola, Mozambique, Namibia, São Tomé and Principe.
- Medium-high percentage of population served: Brazil.

Watershed Indicators

In this section of indicators per water withdrawal area, it has not been possible to obtain results for all the sites presented for the E&P activity. Below is the information collected for sites located in onshore Blocks for which it was possible to get results: Brazil (2).

Annual Renewable Water Supply *per capita*:

- Current scenario – two of the onshore blocks, located in Brazil (Rabo Branco Field) and Mozambique (LPG Plant) are located in watersheds with water availability classified as being sufficient.

- Medium term scenario (2025) – renewable water resources are likely to decrease in the watershed of Rabo Branco Field, becoming liable to water stress. Also, the watershed of the Sanhaçu Field tends to decrease water availability, being likely to reach levels characterized as sufficient.
- For the remaining blocks, water risks are not identified in terms of water availability, as they are located in watersheds with abundant water availability, for both scenarios.

Baseline Water Stress Index:

- Of the Blocks under analysis, with available results, all are located in watersheds whose index is classified as low-medium, revealing that, for these sites, water consumption at current levels do not put in risk the sustainability of existing water resources.

Physical Water Risk (Quantity):

- Sanhaçu Field Block and Rabo Branco Field, in Brazil are located in watersheds characterized as having high levels of physical water risk.

Note: The E&P blocks identified as having water risks, should be monitored with particular attention by their respective business units in order to minimize possible impacts in terms of this resource. In the case of blocks likely subject to water risks, taking into account the projections at medium and long-term, it is recommended that actions and measures aimed at the adaptation of these sites be promoted in order to check the sensitivities to which they may be subject to. It is further recommended, in prior studies of project realization, that the analysis on availability of the water resource at the site be included in order to predict, in advance, the possible risks that may affect the sustainable development of the activity, as well as of the surrounding community.

Renewables & New Businesses

In the Renewables & New Businesses activity, 22 facilities are included, which three are in Portugal and 19 in Spain.

Indicators by country

Total Renewable Water Resources:

- Both in the current scenario, medium (2025) and long-term (2050) projections, the facilities are associated to a country with abundant water availability.

Total Water Withdrawal (industrial, domestic and agricultural):

- Portugal is a country characterized as being medium-high in terms of total withdrawal, followed by Spain.

Industrial Water Withdrawal:

- Portugal is a country characterized by a low percentage of withdrawal in this sector.

Dependency Ratio:

- Portugal has a medium external dependency.
- Lower external dependency - in Spain.

Population Served with Improved Water:

- Portugal and Spain have a high percentage of population served.

Population Served with Improved Sanitation:

- Portugal and Spain have a high percentage of population served.

Watershed Indicators

Annual Renewable Water Supply *per capita*:

- Information has not been identified for the respective areas.

Baseline Water Stress Index:

- Parkalgar is classified as extremely-high index, revealing that this site is located near water resources that are at high risk in terms of sustainability. The other facilities in Portugal are located in watersheds whose index is classified as being medium-high, thus revealing that for these sites the consumption of water at current levels can put in risk the sustainability of existing water resources. It has been assumed that the facilities in Spain are located in watersheds whose index is classified as being high.

Physical Water Risk (Quantity):

- Parkalgar, Ventiveste and Parque Vale Grande are characterized with some physical water risk.

Note: The facilities identified as having water risks should be monitored with particular attention by their respective business units in order to minimize possible impacts in terms of this resource as well as of the surrounding community. In the case of facilities likely to being subject to water risks, taking into account the projections in the medium and long-term, it is recommended that actions and measures aimed at the adaptation of these sites be promoted in order to check the susceptibilities that they may be subject to.

Storage Facilities & Terminals

The fuel storage parks owned by Galp are spread over several geographical areas: Cape Verde (3), Spain (3), Guinea-Bissau (3), Mozambique (2), Portugal (9) and Eswatini (1). As for the three terminals, all are located in Portugal. In total, 24 facilities are addressed in this activity, which are below analysed according to each indicator.

Indicators by country

Total Renewable Water Resources:

- Current scenario - facilities located in Cape Verde are characterized by water scarcity situation.
- Medium (2025) and long-term (2050) scenario- facilities located in Cape Verde are more likely to match a situation of extreme water scarcity.
- The remaining storage parks and terminals, in both scenarios, are located in countries where water availability is abundant or sufficient.

Total Water Withdrawal (industrial, domestic and agricultural):

- Smaller withdrawal volumes were recorded in the countries located on the African continent.
- Larger volumes of water withdrawal are identified in Portugal, followed by Spain.

Industrial Water Withdrawal:

- Similar results in all countries, with a low withdrawal percentage in this sector (below 20%).

Dependency Ratio:

- Greater external dependency on water – Mozambique was the country that showed a greater dependency for this area of activity.
- Lower external dependency - in Spain and Cape Verde. In particular for Cape Verde, this water independence may be due to water being obtained through a desalination process.

- The other countries under analysis have a medium Dependency Ratio.

Population Served with Improved Water

- Low percentage of population served: Mozambique.
- Medium percentage of population served: Guinea-Bissau and Eswatini.
- Medium-high percentage of population served: Cape Verde.
- High percentage of population served: Spain and Portugal.

Population Served with Improved Sanitation:

- Low percentage of population served: Mozambique and Guinea-Bissau.
- Medium percentage of population served: Cape Verde and Eswatini.
- High percentage of population served: Spain and Portugal.

Watershed Indicators

In this section of indicators per watershed, it was not been possible to obtain results for all facilities belonging to this activity. Below is the information collected for facilities located in Mainland Portugal, Spain (Mérida Park), Mozambique and Eswatini.

Annual Renewable Water Supply *per capita*:

- Current scenario - The Storage Park of Mitrena is located in a watershed whose water availability is scarce. This result may be because this indicator is presented in the form of m^3/person/year, which will vary depending on the population density associated with the location of the watershed.
- Medium term scenario (2025) - the situation for the Mitrena Storage Park remains and you can see that the LPG Park located in Mozambique will be likely to be located in a watershed with water shortage.
- For the remaining Galp sites there are no water supply risks associated in both scenarios.

Baseline Water Stress Index:

- The facilities in Mozambique and Eswatini are located in watersheds whose index is classified as being low and low-medium, respectively, revealing that water consumption at current levels does not put at risk the sustainability of existing water resources. In the other hand, Sigás, Park of Bancas de Sines, Park of Mitrena, and Terminal de Sines are located in sites classified with extremely-high index. Park of Mérida is classified with high, and Viana do Castelo Terminal and Terminal de Leixões with medium high.

Physical Water Risk (Quantity):

- Park of Mérida (Spain) and Matsapha Fuels Park (Eswatini) are located in watersheds with some risk of physical scarcity of water.
- The other facilities are characterized as having limited risk.

Note: The facilities identified as having water risks should be monitored with particular attention by their respective business units in order to minimize possible impacts in terms of this resource as well as of the surrounding community. In the case of facilities likely to being subject to water risks, taking into account the projections in the medium and long-term, it is recommended that actions and measures aimed at the adaptation of these sites be promoted in order to check the susceptibilities that they may be subject to.

Refining

The Refining activity covers two refineries, both located in Mainland Portugal (Matosinhos and Sines).

Indicators by country

Total Renewable Water Resources:

- Both in the current scenario, medium (2025) and long-term (2050) projections, the facilities are associated to a country with abundant water availability.

Total Water Withdrawal (industrial, domestic and agricultural):

- Portugal is a country characterized as being medium-high in terms of total withdrawal.

Industrial Water Withdrawal:

- Portugal is a country characterized by a low percentage of withdrawal in this sector.

Dependency Ratio:

- Portugal has a medium external dependency.

Population Served with Improved Water:

- Portugal has a high percentage of population served.

Population Served with Improved Sanitation:

- Portugal has a high percentage of population served.

Watershed Indicators

Annual Renewable Water Supply *per capita*:

- For both scenarios, the refineries are associated to a watershed with abundant water availability.

Baseline Water Stress Index:

- The Sines refinery is located in a watershed whose index is classified as extremely-high, and Matosinhos Refinery as medium-high.

Physical Water Risk (Quantity):

- Sines and Matosinhos Refinery are characterized by a limited physical water risk.

Note: No water risks have been identified in the refineries – however it is a condition that does not invalidate monitoring by the respective business unit in order to guarantee their non-existence.

Gas and Power

In the Gas and Power (G&P) activity, two (2) facilities are included, which correspond to the Cogeneration Units, located in Mainland Portugal.

Indicators by country

Total Renewable Water Resources:

- Both in the current scenario, medium (2025) and long-term (2050) projections, the facilities are associated to a country with abundant water availability.

Total Water Withdrawal (industrial, domestic and agricultural):

- Portugal is a country characterized as being medium-high in terms of total withdrawal.

Industrial Water Withdrawal:

- Portugal is a country characterized by a low percentage of withdrawal in this sector.

Dependency Ratio:

- Portugal has a medium external dependency.

Population Served with Improved Water:

- Portugal has a high percentage of population served.

Population Served with Improved Sanitation:

- Portugal has a high percentage of population served.

Watershed Indicators

Annual Renewable Water Supply *per capita*:

- Current scenario – the Cogeneration Unit, Agroger, is located in a watershed characterized as being sufficient. This result may be because this indicator is presented in the form of m^3/person/year, which will vary depending on the population density associated with the location of the watershed.
- Medium term scenario (2025) - the situation described in the "current scenario" remains.
- For the remaining facilities, water risks in terms of water availability in either scenario have not been identified.

Baseline Water Stress Index:

- The facilities are located in watersheds whose index is classified as being medium-high, thus revealing that for these sites the consumption of water at current levels can put in risk the sustainability of existing water resources.

Physical Water Risk (Quantity):

- Agroger is characterized with some physical water risk, and Carriço Co-generation as limited risk.

Note: The facilities identified as having water risks should be monitored with particular attention by their respective business units in order to minimize possible impacts in terms of this resource as well as of the surrounding community. In the case of facilities likely to being subject to water risks, taking into account the projections in the medium and long-term, it is recommended that actions and measures aimed at the adaptation of these sites be promoted in order to check the susceptibilities that they may be subject to.

4. CONCLUSIONS

Through the analysis performed to the Galp sites with the WWF Water Risk Filter and the WRI Aqueduct Water Tool, and according to that which has been presented throughout the document, it is possible to retain the following findings regarding sites owned by Galp in 2020:

- **96,5% of sites** where Galp operates are located **in countries where water availability is abundant or sufficient.**
- **Cape Verde is characterized for being a country with water scarcity**, whose projections tend to worsen towards a scenario of extreme water scarcity. This situation led Galp to developing a more detailed **local study that demonstrates the absence of impacts on freshwater**, given the use of water from the desalination of seawater.
- **Mozambique** and **Namibia** showed the highest dependency ratio, 53% and 84% of their renewable water resources are located outside the country.
- **Angola** and **Mozambique** have a low percentage of population served with safe drinking water and with improved sanitation. **Namibia, S. Tomé and Principe,** and **Ginea-Bissau** have a low percentage of population served with improved sanitation.
- **Enerfuel, Parkalgar, Sigás, Bancas de Sines, Mitrena** facility**, Sines Terminal, and Sines Refinery** showed an extremely-high Baseline Water Stress Index, indicating more competition among users.
- The **Palma crops (Tomé-açu/Pará), Rabo Branco and Sanhaçu assets in Brazil** were characterized as being located in a watershed with high physical risk of water scarcity.

The data obtained result from large-scale analysis of the risks associated with water use in certain geographical areas. As such, detailed analysis is recommended for individual sites, when applicable and according to project lifecycle, so that local risks can be fully understood. Only through a detailed analysis of local conditions will the Company be able to define and adopt management and operating practices that may contribute to mitigating eventual risks.

Table 1 presents a summary list that trace the general panorama of the Galp sites in terms of the risks associated with water resources.

Table 1 - Summary of the water-related risks assessment in Galp Energia sites.

Indicator	
Number of sites analysed	85
GE sites located in countries with water scarcity[1]	3,5%
GE sites located in countries whose water availability are abundant or sufficient	96,5%

[1] According to the results obtained for the TRWR indicator.

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GLOSSARY

Annual Renewable Water Supply: Mean annual renewable water available per watershed, calculated from global runoff data, based on a water balance model developed by the University of New Hampshire (UNH).

Baseline Water Stress Index: Baseline water stress measures the ratio of total annual water withdrawals to total available annual renewable supply, accounting for upstream consumptive use. Higher values indicate more competition among users.

Dependency Ratio: Percentage of renewable water resources located outside a country (including the percentage of rainwater falling on watersheds in neighboring countries that runs off and is consumed by the country in question). This indicator ranges between 0 and 100%, where 0% represents a country whose entire water resources are located within its borders and 100% represents a country whose entire water supply comes from abroad.

Indicator: Qualitative or quantitative data that reflects the results or performance of a company.

Industrial Water Withdrawal as part of Total Water Withdrawal: Total amount of water withdrawn by the industrial sector as a percentage of Total Water Withdrawal, i.e. not including withdrawal for municipal and agricultural uses.

Physical Water Risk (Quantity): Indicator that considers aridity, water Depletion, Baseline Water Stress, Blue Water Scarcity, Projected Change in Water Discharge, Drought Frequency Probability, and Projected Change in Drought Occurrence. Physical scarcity means that consumption of water resources is becoming close to, or has already exceeded, sustainable limits.

Population Served with safe drinking water: Population with access to adequate sources of water for human consumption, i.e. free from external contamination, particularly fecal contamination, either owing to their hydrogeological characteristics or as a result of active intervention.

Population Served with Improved Sanitation: Population with access to sanitation facilities that prevent contact with human waste.

Renewable Water Resources: Amount of water maintained by the water cycle, thus renewed on a regular basis.

Total Renewable Water Resources *(TRWR)*: Maximum theoretical annual amount of water effectively available in a given country, at a given moment, calculated based on data collected by the Food and Agriculture Organization (FAO).

Although this indicator reflects the same concept as "Annual Renewable Water Supply", the values of both indicators are not necessarily identical, as the corresponding calculation methods are significantly different.

Total Water Withdrawal: Total amount of water withdrawn from all sources, permanently or temporarily, for domestic, industrial and agricultural uses. Total water withdrawal includes the withdrawal of surface and underground water, rainwater collection, municipal water supply and use of desalinated and treated water.

ANNEXES

ANNEX I – GALP ENERGIA FACILITY'S COORDINATES

Table 2 - Galp Energia facility's Coordinates (latitude and longitude).

Site	Country	Latitude (deg min seg)	Longitude (deg min seg)	Latitude (deg.ddd)	Longitude (deg.ddd)
Biofuels					
Tailândia/Pará (Palma crops)	Brazil	02° 57' 14''S	46° 57' 00''W	-2.954	-46.95
Tomé-açu/Pará (Palma crops)	Brazil	02° 23' 31''S	48° 08' 52''W	-2.392	-48.148
Enerfuel (2nd Generation Biofuel plant)	Portugal	37° 59' 40''N	08° 49' 30''W	37.995	-8.825
Exploration & Production Blocks					
Campos 791	Brazil	-24° 33' 54"S	-40° 35' 46"W	-24.565	-40.596
Uirapuru	Brazil	-25° 02' 56"S	-43° 48' 40"W	-25.049	-43.811
BM-S-8	Brazil	-25° 28' 34"S	-44° 11' 56"W	-25.476	-44.199
North Bacalhau	Brazil	25º 20' 9"S	43º 59' 27" W	-25.336	-43.991
BM-S-11 A	Brazil	-24° 58' 23"S	-42° 36' 25"W	-24.973	-42.607
BM-S-11	Brazil	-25° 27' 40"S	-42° 49' 30"W	-25.461	-42.825
BM-S-24	Brazil	-25° 24' 54"S	-42° 20' 42"W	-25.415	-42.345
Sépia	Brazil	-25° 13' 23"	-42° 31' 22.8"	-25.223	-42.523
Rabo Branco (onshore)	Brazil	-10° 48' 24''S	-37° 01' 51''W	-10.807	-37.031
Sanhaçu (onshore)	Brazil	-05° 13' 52''S	-36° 55' 54''W	-5.231	-36.932
POT-M-663 (POT-16)	Brazil	-03° 53' 20"S	-37° 22' 01"W	-3.889	-37.367
POT-M-665 (POT-17)	Brazil	-03° 53' 20"S	-37° 07' 05"W	-3.889	-37.118
POT-M-760 (POT-16)	Brazil	-04° 07' 30"S	-37° 07' 34"W	-4.125	-37.126
POT-M-853 (POT-17)	Brazil	-04° 23' 35"S	-36° 51' 54"W	-4.393	-36.865
POT-M-855 (POT-17)	Brazil	-04° 23' 35"S	-36° 36' 43"W	-4.393	-36.612
BAR-M-300	Brazil	-01° 38' 52''S	-42° 07' 49''W	-1.647	-42.130
BAR-M-342	Brazil	-01° 52' 26''S	-42° 07' 24''W	-1.873	-42.130
BAR-M-344	Brazil	-01° 52' 32''S	-42° 52' 23''W	-1.875	-42.873
BAR-M-388	Brazil	-02° 04' 16''S	-41° 56' 17''W	-2.071	-41.938
PEPB-783	Brazil	-08° 09' 43"S	-34° 21' 04"W	-8.162	-34.351
PEPB-839	Brazil	-08° 22' 12"S	-34° 22' 48"W	-8.370	-34.380
Bloco 14	Angola	-05° 39' 12''S	11° 26' 48''E	-5.653	11.447
Bloco 14K-A-IMI	Angola	-05° 38' 15''S	11° 18' 50''E	-5.638	11.314
Bloco 32	Angola	-07° 19' 11''S	11° 17' 39''E	-7.320	11.294
LNG Plant (Rovuma - onshore)	Mozambique	-10° 49' 40''S	40° 33' 00''E	-10.828	40.550
Rovuma Área 4	Mozambique	-11° 06' 07''S	41° 02' 47''E	-11.102	41.046

Table 2 (continuation) – Galp Energia facility's Coordinates (latitude and longitude).

Site	Country	Latitude (deg min seg)	Longitude (deg min seg)	Latitude (deg.ddd)	Longitude (deg.ddd)
Exploration & Production Blocks (continuation)					
Block Pel 82	Namibia	-22° 20' 44''S	12° 36' 01''E	-22.346	12.600
Block Pel 83	Namibia	-28° 60' 00''S	14° 00' 00''E	-29.000	14.000
Block E	East Timor	-09° 52' 37"S	126° 14' 53"E	-9.877	126.248
Block 6	S. Tome and Principe	00º 37' 59" N	07º 55' 21"E	0.633	7.922
Block 11	S. Tome and Principe	00º 13' 15" N	07º 18' 11"E	0.220	7.302
Block 12	S. Tome and Principe	-00º 38' 45" S	07º 17' 35"E	-0.645	7.292
Renewable Energy Sources					
Parkalgar (PV Solar Park)	Portugal	37° 13' 54''N	08° 37' 46''W	37.232	-8.629
Ventiveste (Wind Park Vale Grande)	Portugal	40° 13' 06''N	08° 03' 13''W	40.218	-8.056
ParkAlgar	Portugal	37° 13' 54''N	08° 37' 46''W	37.232	-8.629
Ventinveste	Portugal	40° 13' 06''N	08° 03' 13''W	40.218	-8.056
Parque Vale Grande	Portugal	40°11'20.10"N	7°54'46.44"W	40.188	-7.912
ESCARNES	Spain	41°16'11.18"N	0°17'51.77"O	16.186	17.863
ENVITERO	Spain	41°15'34.74"N	0°17'6.81"O	15.579	17.114
MOCATERO	Spain	41°14'35.80"N	0°15'8.58"O	14.597	15.143
ESCATRON DOS	Spain	41°14'32.31"N	0°16'15.66"O	14.539	16.261
IGNIS UNO	Spain	41°13'49.17"N	0°15'10.57"O	13.820	15.176
EMOCION	Spain	41°14'16.17"N	0°17'7.23"O	14.270	17.120
MEDIOMONTE	Spain	41°13'24.99"N	0°15'47.25"O	13.417	15.788
PALABRA	Spain	41°13'37.52"N	0°14'1.13"O	13.625	14.019
ESPLENDOR	Spain	41°11'47.61"N	0°20'27.67"O	11.794	20.461
HAZANA	Spain	41°12'46.33"N	0°20'12.07"O	12.772	20.201
TALENTO	Spain	41°12'18.38"N	0°20'42.06"O	12.306	20.701
EL ROBLEDO	Spain	41°15'53.04"N	0°10'16.73"O	15.884	10.279
SIERREZUELA	Spain	41°15'39.68"N	0°9'35.81"O	15.661	9.597
RIBAGRANDE	Spain	41°15'26.63"N	0°10'22.12"O	15.444	10.369
VALDELAGUA	Spain	41°15'7.82"N	0°9'14.46"O	15.130	9.241
VALDIVIESO	Spain	39°11'12.65"N	3°19'40.24"O	11.166	9.838
VALDECARRO	Spain	39°11'12.65"N	3°19'40.24"O	11.166	19.838
ALCAZAR 1	Spain	39°11'12.65"N	3°19'40.24"O	11.166	19.838
ALCAZAR 2	Spain	39°11'12.65"N	3°19'40.24"O	15.130	9.241

Table 2 (continuation) – Galp Energia facility's Coordinates (latitude and longitude).

Storage Facilities & Terminals					
Sigás	Portugal	37° 57' 54 "N	08° 52' 24"W	37.965	-8.873
Bancas de Sines	Portugal	37° 57' 22 "N	08° 53' 08"W	37.956	-8.885
Mitrena	Portugal	38° 28' 43,21"N	08° 48' 30"W	38.479	-8.808
Horta-CL	Portugal	38° 31' 37''N	28° 37' 24''W	38.527	-28.623
Horta-LPG	Portugal	38° 32' 32''N	28° 37' 43''W	38.542	-28.629
Flores-CL	Portugal	39° 22' 40,4''N	31° 10' 17"W	39.378	-31.171
Praia da Vitória – Terceira	Portugal	38° 42' 18''N	27° 02' 55''W	38.705	-27.049
Nordela LPG – S. Miguel	Portugal	37° 44' 11''N	25° 41' 36''W	37.736	-25.693
CLCM	Portugal	32° 44' 33''N	16° 43' 36''W	32.743	-16.727
Leixões Terminal	Portugal	41° 11' 11,67"N	08° 42' 24"W	41.187	-8.707
Sines Terminal	Portugal	37° 57' 13,16"N	08° 52' 53"W	37.954	-8.881
Viana do Castelo Terminal	Portugal	41º 40,5' 00"N	08º 50' 00"W	41.686	-8.828
Mérida	Spain	38° 54' 15"N	06° 23' 10"W	38.904	-6.386
Gijon	Spain	43° 33' 2"N	05° 41' 31"W	43.551	-5.692
Valência	Spain	39° 26' 51''N	-00° 18' 10''W	39.447	-0.303
S.Vicente-CL&GPL	Cape Verde	16° 52' 57''N	-24° 59' 24''W	16.882	-24.990
Sal-CL&GPL	Cape Verde	16° 45' 22''N	-22° 58' 33''W	16.756	-22.976
Santiago-CL&GPL	Cape Verde	14° 54' 45''N	-23° 29' 45''W	14.913	-23.496
Bolola	Guinea-Bissau	11° 51' 38'' N	-15° 34' 31''W	11.861	-15.575
LPG (GB)	Guinea-Bissau	11° 50' 25''N	-15° 35' 24''W	11.840	-15.590
CLC (GB)	Guinea-Bissau	11° 50' 19''N	-15° 35' 26''W	11.839	-15.591
Beira	Mozambique	19º 48' 18''S	34º 50' 35'E	-19.805	34.843
Matola	Mozambique	25° 57' 7''S	32° 29' 18''E	-25.952	32.488
Matsapha	Eswatini	26° 30' 8''S	31° 18' 25''E	-26.502	31.307
Refining					
Sines Refinery	Portugal	37° 57' 55"N	-8° 47' 59"W	37.965	-8.800
Matosinhos Refinery	Portugal	41° 12' 13"N	-8° 42' 35"W	41.204	-8.710
Cogeneration Units					
Agroger	Portugal	39° 08' 17''N	-09° 16' 32''W	39.138	-9.275
Carriço Co-generation	Portugal	40° 00' 55"N	-08° 48' 55"W	40.015	-8.815

ANNEX II – GLOBAL RESULTS PER *SITE*

Table 3 - National indicators by site. Note: See the caption at the end of the table.

Site	Country	Total Renewable Water Resources (TRWR)			Water Withdrawal		Dependency Ratio	Population Served with safe drinking water	Population Served with Improved Sanitation
					Total	Industrial			
		2019 m^3/inhab/year	2025 m^3/person/year	2050 m^3/person/year	2002 m^3/person/year	2002 (%)	2019 (%)	2019 (%)	2019 (%)
Biofuels									
Tailândia/Pará (Palma crops)	Brazil	41603	38508	37678	331	18.0	34	97	86
Tomé-açu/Pará (Palma crops)	Brazil	41603	38508	37678	331	18.0	34	97	86
Enerfuel (2nd Generation Biofuel plant)	Portugal	7478	6417	6860	1088	12.2	50	99	99
Exploration & Production Blocks									
Campos 791	Brazil	41603	38508	37678	331	18.0	34	97	86
Uirapuru	Brazil	41603	38508	37678	331	18.0	34	97	86
BM-S-8	Brazil	41603	38508	37678	331	18.0	34	97	86
North Carcara	Brazil	41603	38508	37678	331	18.0	34	97	86
BM-S-11 A	Brazil	41603	38508	37678	331	18.0	34	97	86
BM-S-11	Brazil	41603	38508	37678	331	18.0	34	97	86
BM-S-24									
Sépia	Brazil	41603	38508	37678	331	18.0	34	97	86
Rabo Branco Field (onshore)	Brazil	41603	38508	37678	331	18.0	34	97	86
Field Sanhaçu (onshore)	Brazil	41603	38508	37678	331	18.0	34	97	86
POT-M-663 (POT-16)	Brazil	41603	38508	37678	331	18.0	34	97	86
POT-M-665 (POT-17)	Brazil	41603	38508	37678	331	18.0	34	97	86
POT-M-760 (POT-16)	Brazil	41603	38508	37678	331	18.0	34	97	86
BAR-M-300	Brazil	41603	38508	37678	331	18.0	34	97	86

Site	Country	Total Renewable Water Resources (TRWR)			Water Withdrawal		Dependency Ratio	Population Served with safe drinking water	Population Served with Improved Sanitation
					Total	Industrial			
		2019 m³/person/year	2025 m³/person/year	2050 m³/person/year	2002 m³/person/year	2002 (%)	2019 (%)	2019 (%)	2019 (%)
Exploration & Production Blocks (continuation)									
BM-PEPB-783	Brazil	41603	38508	37678	331	18.0	34	97	86
BAR-M-342	Brazil	41603	38508	37678	331	18.0	34	97	86
BAR-M-344	Brazil	41603	38508	37678	331	18.0	34	97	86
BAR-M-388	Brazil	41603	38508	37678	331	18.0	34	97	86
PEPB-783	Brazil	41603	38508	37678	331	18.0	34	97	86
PEPB-839	Brazil	41603	38508	37678	331	18.0	34	97	86
POT-M-853 (BM-POT-17)	Brazil	41603	38508	37678	331	18.0	34	97	86
POT-M-855 (BM-POT-17)	Brazil	41603	38508	37678	331	18.0	34	97	86
Bloco 14	Angola	5931	5393	3502	24	17.1	0	41	39
Bloco 14K-A-IMI	Angola	5931	5393	3502	24	17.1	0	41	39
Bloco 32	Angola	5931	5393	3502	24	17.1	0	41	39
LNG Plant (Rovuma - onshore)	Mozambique	7760	6961	4918	33	1.6	53	47	23
Rovuma Área 4	Mozambique	7760	6961	4918	33	1.6	53	47	23
Block PEL 82	Namibia	16230	6306	4939	154	4.7	84	78	33
Block PEL 83	Namibia	16230	6306	4939	154	4.7	84	78	33
Block E	East Timor	n.d.	n.d	n.d.	n.d.	n.d.	n.d.	n.d.	n.d.
Block 6	S. Tome and Principe	13625	10093	7365	53	n.d.	0	97	34
Block 11	S. Tome and Principe	13625	10093	7365	53	n.d.	0	97	34
Block 12	S. Tome and Principe	13625	10093	7365	53	n.d.	0	97	34

Site	Country	Total Renewable Water Resources (TRWR)			Water Withdrawal		Dependency Ratio	Population Served with safe drinking water	Population Served with Improved Sanitation
		2019 m³/person/year	2025 m³/person/year	2050 m³/person/year	Total 2002 m³/person/year	Industrial 2002 (%)	2019 (%)	2019 (%)	2019 (%)
Renewable Energies									
Parkalgar	Portugal	7478	6417	6860	1088	12.2	50	99	99
Ventiveste	Portugal	7478	6417	6860	1088	12.2	50	99	99
Parque Vale Grande	Portugal	7478	6417	6860	1088	12.2	50	99	99
ESCARNES	Spain	2418	2263	2175	861	18.5	0	99	99
ENVITERO	Spain	2418	2263	2175	861	18.5	0	99	99
MOCATERO	Spain	2418	2263	2175	861	18.5	0	99	99
ESCATRON DOS	Spain	2418	2263	2175	861	18.5	0	99	99
IGNIS UNO	Spain	2418	2263	2175	861	18.5	0	99	99
EMOCION	Spain	2418	2263	2175	861	18.5	0	99	99
MEDIOMONTE	Spain	2418	2263	2175	861	18.5	0	99	99
PALABRA	Spain	2418	2263	2175	861	18.5	0	99	99
ESPLENDOR	Spain	2418	2263	2175	861	18.5	0	99	99
HAZANA	Spain	2418	2263	2175	861	18.5	0	99	99
TALENTO	Spain	2418	2263	2175	861	18.5	0	99	99
EL ROBLEDO	Spain	2418	2263	2175	861	18.5	0	99	99
SIERREZUELA	Spain	2418	2263	2175	861	18.5	0	99	99
RIBAGRANDE	Spain	2418	2263	2175	861	18.5	0	99	99
VALDELAGUA	Spain	2418	2263	2175	861	18.5	0	99	99
VALDIVIESO	Spain	2418	2263	2175	861	18.5	0	99	99
VALDECARRO	Spain	2418	2263	2175	861	18.5	0	99	99
ALCAZAR 1	Spain	2418	2263	2175	861	18.5	0	99	99
ALCAZAR 2	Spain	2418	2263	2175	861	18.5	0	99	99

Site	Country	Total Renewable Water Resources (TRWR)			Water Withdrawal		Dependency Ratio	Population Served with safe drinking water	Population Served with Improved Sanitation
					Total	Industrial			
		2019 m³/person/year	2025 m³/person/year	2050 m³/person/year	2002 m³/person/year	2002 (%)	2019 (%)	2019 (%)	2019 (%)
Storage Facilities & Terminals									
Sigás	Portugal	7478	6417	6860	1088	12.2	50	99	99
Bancas de Sines	Portugal	7478	6417	6860	1088	12.2	50	99	99
Mitrena	Portugal	7478	6417	6860	1088	12.2	50	99	99
Horta-CL	Portugal	7478	6417	6860	1088	12.2	50	99	99
Horta-LPG	Portugal	7478	6417	6860	1088	12.2	50	99	99
Flores-CL	Portugal	7478	6417	6860	1088	12.2	50	99	99
Praia da Vitória – Terceira	Portugal	7478	6417	6860	1088	12.2	50	99	99
Nordela LPG – S. Miguel	Portugal	7478	6417	6860	1088	12.2	50	99	99
CLCM	Portugal	7478	6417	6860	1088	12.2	50	99	99
Leixões Terminal	Portugal	7478	6417	6860	1088	12.2	50	99	99
Sines Terminal	Portugal	7478	6417	6860	1088	12.2	50	99	99
Viana do Castelo Terminal	Portugal	7478	6417	6860	1088	12.2	50	99	99
Mérida	Spain	2418	2263	2175	861	18.5	0	99	99
Gijon	Spain	2418	2263	2175	861	18.5	0	99	99
Valência	Spain	2418	2263	2175	861	18.5	0	99	99
S.Vicente-CL&GPL	Cape Verde	601	487	427	47	1.8	0	89	63
Sal-CL&GPL	Cape Verde	601	487	427	47	1.8	0	89	63
Santiago-CL&GPL	Cape Verde	601	487	427	47	1.8	0	89	63

Site	Country	Total Renewable Water Resources (TRWR)			Water Withdrawal		Dependency Ratio	Population Served with safe drinking water	Population Served with Improved Sanitation
					Total	Industrial			
		2019 m³/person/year	2025 m³/person/year	2050 m³/person/year	2002 m³/person/year	2002 (%)	2019 (%)	2019 (%)	2019 (%)
Storage Facilities & Terminals (continuation)									
Bolola	Guinea-Bissau	17028	13502	8720	120	4.6	49	69	21
LPG (GB)	Guinea-Bissau	17028	13502	8720	120	4.6	49	69	21
CLC (GB)	Guinea-Bissau	17028	13502	8720	120	4.6	49	69	21
Beira	Mozambique	7760	6961	4918	33	1.6	53	47	23
Matola	Mozambique	7760	6961	4918	33	1.6	53	47	23
Matsapha	Eswatini	3504	3100	2579	957	1.2	41	67	58
Refining									
Sines Refinery	Portugal	7478	6417	6860	1088	12.2	50	99	99
Matosinhos Refinery	Portugal	7478	6417	6860	1088	12.2	50	99	99
Cogeneration Units									
Agroger	Portugal	7478	6417	6860	1088	12.2	50	99	99
Carriço Co-generation	Portugal	7478	6417	6860	1088	12.2	50	99	99

Caption of table 3:

n.d. – no data

Total Renewable Water Resources TRWR

No data	Extreme Scarcity	Scarcity	Stress	Sufficient	Abundant

Total Water Withdrawal (m^3/person/year)

No data	1-250	251-500	501-1000	1001-2000	>2000

Industrial Water Withdrawal (%)

No data	0-25	26-50	51-75	76-90	91-100

Dependency Ratio (%)

No data	0-5	6-20	21-50	51-85	86-100

Population Served with safe drinking water/Improved Sanitation (%)

No data	Very low	Low	Medium	Medium-High	High

Table 4 - Watershed Indicators by Galp Energia site. Note: See the caption at the end of the table.

Site	Country	Annual Renewable Water Supply		Baseline Water Stress Index
		2008 m³/person/year	2025 m³/person/year	2019 dimensionless
Biocombustíveis				
Tailândia/Pará (Palma crops)	Brazil	> 4,000	> 4,000	0.16
Tomé-açu/Pará (Palma crops)	Brazil	> 4,000	> 4,000	0.16
Enerfuel (2nd Generation Biofuel plant)	Portugal	> 4,000	> 4,000	4.86
Exploration & Production Blocks				
Rabo Branco (onshore)	Brazil	1,700 - 4,000	1,000 - 1,700	1.37
Sanhaçu (onshore)	Brazil	> 4,000	1,700 - 4,000	1.20
Other facilities (offshore)	-	n.d.	n.d.	n.d.
Renewable Energies				
Parkalgar	Portugal	> 4,000	> 4,000	4.70
Ventiveste	Portugal	> 4,000	> 4,000	2.52
Parque Vale Grande	Portugal	> 4,000	> 4,000	2.52
Other facilities (offshore)	Spain	n.d.	n.d.	n.d.
Storage Facilities & Terminals				
Sigás	Portugal	> 4,000	> 4,000	4.86
Bancas de Sines	Portugal	> 4,000	> 4,000	4.86
Mitrena	Portugal	500 - 1000	500 - 1000	4.86
Terminal de Leixões	Portugal	> 4,000	> 4,000	2.47
Terminal de Sines	Portugal	> 4,000	> 4,000	4.86
Viana do Castelo Terminal	Portugal	> 4,000	> 4,000	2.17
Mérida	Spain	1,700 - 4,000	1,700 - 4,000	3.19
Beira	Mozambique	> 4,000	> 4,000	0
LPG	Mozambique	1,700 - 4,000	1,000 - 1,700	0
Matsapha	Eswatini	1,700 - 4,000	1,700 - 4,000	1.67
Other facilities	-	n.d.	n.d.	n.d.
Refining				
Sines Refinery	Portugal	> 4,000	> 4,000	4.86
Matosinhos Refinery	Portugal	> 4,000	> 4,000	2.17
Cogeneration Units				
Agroger	Portugal	1,700 - 4,000	1,700 - 4,000	2.46
Carriço Cogeração	Portugal	> 4,000	> 4,000	2.63

Caption of table 4: n.d. – no data

Annual Renewable Water Supply

No data	Extremely Scarcity	Scarcity	Stress	Sufficient	Abundant

Baseline Water Stress Index

No data	Extremely-high (4-5)	High (3-4)	Medium-high 2-3)	Low-medium (1-2)	Low (0-1)