

**DEGOLYER AND MACNAUGHTON**  
5001 SPRING VALLEY ROAD  
SUITE 800 EAST  
DALLAS, TEXAS 75244

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5001 SPRING VALLEY ROAD  
SUITE 800 EAST  
DALLAS, TEXAS 75244

**REPORT**  
**as of**  
**JANUARY 1, 2022**  
**on**  
**RESERVES and REVENUE**  
**of**  
**CERTAIN FIELDS**  
**in**  
**BRAZIL**  
**for**  
**PETRORIO S.A.**

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**FOREWORD**

Scope of Investigation

This report presents estimates, as of January 1, 2022, of the extent of the proved, probable, and possible oil, condensate, and gas reserves and the value of the proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves of the Frade, Manati, Polvo, Tubarão Martelo, and Wahoo fields in which PetroRio S.A. (PetroRio) has represented it holds an interest. PetroRio's working interest and the concession expiration date for each field are shown in Table 1 of this report.

Estimates of reserves presented in this report have been prepared in accordance with the Petroleum Resources Management System (PRMS) approved in March 2007 and revised in June 2018 by the Society of Petroleum Engineers, the World Petroleum Council, the American Association of Petroleum Geologists, the Society of Petroleum Evaluation Engineers, the Society of Exploration Geophysicists, the Society of Petrophysicists and Well Log Analysts, and the European Association of Geoscientists & Engineers. These reserves definitions are discussed in detail in the Definition of Reserves section of this report.

PetroRio has represented that it holds a 100-percent working interest in the Frade field, located in concession block FR, and a 10-percent working interest in the Manati field, located in concession block BCAM-40. PetroRio has also represented that it holds a net interest of 95 percent of the combined oil production from the Polvo and Tubarão Martelo fields. The

remaining 5-percent net interest is held by Dommo Energia, formerly OGX Petróleo e Gás Participações S.A. (OGX), until 30 million barrels of oil have been produced, at which point PetroRio's net interest increases to 96 percent for the lives of the fields. PetroRio has further represented that it holds a 64.3-percent working interest in the Wahoo field.

Reserves estimated in this report are expressed as gross reserves and net reserves. Gross reserves are defined as the total estimated petroleum remaining to be produced from these properties after December 31, 2021. Net reserves are defined as that portion of the gross reserves attributable to the evaluated interests after deducting all interests held by others, including royalties paid in kind. PetroRio has represented that its government royalty obligations are paid in cash; therefore, net reserves have not been reduced in consideration of these royalty obligations.

This report presents values for proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves that were estimated using prices, expenses, and costs provided by PetroRio. Prices, expenses, and costs were provided in United States dollars (U.S.\$), and all monetary values in this report are expressed in U.S.\$. A detailed explanation of the forecast price, expense, and cost assumptions is included in the Valuation of Reserves section of this report.

Values for proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves in this report are expressed in terms of future gross revenue, future net revenue, and present worth. Future gross revenue is defined as that revenue which will accrue to the evaluated interests from the production and sale of the estimated net reserves. Future net revenue is calculated by deducting royalties paid in cash, operating expenses, capital costs, abandonment costs, and the special participation fee (SPF) from future gross revenue. Operating expenses include field operating expenses, transportation and processing expenses, and an allocation of overhead that directly relates to production activities. Capital costs include drilling and completion costs, facilities costs, and field maintenance costs. Abandonment costs are represented by PetroRio to be inclusive of those costs associated with the removal of equipment, plugging of wells, and reclamation and restoration costs associated with the abandonment. At the request of PetroRio, future Brazilian income taxes were not taken into account in the preparation of these estimates. Present worth is defined as future net revenue discounted at a specified arbitrary discount rate compounded monthly over the expected period of realization. Present worth should not be construed as fair market value because

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no consideration was given to additional factors that influence the prices at which properties are bought and sold. In this report, present worth values using a nominal discount rate of 10 percent are reported in detail and values using nominal discount rates of 5, 15, and 20 percent are reported as totals.

Authority

This report was authorized by Mr. Milton Rangel, Head of Finance, PetroRio S.A.

Source of Information

Information used in the preparation of this report was obtained from PetroRio.

In the preparation of this report we have relied, without independent verification, upon information furnished by PetroRio with respect to the property interests being evaluated, production from such properties, current costs of operation and development, current prices for production, agreements relating to current and future operations and sale of production, and various other information and data that were accepted as represented. A field examination was not considered necessary for the purposes of this report.

## **GEOLOGY**

### **Frade Field**

The Frade field is located offshore Brazil in the northern part of the Campos Basin about 370 kilometers northeast of the city of Rio de Janeiro (Figure 1). The field was discovered in 1986 by Petr leo Brasileiro S.A. (Petrobras) in water depths of about 1,200 meters.

Over a period of 80 million years, extending from the Lower Cretaceous through the Miocene, rivers from mainland Brazil flooded the Campos Basin region with clastic sediments, which accumulated above a thick layer of Lower Cretaceous salt. Subsequent deposition of younger sediment masses activated salt movement in many areas of the basin. In the area of the Frade field, this salt movement uplifted and deformed Oligocene-Miocene turbidite sandstones and shales and created structures that later became the hydrocarbon traps in the field.

The producing reservoirs of the Frade field are in the Oligo-Miocene turbidite reservoirs of the Carapebus Formation. There are five reservoir compartments in the field separated by faulting. In the sandstone reservoirs, average porosity was estimated to be between 29 and 34 percent, average permeability was estimated to be between 1.2 and 3.8 darcys, and oil gravities was estimated to range between 16 and 24 degrees API.

### **Manati Field**

The Manati field is located offshore Brazil in the Camamu Basin about 65 kilometers southwest of the city of Salvador, Bahia State (Figure 1). The field was discovered in 2000 by Petrobras in water depths of about 40 meters.

The productive reservoirs in the Manati field are a thick sequence of Upper Jurassic-age eolian and fluvial sandstones of the Sergi Formation. These were deposited before the start of rifting in this region. The Sergi Formation is overlain by Cretaceous-age shales of the Itaipe Formation and sealed laterally by lacustrine sediments of the Morro do Barro Formation, which were deposited in the Tinhar  Canyon and are the source rocks for petroleum in the Manati field.



The Manati field structure is a four-way dipping feature that was later shaped by faulting and erosion. The western, northern, and eastern edges are the intersection of the north/south-trending Mutá regional fault with the Tinharé Canyon. The canyon formed after deposition of the field sandstones, which were replaced with a thick shale section on the west side of the structure. Structural dip is to the north and south, away from a crest in the center of the field. Other faults cross parts of the field and intersect the Mutá fault, but do not appear to compartmentalize the reservoirs. The southern field limit is a water contact.

A total of nine wells were drilled in the area to discover and delineate the field. Currently, six wells are producing gas from the multiple Sergi Formation sandstones in the field.

#### Polvo Field

The Polvo field is located offshore Brazil in the Campos Basin about 100 kilometers east of the city of Cabo Frio, Rio de Janeiro State (Figure 1).

In the Campos Basin, regional dip is toward the southeast, reflecting basinward dip caused by the opening of the Atlantic Ocean during the Early Cretaceous. This structural configuration is present in the Polvo field.

Basement rocks in the Campos Basin are Precambrian granites. As the basin began to open and fill, basalts of the Cabiúnas Formation flowed onto the granite basement. The earliest sediments in the basin are lacustrine shales and carbonates of the Lagoa Feia Formation, which is the primary hydrocarbon source formation for the basin. After the original rifting period, a massive sequence of continental and marine sediments accumulated in the basin. The lower part of this sequence is made up of conglomerates and carbonates, which are subsequently covered by a thick evaporite section, composed predominantly of salt and anhydrite. Above the evaporites are mudstones and oolitic grainstones, deposited during Albian time when a broad carbonate platform developed in the region. In the Polvo field, the Albian carbonates are the Quissamã members of the Macaé Formation. These carbonates accumulated in shallow water on northeast-trending local structural highs atop basement or salt uplifts.

As basin subsidence continued, coastal rivers flooded sands into the basin. These sands were deposited in environments

ranging from deepwater turbidites to shallow-water deltaic and bay-lagoon settings. This style of sedimentation continued from the Cenomanian until the Miocene. In the Polvo field, the sandstones were deposited in coastal plain, lagoon, and bay deltaic environments.

The initial drilling campaign identified several areas of Quissamã carbonate accumulation. After further evaluation, three of these areas were targeted for additional development, as follows: the Devonian-7 (Dev-7) and Dev-4&5 shoal areas, in the western part of the field, and the Dev-3 shoal area, referred to herein as the East Quissamã. Six platform wells were drilled and completed as producers from the Quissamã accumulation.

The Turonian and Maastrichtian sandstones were found to be well developed and productive in separate accumulations east of the Quissamã wells. This part of the field was originally known as the Guarajuba field. Currently, five wells produce from the Maastrichtian reservoir, three wells produce from the Turonian reservoir, and one well produces from the Turonian East reservoir.

The Eocene-age reservoirs are the marine sandstones of the Embore Formation. These clastic reservoirs were originally associated with a variety of sub-environments, deepwater turbidities, and submarine fans deposited in a slope basin. This formation was affected by salt tectonics, which contributed to the generation of normal faults and, together with the top of the salt dome, work as seals for this field. The trap system is a combination of the structure and the stratigraphic, with lateral seals from the Oligocene canyon fill deposits.

These Eocene sandstone reservoirs were tested in six wells located at the edge of local horst-graben system. Five of the wells are located in the central part of the field, while the 1-Dev-6 well tested oil in the northern part of the field. The first production well began producing from the Eocene reservoir in March 2020.

Productive reservoir volumes were estimated using standard volumetric methods based on geological mapping that utilized seismic data and well logs. Structure maps were constructed for each reservoir. Isopach maps of the sandstone reservoirs were constructed using limits based on stratigraphy and structural oil/water contacts (OWC). In many of the sandstone reservoirs, the productive sands were often cut by overlying erosional

unconformities that formed the northern, western, and eastern limits. The southern downdip limit was often an estimated OWC.

### Tubarão Martelo Field

The Tubarão Martelo field is located offshore Brazil in the Campos Basin about 100 kilometers southeast of Rio de Janeiro (Figure 1).

The producing reservoirs of the Tubarão Martelo field are in the Albo-Cenomanian Imbetiba and Quissama Formations of the Macaé Group. The Imbetiba Formation is the uppermost section of the Macaé Group and can be described as a very clean limestone consisting of mainly oolitic/oncolitic packstones and grainstones, peloidal packstones, peloidal wackestones, and peloidal/bioclastic mudstones. These high-energy shoal facies are typically deposited on structurally positive features, and are likely the result of salt movement and/or basement-involved faulting.

The high-energy shoals are the primary targets in the Imbetiba Formation in the Tubarão Martelo field. The reservoir features primary porosity, likely resulting from rapid deposition, low compaction, and a lack of calcite cement precipitated early in the burial process.

The Quissama Formation is the lowermost section of the Macaé Group and is predominantly below the OWC in the Tubarão Martelo field. The Quissama Formation is a secondary reservoir in the Tubarão Martelo field. Reservoir quality in the Quissama Formation is more variable than in the overlying Imbetiba Formation.

The structural configuration of the Tubarão Martelo field is a southward-dipping monocline with northeast-to-southwest, up-to-the-basin antithetic faults trending across the northern portion of the field and a down-to-the-basin normal fault forming the southern closure of the field. The down-to-the-basin normal fault on the southern flank of the field creates a local horst block. Structural dip in the Tubarão Martelo field creates a four-way closure.

Low, best, and high original oil in place (OOIP) quantities were estimated for the Tubarão Martelo field. The low OOIP estimate was areally limited to the crestal portions of the Tubarão Martelo field based on the reduction of the net-to-gross ratio seen in wells drilled on the flanks of

the field. For volumetric estimation purposes, the Imbetiba and Quissama reservoir section was subdivided into four units to account for variations in petrophysical properties. The uppermost unit represents the Imbetiba Formation and is referred to as Zone 1. The unit underlying Zone 1 is referred to as Zone 2, which represents a low-porosity interval encountered in each of the non-horizontal wells. The unit underlying Zone 2 is referred to as Zone 3, which represents the upper portion of the Quissima Formation. The lowermost reservoir unit in the field is referred to as Zone 4, which represents the lower portion of the Quissama Formation. The majority of the oil in place in the Tubarão Martelo field is contained in Zone 1.

### Wahoo Field

The Wahoo field is located offshore Brazil in the Campos Basin, approximately 100 kilometers due north of Rio de Janeiro (Figure 1), in water depths of approximately 1,000 to 1,500 meters.

The structure in this region is associated with the initial rifting phase of the separation of Africa from South America. The lowermost section of the syn-rift deposit is composed for the basalts of the Cabiúnas Formation, which accumulated at the earliest stages of rifting.

As rifting progressed, continental (lacustrine) sediments of the Lagoa Feia Group were deposited in the area. The Coqueiros sediments act as the hydrocarbon source rock for the pre-salt reservoirs. The Macaé Group sediments were deposited in the area, filling half grabens that resulted from the syn-depositional rift faulting. The lower section of the Macaé Group is made up of lacustrine sediments, but there is a transition to deeper water environments recorded in accumulations of carbonates in the upper part of the formation.

The producing reservoirs of the Wahoo field are the Early Cretaceous pre-salt Barremian-Aptian Macabú Formation. The Macabú Formation is made up primarily of microbial carbonates (stromatolites) and is divided into major zones denoted, from top to base, as the MA100, MA200, and MA300 zones. The upper, post-rift sections of the Macabú carbonates are often referred to as sag sediments because of the slower, more uniform subsidence of the area related to crustal cooling that occurred as the more active rifting and sea-floor spreading areas moved further east. There is some faulting in these younger sediments, but without the fault-block rotation and with smaller displacements than are observed in faulting associated with the earlier phase of rifting.

The Wahoo field can be described as a north-south structural high with multiple north-south transpressional trend faults. These structural highs are associated with carbonate buildups constructed by microbial activity generating closure on four sides. The field limits are formed by structural dip. Due to the tectonic stress and the fault interpretation, the Top Macabu reservoir in the Wahoo field could be compartmentalized in at least two segments (East and West). The OWC was identified in the discovery well at an estimated depth of 4,840 meters true vertical depth subsea (TVDSS). Additionally, a pressure gradient plot from well data shows a potential OWC at an estimated depth of 4,850 meters TVDSS.

Five wells have been drilled in the Wahoo field. The Wahoo-1-APL-1-ESS discovery well was drilled in 2008, south of the structural high on the west flank of the field. This well found approximately 100 meters of gross thickness and 59 meters of net pay. In 2009, the APL-2DA-ESS and 1-APL-2-ESS wells were drilled on the north part of the structure to define the northern limit of the field. The drilling campaign was completed with the 3-APL-6-ESS and 3-APL-7-ESS wells, which are located in the central and northwest parts of the field, respectively.

A structural interpretation provided by PetroRio was accepted as the structural framework and used in the geocellular model constructed to estimate the OOIP. Effective porosity (PHIE) and water saturation ( $S_w$ ) petrophysical properties were propagated in the three-dimensional (3-D) model. The net-to-gross properties were defined as  $\geq 5$  percent,  $\geq 3$  percent, and  $\geq 2$  percent PHIE for the proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves scenarios, respectively. The average PHIE ranges between 10 and 11 percent and the average  $S_w$  ranges between 17 and 20 percent for the estimated OOIP. The estimated OWC observed in the discovery well (4,840 meters TVDSS) was used for estimating the OOIP associated with the proved and proved-plus-probable categories, while the estimated OWC observed on the pressure gradient plot (4,850 meters TVDSS) was used for the proved-plus-probable-plus-possible category.

## **DEFINITION of RESERVES**

Estimates of proved, probable, and possible reserves presented in this report have been prepared in accordance with the PRMS approved in March 2007 and revised in June 2018 by the Society of Petroleum Engineers, the World Petroleum Council, the American Association of Petroleum Geologists, the Society of Petroleum Evaluation Engineers, the Society of Exploration Geophysicists, the Society of Petrophysicists and Well Log Analysts, and the European Association of Geoscientists & Engineers. The petroleum reserves are defined as follows:

Reserves are those quantities of petroleum anticipated to be commercially recoverable by application of development projects to known accumulations from a given date forward under defined conditions. Reserves must satisfy four criteria: discovered, recoverable, commercial, and remaining (as of the evaluation's effective date) based on the development project(s) applied. Reserves are further categorized in accordance with the level of certainty associated with the estimates and may be sub-classified based on project maturity and/or characterized by development and production status.

*Proved Reserves* are those quantities of petroleum that, by analysis of geoscience and engineering data, can be estimated with reasonable certainty to be commercially recoverable from a given date forward from known reservoirs and under defined economic conditions, operating methods, and government regulations. If deterministic methods are used, the term "reasonable certainty" is intended to express a high degree of confidence that the quantities will be recovered. If probabilistic methods are used, there should be at least a 90% probability (P90) that the quantities actually recovered will equal or exceed the estimate.

*Probable Reserves* are those additional Reserves which analysis of geoscience and engineering data indicate are less likely to be recovered than Proved Reserves but more certain to be recovered than Possible Reserves. It is equally likely that actual remaining quantities recovered will be greater than or less than the sum of the estimated Proved plus Probable Reserves (2P). In this context, when probabilistic methods are used, there should be at least a 50% probability [P50] that the actual quantities recovered will equal or exceed the 2P estimate.

*Possible Reserves* are those additional reserves that analysis of geoscience and engineering data indicates are less likely to be recoverable than Probable Reserves. The total quantities ultimately recovered from the project have a low probability to exceed the sum of Proved plus Probable plus Possible (3P), which is equivalent to the high-estimate scenario. When probabilistic methods are used, there should be at least a 10% probability (P10) that the actual quantities recovered will equal or exceed the 3P estimate.

Once projects satisfy commercial maturity, the associated quantities are classified as Reserves. These quantities may be allocated to the following subdivisions based on the funding and operational status of wells and associated facilities within the reservoir development plan:

*Developed Reserves* are quantities expected to be recovered from existing wells and facilities. Reserves are considered developed only after the necessary equipment has been installed, or when the costs to do so are relatively minor compared to the cost of a well. Where required facilities become unavailable, it may be necessary to reclassify Developed Reserves as Undeveloped. Developed Reserves may be further sub-classified as Producing or Non-Producing.

*Developed Producing Reserves* are expected quantities to be recovered from completion intervals that are open and producing at the effective date of the estimate. Improved recovery Reserves are considered producing only after the improved recovery project is in operation.

*Developed Non-Producing Reserves* include shut-in and behind-pipe reserves. Shut-in Reserves are expected to be recovered from (1) completion intervals that are open at the time of the estimate but which have not yet started producing, (2) wells which were shut-in for market conditions or pipeline connections, or (3) wells not capable of production for mechanical reasons. Behind-pipe Reserves are expected to be recovered from zones in existing wells that will require additional completion work or future re-completion before start of production with minor cost to access these reserves. In all cases, production can be initiated or restored with relatively low expenditure compared to the cost of drilling a new well.

*Undeveloped Reserves* are quantities expected to be recovered through future significant investments. Undeveloped Reserves are to be produced (1) from new wells on undrilled acreage in known accumulations, (2) from deepening existing wells to a different (but known) reservoir, (3) from infill wells that will increase recovery, or (4) where a relatively large expenditure (e.g., when compared to the cost of drilling a new well) is required to (a) recomplete an existing well or (b) install production or transportation facilities for primary or improved recovery projects.

The extent to which probable and possible reserves ultimately may be recategorized as proved reserves is dependent upon future drilling, testing, and well performance. The degree of risk to be applied in evaluating probable and possible reserves is influenced by economic and technological factors as well as the time element. Estimates of probable and possible reserves in this report have not been adjusted in consideration of these additional risks to make them comparable to estimates of proved reserves.



## **ESTIMATION of RESERVES**

Estimates of reserves were prepared by the use of appropriate geologic, petroleum engineering, and evaluation principles and techniques that are in accordance with practices generally recognized by the petroleum industry and in accordance with definitions established by the PRMS. The method or combination of methods used in the analysis of each reservoir was tempered by experience with similar reservoirs, stage of development, quality and completeness of basic data, and production history.

Based on the current stage of field development, production performance, the development plans provided by PetroRio, and analyses of areas offsetting existing wells with test or production data, reserves were categorized as proved, probable, or possible.

The undeveloped reserves estimates were based on opportunities identified in the plan of development provided by PetroRio. Developed non-producing reserves include those quantities associated with behind-pipe zones and include minor remaining capital expenditure as compared to the cost of a new well.

PetroRio has represented that its senior management is committed to the development plan provided by PetroRio and that PetroRio has the financial capability to execute the development plan, including the drilling and completion of wells and the installation of equipment and facilities.

When applicable, the volumetric method was used to estimate the OOIP. Structure maps were prepared to delineate each reservoir, and isopach maps were constructed to estimate reservoir volume. Electrical logs, radioactivity logs, core analyses, and other available data were used to prepare these maps as well as to estimate representative values for porosity and water saturation.

Estimates of ultimate recovery were obtained after applying recovery factors to OOIP. These recovery factors were based on consideration of the type of energy inherent in the reservoirs, analyses of the petroleum, the structural positions of the properties, and the production histories. When applicable, material balance and other engineering methods were used to estimate recovery factors based on an analysis of reservoir performance, including production rate, reservoir pressure, and reservoir fluid properties.

When applicable, material balance was used to estimate original gas in place (OGIP) based on an analysis of reservoir performance, including production rate, reservoir pressure, and reservoir fluid properties. Estimates of ultimate recovery were obtained after applying recovery factors to OGIP. These recovery factors were based on consideration of the type of energy inherent in the reservoirs, analyses of the petroleum, the structural positions of the properties, and the production histories.

For depletion-type reservoirs or those whose performance disclosed a reliable decline in producing-rate trends or other diagnostic characteristics, reserves were estimated by the application of appropriate decline curves or other performance relationships. In the analyses of production-decline curves, reserves were estimated only to the limits of economic production as defined in the Definition of Reserves section of this report or the expiration of the concession, as appropriate.

In certain cases, reserves were estimated by incorporating elements of analogy with similar wells or reservoirs for which more complete data were available.

For cases where history-matched dynamic models were available and applicable, model results were used to estimate recovery factors and reserves production forecasts.

Data provided by PetroRio from wells drilled through December 31, 2021, and made available for this evaluation were used to prepare the reserves estimates herein. These reserves estimates were based on consideration of monthly production data available through December 2021. Cumulative production, as of December 31, 2021, was deducted from the estimated gross ultimate recovery to estimate gross reserves.

Oil and condensate reserves estimated herein are to be recovered by normal field separation and are expressed in thousands of barrels ( $10^3$ bbl). In these estimates, 1 barrel equals 42 United States gallons.

Gas quantities estimated herein are expressed as sales gas. Sales gas is defined as the total gas to be produced from the reservoirs, measured at the point of delivery, after reduction for fuel usage, flare, and shrinkage resulting from field separation and processing. Gas reserves estimated herein are reported as sales gas. Gas quantities are expressed at a temperature base

of 20 degrees Celsius (°C) and at a pressure base of 1 atmosphere. Gas quantities included in this report are expressed in millions of cubic feet ( $10^6\text{ft}^3$ ).

Gas quantities are identified by the type of reservoir from which the gas will be produced. Nonassociated gas is gas at initial reservoir conditions with no oil present in the reservoir. Associated gas is both gas-cap gas and solution gas. Gas-cap gas is gas at initial reservoir conditions and is in communication with an underlying oil zone. Solution gas is gas dissolved in oil at initial reservoir conditions. Gas quantities estimated herein include both associated and nonassociated gas.

### Frade Field

The Frade field was discovered by Petrobras in 1986, and Chevron and its partners began development activities in 2008. First oil was achieved in June 2009 using a subsea gathering system connected to a floating production, storage, and offloading vessel (FPSO). A total of 11 horizontal production wells and 5 vertical water injection wells have been drilled since 2008, as well as several pilot boreholes. Water injection started in July 2010, but was suspended in November 2011 due to a pressure kick that occurred when drilling one of the wells. Production was suspended in March 2012 due to oil seeps interpreted to be associated with fractures connecting to the sea floor that are believed to have been opened by localized higher pressures near the injection wells. Production was restarted in April 2013 and nine wells were on production at the end of December 2021. Water injection is expected to recommence only through new horizontal injection wells and after the water injection filtration system has been upgraded, as per the current development plan provided by PetroRio.

As represented by PetroRio, the original concession expiration date for the Frade field is August 31, 2025. However, PetroRio has also represented that the Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP) has approved an extension provided that certain activities will be carried out in the field, including, among other things, drilling at least five wells and one contingent water injection well and carrying out certain modifications to the water injection filtration system. PetroRio has represented that it plans to comply with the ANP's requirements for the extension of the concession, and that its development plan includes drilling four horizontal production wells and three horizontal water injection wells, as well as the other investments and activities required by the ANP. Based on PetroRio's representations, reserves presented herein

for the Frade field were estimated to the economic limit as defined in the Definition of Reserves section of this report and with one concession extension.

Proved developed producing reserves were estimated for existing wells by the application of appropriate decline curves or other performance relationships, primarily the semi-logarithmic plots of oil rate versus time trends and the Cartesian plot of oil rate versus cumulative oil trends. Proved undeveloped reserves were estimated for four future production wells based on analogy with historical performance of nearby wells producing from the same reservoir and considering the estimated drainage areas. Probable reserves were estimated for two future water injection wells based on analogy, material-balance, and reservoir simulation methods.

Probable and possible reserves were also estimated for the Frade field for wells, as applicable, associated with incremental recovery above quantities estimated for proved and probable reserves, respectively.

#### Manati Field

The Manati field was discovered by Petrobras with the drilling of the 1-BAS-128 well. Production commenced in 2007 from a production platform, which is connected by a subsea pipeline to an onshore gas processing facility. The Manati field is located in concession block BCAM-40 and is operated by Petrobras.

For the Manati field, the material-balance method was used to estimate the OGIP. Proved developed producing reserves were estimated for active producing wells using the material-balance method by integrating updated production, pressure, fluid properties, well productivities, and considering the gas production rate plateau strategy provided by PetroRio. PetroRio has represented that the development plan for the Manati field does not consider any additional drilling locations or the installation of new production facilities. Proved developed non-producing and proved undeveloped reserves were estimated to be zero.

Probable and possible reserves were estimated for the Manati field considering more favorable behavior than that used to estimate proved reserves.

### Polvo Field

The Polvo field was discovered by Petrobras with the drilling of the 1-RJS-486A well. In 2000, during the ANP's second licensing round, concession block BM-C-8 containing the Polvo field was awarded to Devon Energy do Brasil Ltda. (Devon) and its partners. Devon continued field delineation drilling and development. A portion of concession block BM-C-8 was relinquished following declaration of commerciality and the establishment of the Polvo Development Area ring fence. In 2011, BP acquired Devon's interest in the Polvo field, and in 2013 PetroRio acquired BP's interest. PetroRio has represented that the concession for concession block BM-C-8 expires on July 1, 2032, and that PetroRio will apply for an extension with the ANP to ensure that the Polvo field can be produced to its economic limit. Based on PetroRio's representations, reserves presented herein for the Polvo field were estimated to the economic limit as defined in the Definitions of Reserves section of this report and with one concession extension.

Production commenced from the Polvo field in August 2007. The average gravity of the oil produced from the Polvo field is 21 degrees API. The producing gas-oil ratio in the field is approximately 100 cubic feet per barrel, and all produced gas is either used as fuel or flared. Water depth in the Polvo field ranges from 90 to 250 meters. The field was developed with a drilling/production platform and was connected to the OSX-3 FPSO in the neighboring Tubarão Martelo field in 2021. All producing wells are horizontal/highly deviated and are completed with electric submersible pumps (ESP).

For the Polvo field, the volumetric method was used to estimate the OOIP. Proved developed producing reserves were estimated using performance-based methods, primarily decline-curve analysis of oil rate production versus time trends of individual wells. Proved developed non-producing reserves were estimated for a workover to the Pol-12H well to adjust the formation isolation valve scheduled in February 2022. Proved undeveloped reserves were estimated for two future production wells (Pol-A and Pol-C). Reserves for the future Pol-A and Pol-C well locations planned to target an Eocene reservoir were estimated based on analogy and numerical simulation. A 3-D sector model was developed for the Eocene undeveloped well locations to run in a black-oil simulator to aid in estimating ultimate oil recovery, potential production profiles, and recovery factors. PetroRio has represented that production from the Pol-A and Pol-C wells is scheduled to start in 2023.

Probable and possible reserves were also estimated for the Polvo field for wells, as applicable, associated with incremental recovery above quantities estimated for proved and probable reserves, respectively.

No gas reserves were estimated for the Polvo field, since PetroRio has represented that there are no plans for gas sales.

#### Tubarão Martelo Field

The Tubarão Martelo field was discovered in 2010 by OGX with the drilling of the 1-OGX-25-RJS well in concession block BM-C-39. Approval for the Tubarão Martelo development plan was granted by the ANP in July 2013 and initial oil production commenced in December 2013. PetroRio has represented that in February 2020 it acquired the interest previously held by OGX in the Tubarão Martelo field and that the concession for concession block BM-C-39 expires on April 30, 2039. PetroRio has represented that it will apply for an extension with the ANP to ensure that the Tubarão Martelo field can be produced to its economic limit. Based on PetroRio's representations, reserves presented herein for the Tubarão Martelo field were estimated to the economic limit as defined in the Definitions of Reserves section of this report and with one concession extension.

For the Tubarão Martelo field, the volumetric method was used to estimate the OOIP. Proved developed producing reserves were estimated using performance-based methods, primarily decline-curve analysis of oil rate production versus time trends of individual wells. Proved developed non-producing and proved undeveloped reserves were estimated to be zero. Probable undeveloped reserves were estimated for two future well locations, Pepe and Joatinga, based on analogy with historical performance of nearby wells producing from the same reservoir and considering the estimated drainage areas.

Probable and possible reserves were also estimated for the Tubarão Martelo field for wells, as applicable, associated with incremental recovery above quantities estimated for proved and probable reserves, respectively.

No gas reserves were estimated for the Tubarão Martelo field, since PetroRio has represented that there are no plans for gas sales.

### Wahoo Field

The Wahoo field was discovered by a group led by Anadarko in 2009 with the drilling of the 1-APL-1 well. The Wahoo field is located in concession block BM-C-30 at a water depth of approximately 1,400 meters. PetroRio has represented that in 2021 it acquired the interest previously held by Total and BP in the Wahoo field and that the concession block BM-C-30 expires on March 30, 2023. PetroRio has represented that it filed a development plan and a declaration of commerciality for the Wahoo field with the ANP in December 2021, and that there is reasonable expectation in obtaining a concession extension. Based on PetroRio's representations, reserves for the Wahoo field were estimated based on the development plan provided and to the economic limit as defined in the Definition of Reserves section of this report or the expiration date of the extension of the concession, whichever occurs first. The development plan for the Wahoo field consists of subsea infrastructure with four producers and two water injectors tied back to the Frade field FPSO located approximately 35 kilometers to the south with a multi-phase pipeline.

For the Wahoo field, the volumetric method was used to estimate the OOIP. Proved undeveloped reserves were estimated for four vertical production wells at the crest of the structure and for two vertical water injection wells based on analogy and numerical simulation. A 3-D sector model was developed for the Wahoo field undeveloped well locations to run in a black-oil simulator to aid in estimating ultimate oil recovery, potential production profiles, and recovery factors.

Probable and possible reserves were also estimated for the Wahoo field for wells, as applicable, associated with incremental recovery above quantities estimated for proved and probable reserves, respectively.

Production forecasts of the proved developed producing, proved developed, total proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves were prepared by field. These forecasts were prepared using the development plan for each field, including, as appropriate, the drilling of additional wells and the installation of new production facilities and pipelines. The sales gas reserves estimated herein are those quantities of gas forecast to be produced after the fuel requirements for the FPSOs have been met.

Table 2 presents a summary of the gross and net reserves for the Frade, Manati, Polvo, Tubarão Martelo, and Wahoo fields evaluated herein.

## **VALUATION of RESERVES**

Revenue values in this report were estimated using forecast prices, expenses, and costs provided by PetroRio.

In this report, values for proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves were based on projections of estimated future production and revenue prepared for these properties with no risk adjustment applied to the probable or possible reserves. Probable and possible reserves involve substantially higher risk than proved reserves. Revenue values associated with proved-plus-probable and proved-plus-probable-plus-possible reserves have not been adjusted to account for such risks; this adjustment would be necessary in order to make values associated with probable and possible reserves comparable to values associated with proved reserves.

Future net revenue was estimated in accordance with the government of Brazil's Petroleum Law n° 9,478, the Petroleum Law of 1997. The fiscal terms outlined in the Petroleum Law of 1997 and assessable to PetroRio as well as other economic assumptions used in this evaluation are presented as follows:

### *Brazilian Fiscal Terms*

The Petroleum Law of 1997 affords the Brazilian government three elements of government take: 1) petroleum levies consisting of royalties, a special participation fee, and surface rentals; 2) direct taxes, which are levied through the financial transaction tax, the corporate income tax, and two social contribution taxes; and 3) indirect taxes, which are levies on equipment and services used by companies engaged in exploration and production activities. Indirect tax levies for which PetroRio may be responsible were not included in the estimates of operating expenses and capital costs. Certain indirect levies are eligible for reimbursement from sales of refined products. The reimbursement of the indirect levies from refined product sales was not accounted for in this evaluation.



### *Royalties*

The federal royalty rate in Brazil varies by field between 5 and 10 percent. PetroRio provided federal royalty rates of 7.5 percent for the Manati field and 10 percent for the Frade field. The federal royalty rates for the Polvo and Tubarão Martelo fields were updated in 2021 to incur a royalty rate of 10 percent on a portion of the oil production equal to or under a field baseline oil production forecast; any additional oil production volumes in the year will have a reduced royalty rate of 5 percent. PetroRio has represented that these royalties are paid in cash.

Oil royalties are assessed on a valuation as determined by the ANP. Gas royalties are levied on a valuation, as determined by the ANP, of the total gas production less gas injected.

### *Special Participation Fee*

The special participation fee (SPF) is a tax assessed at the field level on a sliding-scale basis that varies depending on the location of the field (onshore or offshore), water depth, level of production, and number of years on production. The tax basis for the SPF is similar to the tax basis for corporation income tax (CIT) with some exceptions. The depreciation methods are different for the SPF and the CIT. An annual provision for abandonment costs is also deductible for the SPF. In years in which the SPF is paid, an additional 1-percent research and development fee is assessed.

### *Surface Rental Fees*

Rental fees are payable to the ANP and vary by field, depending on stage of activity (exploration or development), geological characteristics, and the location of the sedimentary basin. The surface rental fees are included herein in the estimates of field operating expenses.

*Corporate Income Tax*

At the request of PetroRio, Brazilian income taxes were not considered in this evaluation.

*Social Contribution Taxes*

Two social contribution taxes are levied on the market value of oil and gas sales. The Contribution for the Worker's Social Integration Program (PIS) is assessed at a rate of 1.65 percent and the Contribution for Social Security Funding (COFINS) is levied at a 7.6-percent rate. At the Request of PetroRio, these taxes were not considered in the estimates of future net revenue included herein.

*Product Prices*

PetroRio provided the following sales price forecasts for the Frade, Polvo, Tubarão Martelo, and Wahoo fields, expressed in United States dollars per barrel (U.S.\$/bbl) and United States dollars per thousand cubic feet (U.S.\$/10<sup>3</sup>ft<sup>3</sup>):

<u>Year</u>	<u>Frade Field Oil Price (U.S.\$/bbl)</u>	<u>Frade Field Sales Gas Price (U.S.\$/10<sup>3</sup>ft<sup>3</sup>)</u>	<u>Polvo and Tubarão Martelo Fields Oil Price (U.S.\$/bbl)</u>	<u>Wahoo Field Oil Price (U.S.\$/bbl)</u>
2022 Forward	60.00	11.33	58.00	61.25

For the Manati field, PetroRio provided the following sales price forecasts, expressed in United States dollars per barrel (U.S.\$/bbl) and United States dollars per thousand cubic feet (U.S.\$/10<sup>3</sup>ft<sup>3</sup>):

<u>Year</u>	<u>Manati Field Condensate Price (U.S.\$/bbl)</u>	<u>Manati Field Sales Gas Price (U.S.\$/10<sup>3</sup>ft<sup>3</sup>)</u>
2022	57.85	6.41
2023	50.94	6.73
2024	52.02	7.06
2025	53.11	7.42
2026	54.24	7.79

*Operating Expenses, Capital Costs, and Abandonment Costs*

Operating expenses for the fields evaluated herein were provided by PetroRio and were represented to include all costs associated with the operation and maintenance of the equipment and personnel and included surface rental fees. Future capital expenditures, provided by PetroRio, were estimated using 2021 values and were not adjusted for inflation. Abandonment costs, which are those costs associated with the removal of equipment, plugging of wells, and reclamation and restoration associated with the abandonment, were based on information provided by PetroRio. Abandonment costs for the Frade, Polvo, Tubarão Martel, and Wahoo fields were included in the year following cessation of production. As represented by PetroRio, the abandonment costs associated with the Polvo field reflect the remaining balance payable to the abandonment fund. For the Manati field, abandonment costs were included as a yearly accrual to an abandonment fund, which PetroRio has represented is fully funded. Estimates of operating expenses, capital costs, and abandonment costs were considered, as appropriate, in determining the economic viability of the developed non-producing and undeveloped reserves estimated herein.

As represented by PetroRio, the owners of the Manati field reimburse the third-party operator of the compression facility through annual tariff payments until the contractual amount has been reached. These yearly payments were not included in the determination of the economic limit presented in this report.

*Exchange Rate*

Prices, expenses, costs, and revenue included herein were estimated in U.S.\$. Certain operating costs paid in Brazilian reais were converted to U.S.\$ by PetroRio.

Summaries of future net revenue for the proved developed producing, proved developed, total proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves are presented by field or group of fields in Tables 3 through 7. Projections of future net revenue for the Frade, Manati, Polvo, and Tubarão Martelo fields are presented in Tables 8 through 22.

## SUMMARY and CONCLUSIONS

PetroRio has represented that it holds an interest in certain fields in Brazil evaluated herein. The estimated gross and net proved, probable, and possible reserves, as of January 1, 2022, of the properties evaluated herein are summarized as follows, expressed in thousands of barrels ( $10^3$ bbl) and millions of cubic feet ( $10^6$ ft<sup>3</sup>):

	Gross Reserves			Net Reserves		
	Oil ( $10^3$ bbl)	Condensate ( $10^3$ bbl)	Sales Gas ( $10^6$ ft <sup>3</sup> )	Oil ( $10^3$ bbl)	Condensate ( $10^3$ bbl)	Sales Gas ( $10^6$ ft <sup>3</sup> )
Proved						
Developed Producing	70,192	443	136,003	68,331	43	13,601
Developed Non-Producing	720	0	0	689	0	0
<b>Total Proved Developed</b>	<b>70,912</b>	<b>443</b>	<b>136,003</b>	<b>69,020</b>	<b>43</b>	<b>13,601</b>
Undeveloped	164,205	0	139,100	118,877	0	75,924
<b>Total Proved</b>	<b>235,117</b>	<b>443</b>	<b>275,103</b>	<b>187,897</b>	<b>43</b>	<b>89,525</b>
Probable	116,310	33	27,201	100,227	5	43,470
<b>Proved plus Probable</b>	<b>351,427</b>	<b>476</b>	<b>302,304</b>	<b>288,124</b>	<b>48</b>	<b>132,995</b>
Possible	161,726	24	22,566	136,604	1	5,932
<b>Proved plus Probable plus Possible</b>	<b>513,153</b>	<b>500</b>	<b>324,870</b>	<b>424,728</b>	<b>49</b>	<b>138,927</b>

Note: Probable and possible reserves have not been risk adjusted to make them comparable to proved reserves.

The estimated future revenue attributable to PetroRio's interest in the proved, proved-plus-probable, and proved-plus-probable-plus-possible reserves, as of January 1, 2022, of the properties evaluated under the economic assumptions described herein is summarized as follows, expressed in thousands of United States dollars ( $10^3$ U.S.\$):

	Proved Developed Producing ( $10^3$ U.S.\$)	Proved Developed ( $10^3$ U.S.\$)	Total Proved ( $10^3$ U.S.\$)	Proved plus Probable ( $10^3$ U.S.\$)	Proved plus Probable plus Possible ( $10^3$ U.S.\$)
Future Gross Revenue	4,120,046	4,160,008	12,238,289	18,708,975	27,004,973
Royalties Paid in Cash	395,551	398,281	1,243,314	1,843,950	2,654,768
Operating Expenses	1,581,365	1,581,365	2,673,957	3,370,060	4,821,395
Capital Costs	154,000	154,000	1,183,217	1,432,967	1,681,192
Abandonment Costs	273,571	273,571	344,301	344,301	344,301
SPF	1,345	1,345	1,345	1,409	1,551
Future Net Revenue	1,714,214	1,751,446	6,792,155	11,716,288	17,501,766
Present Worth at 10 Percent	1,420,583	1,448,193	3,961,787	6,350,916	8,121,073

Notes:

1. Values for probable and possible reserves have not been risk adjusted to make them comparable to values for proved reserves.
2. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.

DEGOLYER AND MACNAUGHTON

While the oil and gas industry may be subject to regulatory changes from time to time that could affect an industry participant's ability to recover its reserves, we are not aware of any such governmental actions which would restrict the recovery of the January 1, 2022, estimated reserves.

DeGolyer and MacNaughton is an independent petroleum engineering consulting firm that has been providing petroleum consulting services throughout the world since 1936. Our fees were not contingent on the results of our evaluation. This report has been prepared at the request of PetroRio. DeGolyer and MacNaughton has used all assumptions, procedures, data, and methods that it considers necessary to prepare this report.

Submitted,

*DeGolyer and MacNaughton*

DeGOLYER and MacNAUGHTON  
Texas Registered Engineering Firm F-716

SIGNED: April 28, 2022



*Federico Dordoni*  
Federico Dordoni, P.E.  
Senior Vice President  
DeGolyer and MacNaughton

**TABLE 1**  
**LIST OF FIELDS EVALUATED**  
**as of**  
**JANUARY 1, 2022**  
**for**  
**PETRORIO S.A.**  
**in**  
**BRAZIL**

<b>Field</b>	<b>Working Interest</b>	<b>Concession Expiration Date</b>	<b>Extension of the Concession Expiration Date</b>
Frade	100.00%	August 31, 2025	August 31, 2052
Manati	10.00%	November 1, 2029	Not Applicable
Polvo	95.00 – 96.00%	July 1, 2032	July 1, 2059
Tubarão Martelo	95.00 – 96.00%	April 30, 2039	April 30, 2066
Wahoo	64.30%	March 30, 2023	March 30, 2050

Notes:

- PetroRio has represented it holds a net interest of 95 percent of the combined oil production from the two fields. The remaining 5-percent net interest is held by Dommo Energia, formerly OGX Petróleo e Gás Participações S.A. (OGX), until 30 million barrels of oil have been produced, at which point PetroRio's net interest increases to 96 percent for the lives of the fields.
- In certain cases, the estimated economic limits occur after the expiration dates of the concession agreements for the Frade, Polvo, Tubarão Martelo, and Wahoo fields. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extensions. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extensions for those fields.

**TABLE 2**  
**SUMMARY of GROSS and NET RESERVES**  
as of  
**JANUARY 1, 2022**  
for  
**CERTAIN FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

Field	Gross Reserves																	
	Proved Developed Producing			Proved Developed			Proved Undeveloped			Total Proved			Probable			Possible		
	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )
Frade	30,552	0	0	30,552	0	0	29,898	0	32,895	60,450	0	32,895	41,252	0	17,211	46,093	0	7,180
Wahoo	0	0	0	0	0	0	126,042	0	106,205	126,042	0	106,205	41,269	0	0	64,667	0	8,090
Manati	0	443	136,003	0	443	136,003	0	0	0	0	443	136,003	0	33	9,990	0	24	7,296
Polvo	13,376	0	0	14,096	0	0	7,197	0	0	21,293	0	0	13,162	0	0	17,481	0	0
Tubarão Martelo	26,264	0	0	26,264	0	0	1,068	0	0	27,332	0	0	20,627	0	0	33,485	0	0
<b>Total</b>	<b>70,192</b>	<b>443</b>	<b>136,003</b>	<b>70,912</b>	<b>443</b>	<b>136,003</b>	<b>164,205</b>	<b>0</b>	<b>139,100</b>	<b>235,117</b>	<b>443</b>	<b>275,103</b>	<b>116,310</b>	<b>33</b>	<b>27,201</b>	<b>161,726</b>	<b>24</b>	<b>22,566</b>

Field	Net Reserves																	
	Proved Developed Producing			Proved Developed			Proved Undeveloped			Total Proved			Probable			Possible		
	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )
Frade	30,552	0	0	30,552	0	0	29,898	0	32,895	60,450	0	32,895	41,252	0	17,211	46,093	0	0
Wahoo	0	0	0	0	0	0	81,045	0	43,029	81,045	0	43,029	26,536	0	25,261	41,581	0	5,202
Manati	0	43	13,601	0	43	13,601	0	0	0	0	43	13,601	0	5	998	0	1	730
Polvo	12,745	0	0	13,430	0	0	6,884	0	0	20,314	0	0	12,636	0	0	16,780	0	0
Tubarão Martelo	25,034	0	0	25,038	0	0	1,050	0	0	26,088	0	0	19,803	0	0	32,150	0	0
<b>Total</b>	<b>68,331</b>	<b>43</b>	<b>13,601</b>	<b>69,020</b>	<b>43</b>	<b>13,601</b>	<b>118,877</b>	<b>0</b>	<b>75,924</b>	<b>187,897</b>	<b>43</b>	<b>89,525</b>	<b>100,227</b>	<b>5</b>	<b>43,470</b>	<b>136,604</b>	<b>1</b>	<b>5,932</b>

Note: Probable and possible reserves have not been risk adjusted to make them comparable to proved reserves.



**TABLE 3**  
**SUMMARY of FUTURE NET REVENUE from PROVED DEVELOPED PRODUCING RESERVES**  
as of  
**JANUARY 1, 2022**  
for  
**CERTAIN FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRRORIO S.A.**

<b>Field</b>	<b>Future Gross Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Royalties Paid in Cash (10<sup>3</sup>U.S.\$)</b>	<b>Operating Expenses (10<sup>3</sup>U.S.\$)</b>	<b>Capital Costs (10<sup>3</sup>U.S.\$)</b>	<b>Abandonment Costs (10<sup>3</sup>U.S.\$)</b>	<b>SPF (10<sup>3</sup>U.S.\$)</b>	<b>Future Net Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Present Worth at 10 Percent (10<sup>3</sup>U.S.\$)</b>
Frade	1,833,120	196,752	715,000	30,000	178,516	0	712,852	621,729
Manati	95,744	7,555	30,365	0	1,955	1,345	54,524	45,889
Polvo and Tubarão Martelo	2,191,182	191,244	836,000	124,000	93,100	0	946,838	752,965
<b>Total</b>	<b>4,120,046</b>	<b>395,551</b>	<b>1,581,365</b>	<b>154,000</b>	<b>273,571</b>	<b>1,345</b>	<b>1,714,214</b>	<b>1,420,583</b>

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 4**  
**SUMMARY of FUTURE NET REVENUE from PROVED DEVELOPED RESERVES**  
as of  
**JANUARY 1, 2022**  
for  
**CERTAIN FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

<b>Field</b>	<b>Future Gross Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Royalties Paid in Cash (10<sup>3</sup>U.S.\$)</b>	<b>Operating Expenses (10<sup>3</sup>U.S.\$)</b>	<b>Capital Costs (10<sup>3</sup>U.S.\$)</b>	<b>Abandonment Costs (10<sup>3</sup>U.S.\$)</b>	<b>SPF (10<sup>3</sup>U.S.\$)</b>	<b>Future Net Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Present Worth at 10 Percent (10<sup>3</sup>U.S.\$)</b>
Frade	1,833,120	196,752	715,000	30,000	178,516	0	712,852	621,729
Manati	95,744	7,555	30,365	0	1,955	1,345	54,524	45,889
Polvo and Tubarão Martelo	2,231,144	193,974	836,000	124,000	93,100	0	984,070	780,575
<b>Total</b>	<b>4,160,008</b>	<b>398,281</b>	<b>1,581,365</b>	<b>154,000</b>	<b>273,571</b>	<b>1,345</b>	<b>1,751,446</b>	<b>1,448,193</b>

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 5**  
**SUMMARY of FUTURE NET REVENUE from TOTAL PROVED RESERVES**  
as of  
**JANUARY 1, 2022**  
for  
**CERTAIN FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRRORIO S.A.**

<b>Field</b>	<b>Future Gross Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Royalties Paid in Cash (10<sup>3</sup>U.S.\$)</b>	<b>Operating Expenses (10<sup>3</sup>U.S.\$)</b>	<b>Capital Costs (10<sup>3</sup>U.S.\$)</b>	<b>Abandonment Costs (10<sup>3</sup>U.S.\$)</b>	<b>SPF (10<sup>3</sup>U.S.\$)</b>	<b>Future Net Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Present Worth at 10 Percent (10<sup>3</sup>U.S.\$)</b>
Frade and Wahoo	9,451,229	1,011,347	1,731,592	1,000,717	249,246	0	5,458,327	2,942,385
Manati	95,744	7,555	30,365	0	1,955	1,345	54,524	45,889
Polvo and Tubarão Martelo	2,691,316	224,412	912,000	182,500	93,100	0	1,279,304	973,513
<b>Total</b>	<b>12,238,289</b>	<b>1,243,314</b>	<b>2,673,957</b>	<b>1,183,217</b>	<b>344,301</b>	<b>1,345</b>	<b>6,792,155</b>	<b>3,961,787</b>

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 6**  
**SUMMARY of FUTURE NET REVENUE from PROVED-plus-PROBABLE RESERVES**  
**as of**  
**JANUARY 1, 2022**  
**for**  
**CERTAIN FIELDS**  
**in**  
**BRAZIL**  
**with interests attributable to**  
**PETRORIO S.A.**

<b>Field</b>	<b>Future Gross Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Royalties Paid in Cash (10<sup>3</sup>U.S.\$)</b>	<b>Operating Expenses (10<sup>3</sup>U.S.\$)</b>	<b>Capital Costs (10<sup>3</sup>U.S.\$)</b>	<b>Abandonment Costs (10<sup>3</sup>U.S.\$)</b>	<b>SPF (10<sup>3</sup>U.S.\$)</b>	<b>Future Net Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Present Worth at 10 Percent (10<sup>3</sup>U.S.\$)</b>
Frade and Wahoo	14,032,990	1,469,921	1,895,195	1,119,467	249,246	0	9,299,161	4,774,462
Manati	103,207	8,135	30,865	0	1,955	1,409	60,843	50,614
Polvo and Tubarão Martelo	4,572,778	365,894	1,444,000	313,500	93,100	0	2,356,284	1,525,840
<b>Total</b>	<b>18,708,975</b>	<b>1,843,950</b>	<b>3,370,060</b>	<b>1,432,967</b>	<b>344,301</b>	<b>1,409</b>	<b>11,716,288</b>	<b>6,350,916</b>

Note: The values associated with probable reserves have not been risk adjusted to make them comparable to the values associated with proved reserves.

**TABLE 7**  
**SUMMARY of FUTURE NET REVENUE from PROVED-plus-PROBABLE-plus-POSSIBLE RESERVES**  
as of  
**JANUARY 1, 2022**  
for  
**CERTAIN FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

<b>Field</b>	<b>Future Gross Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Royalties Paid in Cash (10<sup>3</sup>U.S.\$)</b>	<b>Operating Expenses (10<sup>3</sup>U.S.\$)</b>	<b>Capital Costs (10<sup>3</sup>U.S.\$)</b>	<b>Abandonment Costs (10<sup>3</sup>U.S.\$)</b>	<b>SPF (10<sup>3</sup>U.S.\$)</b>	<b>Future Net Revenue (10<sup>3</sup>U.S.\$)</b>	<b>Present Worth at 10 Percent (10<sup>3</sup>U.S.\$)</b>
Frade and Wahoo	19,485,965	2,040,477	2,586,185	1,212,692	249,246	0	13,397,365	5,887,799
Manati	108,290	8,542	31,210	0	1,955	1,551	65,032	54,035
Polvo and Tubarão Martelo	7,410,718	605,749	2,204,000	468,500	93,100	0	4,039,369	2,179,239
<b>Total</b>	<b>27,004,973</b>	<b>2,654,768</b>	<b>4,821,395</b>	<b>1,681,192</b>	<b>344,301</b>	<b>1,551</b>	<b>17,501,766</b>	<b>8,121,073</b>

Note: The values associated with probable and possible reserves have not been risk adjusted to make them comparable to the values associated with proved reserves.

TABLE 8  
PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED PRODUCING RESERVES  
as of  
JANUARY 1, 2022  
for the  
FRADE FIELD  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	5,221	0	5,221	0	60.00	-	313,260	33,797	65,000	0	0	0	214,463	203,284
2023	4,496	0	4,496	0	60.00	-	269,760	29,059	65,000	0	0	0	175,701	150,757
2024	3,884	0	3,884	0	60.00	-	233,040	25,066	65,000	10,000	0	0	132,974	103,281
2025	3,340	0	3,340	0	60.00	-	200,400	21,523	65,000	5,000	0	0	108,877	76,549
2026	2,882	0	2,882	0	60.00	-	172,920	18,546	65,000	0	0	0	89,374	56,881
2027	2,490	0	2,490	0	60.00	-	149,400	16,001	65,000	0	0	0	68,399	39,405
2028	2,157	0	2,157	0	60.00	-	129,420	13,843	65,000	10,000	0	0	40,577	21,161
2029	1,861	0	1,861	0	60.00	-	111,660	11,927	65,000	5,000	0	0	29,733	14,036
2030	1,611	0	1,611	0	60.00	-	96,660	10,312	65,000	0	0	0	21,348	9,123
2031	1,396	0	1,396	0	60.00	-	83,760	8,926	65,000	0	0	0	9,834	3,804
2032	1,214	0	1,214	0	60.00	-	72,840	7,752	65,000	0	0	0	88	31
2033	0	0	0	0	-	-	0	0	0	0	178,516	0	(178,516)	(56,583)
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2047	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2048	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2049	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2050	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2051	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2052	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2053	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2054	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2055	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2056	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>30,552</b>	<b>0</b>	<b>30,552</b>	<b>0</b>			<b>1,833,120</b>	<b>196,752</b>	<b>715,000</b>	<b>30,000</b>	<b>178,516</b>	<b>0</b>	<b>712,852</b>	<b>621,729</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
4. The estimated economic limit for the Frade field occurs after the expiration date of the concession agreement. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extension. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extension for the Frade field.

Present Worth (10<sup>3</sup>U.S.\$) at:

5 Percent	672,433
15 Percent	569,964
20 Percent	521,290

TABLE 9  
PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED RESERVES  
as of  
JANUARY 1, 2022  
for the  
FRADE FIELD  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	5,221	0	5,221	0	60.00	-	313,260	33,797	65,000	0	0	0	214,463	203,284
2023	4,496	0	4,496	0	60.00	-	269,760	29,059	65,000	0	0	0	175,701	150,757
2024	3,884	0	3,884	0	60.00	-	233,040	25,066	65,000	10,000	0	0	132,974	103,281
2025	3,340	0	3,340	0	60.00	-	200,400	21,523	65,000	5,000	0	0	108,877	76,549
2026	2,882	0	2,882	0	60.00	-	172,920	18,546	65,000	0	0	0	89,374	56,881
2027	2,490	0	2,490	0	60.00	-	149,400	16,001	65,000	0	0	0	68,399	39,405
2028	2,157	0	2,157	0	60.00	-	129,420	13,843	65,000	10,000	0	0	40,577	21,161
2029	1,861	0	1,861	0	60.00	-	111,660	11,927	65,000	5,000	0	0	29,733	14,036
2030	1,611	0	1,611	0	60.00	-	96,660	10,312	65,000	0	0	0	21,348	9,123
2031	1,396	0	1,396	0	60.00	-	83,760	8,926	65,000	0	0	0	9,834	3,804
2032	1,214	0	1,214	0	60.00	-	72,840	7,752	65,000	0	0	0	88	31
2033	0	0	0	0	-	-	0	0	0	0	178,516	0	(178,516)	(56,583)
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2047	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2048	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2049	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2050	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2051	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2052	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2053	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2054	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2055	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2056	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>30,552</b>	<b>0</b>	<b>30,552</b>	<b>0</b>			<b>1,833,120</b>	<b>196,752</b>	<b>715,000</b>	<b>30,000</b>	<b>178,516</b>	<b>0</b>	<b>712,852</b>	<b>621,729</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
4. The estimated economic limit for the Frade field occurs after the expiration date of the concession agreement. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extension. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extension for the Frade field.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	672,433
15 Percent	569,964
20 Percent	521,290

TABLE 10  
PROJECTION of FUTURE NET REVENUE from TOTAL PROVED RESERVES  
as of  
JANUARY 1, 2022  
for the  
FRADE and WAHOO FIELDS  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	6,782	946	6,782	946	60.00	11.33	417,638	44,685	65,000	185,085	0	0	122,868	116,464
2023	8,274	2,223	8,274	2,223	60.00	11.33	521,627	55,084	65,000	366,020	0	0	35,523	30,480
2024	17,239	8,586	13,701	6,824	60.58	11.33	907,323	93,507	59,608	244,080	0	0	510,128	396,216
2025	19,143	10,129	14,468	7,655	60.73	11.33	965,373	99,312	56,687	9,437	0	0	799,937	562,417
2026	17,566	11,010	13,089	8,204	60.77	11.33	888,370	91,612	55,885	0	0	0	740,873	471,517
2027	14,830	11,962	11,031	8,898	60.78	11.33	771,278	79,903	55,786	12,860	0	0	622,729	358,759
2028	12,248	10,906	9,129	8,129	60.77	11.33	646,871	67,462	55,897	10,000	0	0	513,512	267,797
2029	9,615	9,546	7,230	7,178	60.74	11.33	520,477	54,822	56,396	5,000	0	0	404,259	190,838
2030	7,867	8,515	5,939	6,428	60.73	11.33	433,504	46,125	56,624	6,430	0	0	324,325	138,591
2031	6,693	7,790	5,047	5,874	60.73	11.33	373,056	40,080	56,550	16,075	0	0	260,351	100,708
2032	5,702	6,347	4,296	4,782	60.74	11.33	315,119	34,287	56,510	10,000	0	0	214,322	75,045
2033	5,024	4,726	3,763	3,540	60.75	11.33	268,710	29,646	56,174	5,000	0	0	177,890	56,384
2034	4,591	3,361	3,405	2,493	60.78	11.33	235,202	26,295	55,619	0	0	0	153,288	43,981
2035	4,212	2,166	3,094	1,591	60.81	11.33	206,172	23,392	55,092	12,860	0	0	114,828	29,823
2036	3,966	1,188	2,880	863	60.85	11.33	185,026	21,277	54,470	10,000	0	0	99,279	23,341
2037	3,742	412	2,688	296	60.88	11.33	166,999	19,475	53,875	5,000	0	0	88,649	18,866
2038	3,559	0	2,531	0	60.92	-	154,189	18,091	53,321	6,430	0	0	76,347	14,708
2039	3,437	0	2,418	0	60.95	-	147,377	17,062	52,762	16,075	0	0	61,478	10,721
2040	3,346	0	2,331	0	60.98	-	142,144	16,301	52,250	10,000	0	0	63,593	10,039
2041	3,214	0	2,221	0	61.01	-	135,503	15,463	51,833	5,000	0	0	63,207	9,032
2042	3,060	0	2,100	0	61.03	-	128,163	14,575	51,479	0	0	0	62,109	8,034
2043	2,878	0	1,963	0	61.05	-	119,841	13,601	51,150	12,860	0	0	42,230	4,945
2044	2,706	0	1,838	0	61.06	-	112,228	12,718	50,941	10,000	0	0	38,569	4,088
2045	2,509	0	1,698	0	61.07	-	103,697	11,727	50,772	5,000	0	0	36,198	3,473
2046	2,312	0	1,561	0	61.08	-	95,346	10,753	50,639	6,430	0	0	27,524	2,390
2047	2,125	0	1,431	0	61.09	-	87,420	9,818	50,523	16,075	0	0	11,004	865
2048	1,965	0	1,321	0	61.10	-	80,713	9,034	50,408	10,000	0	0	11,271	802
2049	1,813	0	1,216	0	61.11	-	74,310	8,296	50,281	5,000	0	0	10,733	691
2050	1,682	0	1,125	0	61.11	-	68,749	7,662	50,175	0	0	0	10,912	636
2051	1,563	0	1,043	0	61.12	-	63,748	7,101	50,075	0	0	0	6,572	347
2052	1,462	0	974	0	61.13	-	59,541	6,629	49,971	0	0	0	2,941	141
2053	1,367	0	908	0	61.14	-	55,515	5,552	49,839	0	0	0	124	5
2054	0	0	0	0	-	-	0	0	0	0	249,246	0	(249,246)	(9,759)
2055	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2056	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>186,492</b>	<b>99,813</b>	<b>141,495</b>	<b>75,924</b>			<b>9,451,229</b>	<b>1,011,347</b>	<b>1,731,592</b>	<b>1,000,717</b>	<b>249,246</b>	<b>0</b>	<b>5,458,327</b>	<b>2,942,385</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
4. The estimated economic limit for the Fraze field occurs after the expiration date of the concession agreement. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extension. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extension for the Fraze field.

Present Worth (10<sup>3</sup>U.S.\$) at:

5 Percent	3,954,083
15 Percent	2,252,785
20 Percent	1,766,716



TABLE 11  
PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE RESERVES  
as of  
JANUARY 1, 2022  
for the  
FRADE and WAHOO FIELDS  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	7,289	1,130	7,289	1,130	60.00	11.33	450,143	47,935	65,000	266,325	0	0	70,883	67,188
2023	9,656	2,929	9,656	2,929	60.00	11.33	612,546	64,175	65,000	403,530	0	0	79,841	68,506
2024	23,918	13,138	18,681	10,261	60.63	11.33	1,248,886	127,663	58,579	244,080	0	0	818,564	635,777
2025	26,618	15,302	19,983	11,488	60.75	11.33	1,344,126	137,187	56,305	9,437	0	0	1,141,197	802,349
2026	24,739	15,731	18,420	11,713	60.77	11.33	1,252,091	127,984	55,842	0	0	0	1,068,265	679,880
2027	23,120	18,015	17,079	13,308	60.80	11.33	1,189,183	121,693	55,404	12,860	0	0	999,226	575,662
2028	21,119	22,840	15,544	16,811	60.81	11.33	1,135,700	116,345	55,201	10,000	0	0	954,154	497,592
2029	17,308	23,488	12,871	17,467	60.78	11.33	980,200	100,795	55,774	5,000	0	0	818,631	386,450
2030	13,584	16,681	10,291	12,637	60.72	11.33	768,047	79,579	56,818	6,430	0	0	625,220	267,170
2031	11,331	10,245	8,682	7,850	60.69	11.33	615,852	64,360	57,465	16,075	0	0	477,952	184,880
2032	10,386	6,520	7,938	4,983	60.69	11.33	538,214	56,596	57,324	10,000	0	0	414,294	145,066
2033	9,789	4,502	7,429	3,417	60.72	11.33	489,804	51,755	56,922	5,000	0	0	376,127	119,218
2034	9,176	3,177	6,929	2,399	60.73	11.33	447,979	47,573	56,633	0	0	0	343,773	98,635
2035	7,871	1,819	5,996	1,386	60.70	11.33	379,660	40,741	57,135	12,860	0	0	268,924	69,845
2036	6,349	669	4,937	520	60.64	11.33	305,272	33,302	58,317	10,000	0	0	203,653	47,880
2037	5,457	123	4,287	97	60.61	11.33	260,934	28,868	58,925	5,000	0	0	168,141	35,784
2038	4,801	0	3,800	0	60.59	-	230,242	25,611	59,363	6,430	0	0	138,838	26,747
2039	4,267	0	3,398	0	60.58	-	205,851	22,876	59,727	16,075	0	0	107,173	18,689
2040	3,820	0	3,060	0	60.56	-	185,314	20,561	60,072	10,000	0	0	94,681	14,946
2041	3,424	0	2,756	0	60.55	-	166,876	18,495	60,369	5,000	0	0	83,012	11,862
2042	3,091	0	2,499	0	60.53	-	151,264	16,761	60,642	0	0	0	73,861	9,554
2043	2,817	0	2,284	0	60.52	-	138,228	15,320	60,819	12,860	0	0	49,229	5,764
2044	2,586	0	2,102	0	60.52	-	127,213	14,096	60,959	10,000	0	0	42,158	4,468
2045	2,375	0	1,933	0	60.51	-	116,966	12,947	61,041	5,000	0	0	37,978	3,644
2046	2,207	0	1,796	0	60.52	-	108,694	12,026	61,029	6,430	0	0	29,209	2,537
2047	2,060	0	1,675	0	60.52	-	101,371	11,219	60,973	16,075	0	0	13,104	1,030
2048	1,932	0	1,569	0	60.52	-	94,956	10,516	60,907	10,000	0	0	13,533	963
2049	1,799	0	1,459	0	60.53	-	88,313	9,790	60,810	5,000	0	0	12,713	819
2050	1,674	0	1,353	0	60.53	-	81,897	9,084	60,618	0	0	0	12,195	711
2051	1,570	0	1,267	0	60.54	-	76,704	8,512	60,508	0	0	0	7,684	406
2052	1,484	0	1,195	0	60.54	-	72,345	8,033	60,418	0	0	0	3,894	186
2053	1,396	0	1,125	0	60.55	-	68,119	7,523	60,296	0	0	0	300	13
2054	0	0	0	0	-	-	0	0	0	0	249,246	0	(249,246)	(9,759)
2055	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2056	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>269,013</b>	<b>156,309</b>	<b>209,283</b>	<b>118,396</b>			<b>14,032,990</b>	<b>1,469,921</b>	<b>1,895,195</b>	<b>1,119,467</b>	<b>249,246</b>	<b>0</b>	<b>9,299,161</b>	<b>4,774,462</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
4. Probable reserves and the values associated with probable reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.
5. The estimated economic limit for the Fraze field occurs after the expiration date of the concession agreement. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extension. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extension for the Fraze field.

Present Worth (10<sup>3</sup>U.S.\$) at:

5 Percent	6,557,601
15 Percent	3,581,933
20 Percent	2,755,310

TABLE 12  
PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE-plus-POSSIBLE RESERVES  
as of  
JANUARY 1, 2022  
for the  
FRADE and WAHOO FIELDS  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Oil (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	7,516	1,231	7,516	1,231	60.00	11.33	464,907	49,412	65,000	266,325	0	0	84,170	79,783
2023	10,069	3,145	10,069	3,145	60.00	11.33	639,773	66,898	65,000	403,530	0	0	104,345	89,531
2024	27,156	15,463	21,015	11,966	60.66	11.33	1,410,345	143,809	58,039	244,080	0	0	964,417	749,061
2025	31,063	18,688	23,144	13,924	60.77	11.33	1,564,220	159,197	55,879	9,437	0	0	1,339,707	941,917
2026	29,800	22,559	22,018	16,668	60.80	11.33	1,527,542	155,529	55,416	0	0	0	1,316,597	837,927
2027	25,144	27,514	18,759	20,527	60.77	11.33	1,372,555	140,030	55,955	12,860	0	0	1,163,710	670,423
2028	20,705	21,456	15,683	16,252	60.72	11.33	1,136,407	116,415	56,810	10,000	0	0	953,182	497,085
2029	18,783	14,992	14,244	11,369	60.72	11.33	993,707	102,145	56,876	5,000	0	0	829,686	391,669
2030	16,765	10,982	12,775	8,368	60.70	11.33	870,252	89,800	57,150	6,430	0	0	716,872	306,335
2031	14,048	7,266	10,877	5,626	60.66	11.33	723,542	75,129	58,071	16,075	0	0	574,267	222,137
2032	13,248	5,393	10,234	4,166	60.66	11.33	667,995	69,574	57,937	10,000	0	0	530,484	185,750
2033	12,614	4,624	9,703	3,557	60.68	11.33	629,079	65,683	57,691	5,000	0	0	500,705	158,704
2034	12,052	4,097	9,235	3,139	60.69	11.33	596,037	62,378	57,471	0	0	0	476,188	136,627
2035	11,577	3,550	8,834	2,709	60.70	11.33	566,917	59,466	57,230	12,860	0	0	437,361	113,592
2036	11,120	3,091	8,457	2,351	60.71	11.33	540,061	56,781	57,039	10,000	0	0	416,241	97,860
2037	10,412	2,535	7,919	1,928	60.71	11.33	502,606	53,035	57,045	5,000	0	0	387,526	82,473
2038	9,365	1,856	7,174	1,422	60.69	11.33	451,501	47,925	57,455	6,430	0	0	339,691	65,440
2039	8,515	1,357	6,562	1,046	60.67	11.33	409,968	43,772	57,796	16,075	0	0	292,325	50,977
2040	7,888	999	6,101	773	60.66	11.33	378,845	40,659	58,006	10,000	0	0	270,180	42,650
2041	7,197	617	5,598	480	60.64	11.33	344,901	37,265	58,332	5,000	0	0	244,304	34,909
2042	6,358	166	5,006	131	60.61	11.33	304,898	33,265	59,056	0	0	0	212,577	27,497
2043	5,670	0	4,516	0	60.58	-	273,579	30,010	59,735	12,860	0	0	170,974	20,019
2044	5,241	0	4,198	0	60.56	-	254,231	28,029	60,071	10,000	0	0	156,131	16,548
2045	4,858	0	3,908	0	60.55	-	236,629	26,213	60,327	5,000	0	0	145,089	13,920
2046	4,545	0	3,667	0	60.54	-	222,000	24,574	60,521	6,430	0	0	130,475	11,332
2047	4,281	0	3,461	0	60.53	-	209,494	23,152	60,644	16,075	0	0	109,623	8,618
2048	4,057	0	3,285	0	60.53	-	198,841	21,959	60,731	10,000	0	0	106,151	7,554
2049	3,838	0	3,111	0	60.53	-	188,309	20,781	60,785	5,000	0	0	101,743	6,554
2050	3,655	0	2,963	0	60.53	-	179,350	19,773	60,798	0	0	0	98,779	5,760
2051	3,489	0	2,828	0	60.53	-	171,179	18,859	60,788	12,860	0	0	78,672	4,153
2052	3,348	0	2,712	0	60.53	-	164,157	18,073	60,756	10,000	0	0	75,328	3,599
2053	3,059	0	2,500	0	60.50	-	151,250	16,614	61,287	5,000	0	0	68,349	2,956
2054	2,836	0	2,333	0	60.49	-	141,123	15,476	61,687	6,430	0	0	57,530	2,253
2055	2,632	0	2,179	0	60.47	-	131,764	14,428	62,091	16,075	0	0	39,170	1,388
2056	2,449	0	2,042	0	60.45	-	123,439	13,495	62,515	10,000	0	0	37,429	1,201
2057	2,267	0	1,900	0	60.43	-	114,817	12,532	62,860	5,000	0	0	34,425	1,000
2058	2,108	0	1,778	0	60.42	-	107,427	11,707	63,252	0	0	0	32,468	854
2059	1,966	0	1,669	0	60.40	-	100,808	10,969	63,663	12,860	0	0	13,316	317
2060	1,839	0	1,571	0	60.38	-	94,857	10,305	64,089	10,000	0	0	10,463	225
2061	1,716	0	1,475	0	60.37	-	89,046	9,659	64,478	5,000	0	0	9,909	193
2062	1,606	0	1,389	0	60.35	-	83,826	9,081	64,881	0	0	0	9,864	174
2063	1,505	0	1,310	0	60.34	-	79,045	8,549	65,281	0	0	0	5,215	83
2064	1,414	0	1,239	0	60.32	-	74,736	8,072	65,691	0	0	0	973	14
2065	0	0	0	0	-	-	0	0	0	0	249,246	0	(249,246)	(3,263)
<b>Total</b>	<b>379,774</b>	<b>171,581</b>	<b>296,957</b>	<b>130,778</b>			<b>19,485,965</b>	<b>2,040,477</b>	<b>2,586,185</b>	<b>1,212,692</b>	<b>249,246</b>	<b>0</b>	<b>13,397,365</b>	<b>5,887,799</b>

Notes:

- Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
- SPF = Special Participation Fee.
- Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
- Probable and possible reserves and the values associated with probable and possible reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.
- The estimated economic limit for the Fraze field occurs after the expiration date of the concession agreement. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extension. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extension for the Fraze field.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	8,556,243
15 Percent	4,300,508
20 Percent	3,264,281

**TABLE 13**  
**PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED PRODUCING RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**MANATI FIELD**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	144	44,128	14	4,413	57.85	6.41	29,097	2,296	6,686	0	640	1,345	18,130	17,185
2023	114	35,046	11	3,505	50.94	6.73	24,149	1,906	6,441	0	508	0	15,294	13,123
2024	89	27,296	9	2,730	52.02	7.06	19,742	1,556	6,131	0	380	0	11,675	9,068
2025	64	19,749	6	1,975	53.11	7.42	14,974	1,182	5,796	0	286	0	7,710	5,421
2026	32	9,784	3	978	54.24	7.79	7,782	615	5,311	0	141	0	1,715	1,092
2027	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2028	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2029	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2030	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2031	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2032	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2033	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>443</b>	<b>136,003</b>	<b>43</b>	<b>13,601</b>			<b>95,744</b>	<b>7,555</b>	<b>30,365</b>	<b>0</b>	<b>1,955</b>	<b>1,345</b>	<b>54,524</b>	<b>45,889</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Abandonment costs are allocated annually into an abandonment sinking fund.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	49,926
15 Percent	42,328
20 Percent	39,179

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 14**  
**PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED RESERVES**  
**as of**  
**JANUARY 1, 2022**  
**for the**  
**MANATI FIELD**  
**in**  
**BRAZIL**  
**with interests attributable to**  
**PETRORIO S.A.**

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	144	44,128	14	4,413	57.85	6.41	29,097	2,296	6,686	0	640	1,345	18,130	17,185
2023	114	35,046	11	3,505	50.94	6.73	24,149	1,906	6,441	0	508	0	15,294	13,123
2024	89	27,296	9	2,730	52.02	7.06	19,742	1,556	6,131	0	380	0	11,675	9,068
2025	64	19,749	6	1,975	53.11	7.42	14,974	1,182	5,796	0	286	0	7,710	5,421
2026	32	9,784	3	978	54.24	7.79	7,782	615	5,311	0	141	0	1,715	1,092
2027	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2028	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2029	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2030	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2031	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2032	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2033	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>443</b>	<b>136,003</b>	<b>43</b>	<b>13,601</b>			<b>95,744</b>	<b>7,555</b>	<b>30,365</b>	<b>0</b>	<b>1,955</b>	<b>1,345</b>	<b>54,524</b>	<b>45,889</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Abandonment costs are allocated annually into an abandonment sinking fund.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	49,926
15 Percent	42,328
20 Percent	39,179

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 15**  
**PROJECTION of FUTURE NET REVENUE from TOTAL PROVED RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**MANATI FIELD**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	144	44,128	14	4,413	57.85	6.41	29,097	2,296	6,686	0	640	1,345	18,130	17,185
2023	114	35,046	11	3,505	50.94	6.73	24,149	1,906	6,441	0	508	0	15,294	13,123
2024	89	27,296	9	2,730	52.02	7.06	19,742	1,556	6,131	0	380	0	11,675	9,068
2025	64	19,749	6	1,975	53.11	7.42	14,974	1,182	5,796	0	286	0	7,710	5,421
2026	32	9,784	3	978	54.24	7.79	7,782	615	5,311	0	141	0	1,715	1,092
2027	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2028	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2029	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2030	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2031	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2032	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2033	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>443</b>	<b>136,003</b>	<b>43</b>	<b>13,601</b>			<b>95,744</b>	<b>7,555</b>	<b>30,365</b>	<b>0</b>	<b>1,955</b>	<b>1,345</b>	<b>54,524</b>	<b>45,889</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Abandonment costs are allocated annually into an abandonment sinking fund.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	49,926
15 Percent	42,328
20 Percent	39,179

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

TABLE 16  
PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE RESERVES  
as of  
JANUARY 1, 2022  
for the  
MANATI FIELD  
in  
BRAZIL  
with interests attributable to  
PETRORIO S.A.

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	147	45,166	15	4,517	57.85	6.41	29,822	2,349	6,732	0	640	1,409	18,692	17,718
2023	121	37,170	12	3,717	50.94	6.73	25,626	2,021	6,545	0	508	0	16,552	14,202
2024	95	29,173	10	2,917	52.02	7.06	21,114	1,663	6,228	0	380	0	12,843	9,975
2025	71	21,732	7	2,173	53.11	7.42	16,496	1,301	5,903	0	286	0	9,006	6,332
2026	42	12,752	4	1,275	54.24	7.79	10,149	801	5,457	0	141	0	3,750	2,387
2027	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2028	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2029	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2030	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2031	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2032	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2033	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>476</b>	<b>145,993</b>	<b>48</b>	<b>14,599</b>			<b>103,207</b>	<b>8,135</b>	<b>30,865</b>	<b>0</b>	<b>1,955</b>	<b>1,409</b>	<b>60,843</b>	<b>50,614</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Abandonment costs are allocated annually into an abandonment sinking fund.
4. Probable reserves and the values associated with probable reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	55,376
15 Percent	46,448
20 Percent	42,791

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 17**  
**PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE-plus-POSSIBLE RESERVES**  
**as of**  
**JANUARY 1, 2022**  
**for the**  
**MANATI FIELD**  
**in**  
**BRAZIL**  
**with interests attributable to**  
**PETRORIO S.A.**

Year	Gross Production		Net Production		Product Prices		Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (10 <sup>3</sup> bbl)	Sales Gas (10 <sup>6</sup> ft <sup>3</sup> )	Condensate (U.S.\$/bbl)	Sales Gas (U.S.\$/10 <sup>3</sup> ft <sup>3</sup> )								
2022	155	47,423	15	4,742	57.85	6.41	31,264	2,467	6,822	0	640	1,551	19,784	18,753
2023	127	39,028	13	3,903	50.94	6.73	26,929	2,122	6,636	0	508	0	17,663	15,155
2024	100	30,631	10	3,063	52.02	7.06	22,145	1,746	6,300	0	380	0	13,719	10,656
2025	74	22,819	7	2,282	53.11	7.42	17,304	1,366	5,960	0	286	0	9,692	6,814
2026	44	13,388	4	1,339	54.24	7.79	10,648	841	5,492	0	141	0	4,174	2,657
2027	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2028	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2029	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2030	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2031	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2032	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2033	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2034	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2035	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2036	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2037	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2038	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2039	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2040	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2041	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2042	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2043	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2044	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2045	0	0	0	0	-	-	0	0	0	0	0	0	0	0
2046	0	0	0	0	-	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>500</b>	<b>153,289</b>	<b>49</b>	<b>15,329</b>			<b>108,290</b>	<b>8,542</b>	<b>31,210</b>	<b>0</b>	<b>1,955</b>	<b>1,551</b>	<b>65,032</b>	<b>54,035</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Abandonment costs are allocated annually into an abandonment sinking fund.
4. Probable and possible reserves and the values associated with probable and possible reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.

Present Worth (10 <sup>3</sup> U.S.\$) at:	
5 Percent	59,152
15 Percent	49,561
20 Percent	45,635

These data accompany the report of DeGolyer and MacNaughton and are subject to its specific conditions.

**TABLE 18**  
**PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED PRODUCING RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**POLVO and TUBARÃO MARTELO FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETROBRAS S.A.**



Year	Gross Oil Production (10 <sup>3</sup> bbl)	Net Oil Production (10 <sup>3</sup> bbl)	Oil Price (U.S.\$/bbl)	Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
2022	6,628	6,297	58.00	365,226	29,095	76,000	15,500	0	0	244,631	231,880
2023	5,724	5,438	58.00	315,404	25,457	76,000	15,500	0	0	198,447	170,273
2024	4,956	4,708	58.00	273,064	22,606	76,000	15,500	0	0	158,958	123,462
2025	4,282	4,068	58.00	235,944	20,267	76,000	15,500	0	0	124,177	87,306
2026	3,721	3,535	58.00	205,030	18,035	76,000	15,500	0	0	95,495	60,776
2027	3,243	3,090	58.00	179,220	16,321	76,000	15,500	0	0	71,399	41,134
2028	2,839	2,726	58.00	158,108	14,724	76,000	15,500	0	0	51,884	27,058
2029	2,478	2,379	58.00	137,982	13,135	76,000	15,500	0	0	33,347	15,742
2030	2,174	2,087	58.00	121,046	11,897	76,000	0	0	0	33,149	14,165
2031	1,910	1,833	58.00	106,314	10,777	76,000	0	0	0	19,537	7,557
2032	1,685	1,618	58.00	93,844	8,930	76,000	0	0	0	8,914	3,121
2033	0	0	-	0	0	0	0	93,100	0	(93,100)	(29,509)
2034	0	0	-	0	0	0	0	0	0	0	0
2035	0	0	-	0	0	0	0	0	0	0	0
2036	0	0	-	0	0	0	0	0	0	0	0
2037	0	0	-	0	0	0	0	0	0	0	0
2038	0	0	-	0	0	0	0	0	0	0	0
2039	0	0	-	0	0	0	0	0	0	0	0
2040	0	0	-	0	0	0	0	0	0	0	0
2041	0	0	-	0	0	0	0	0	0	0	0
2042	0	0	-	0	0	0	0	0	0	0	0
2043	0	0	-	0	0	0	0	0	0	0	0
2044	0	0	-	0	0	0	0	0	0	0	0
2045	0	0	-	0	0	0	0	0	0	0	0
2046	0	0	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>39,640</b>	<b>37,779</b>		<b>2,191,182</b>	<b>191,244</b>	<b>836,000</b>	<b>124,000</b>	<b>93,100</b>	<b>0</b>	<b>946,838</b>	<b>752,965</b>

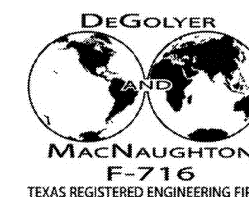
<b>Present Worth (10<sup>3</sup>U.S.\$) at:</b>	
<b>5 Percent</b>	<b>843,352</b>
<b>15 Percent</b>	<b>675,403</b>
<b>20 Percent</b>	<b>609,316</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.



**TABLE 19**  
**PROJECTION of FUTURE NET REVENUE from PROVED DEVELOPED RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**POLVO and TUBARÃO MARTELO FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**



Year	Gross Oil Production (10 <sup>3</sup> bbl)	Net Oil Production (10 <sup>3</sup> bbl)	Oil Price (U.S.\$/bbl)	Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
2022	6,789	6,449	58.00	374,042	29,400	76,000	15,500	0	0	253,142	239,947
2023	5,862	5,569	58.00	323,002	26,062	76,000	15,500	0	0	205,440	176,274
2024	5,061	4,808	58.00	278,864	23,080	76,000	15,500	0	0	164,284	127,599
2025	4,362	4,144	58.00	240,352	20,391	76,000	15,500	0	0	128,461	90,318
2026	3,784	3,594	58.00	208,452	18,332	76,000	15,500	0	0	98,620	62,765
2027	3,291	3,142	58.00	182,236	16,592	76,000	15,500	0	0	74,144	42,715
2028	2,877	2,762	58.00	160,196	14,916	76,000	15,500	0	0	53,780	28,046
2029	2,508	2,408	58.00	139,664	13,292	76,000	15,500	0	0	34,872	16,462
2030	2,197	2,109	58.00	122,322	12,021	76,000	0	0	0	34,301	14,658
2031	1,929	1,851	58.00	107,358	10,882	76,000	0	0	0	20,476	7,921
2032	1,700	1,632	58.00	94,656	9,006	76,000	0	0	0	9,650	3,379
2033	0	0	-	0	0	0	0	93,100	0	(93,100)	(29,509)
2034	0	0	-	0	0	0	0	0	0	0	0
2035	0	0	-	0	0	0	0	0	0	0	0
2036	0	0	-	0	0	0	0	0	0	0	0
2037	0	0	-	0	0	0	0	0	0	0	0
2038	0	0	-	0	0	0	0	0	0	0	0
2039	0	0	-	0	0	0	0	0	0	0	0
2040	0	0	-	0	0	0	0	0	0	0	0
2041	0	0	-	0	0	0	0	0	0	0	0
2042	0	0	-	0	0	0	0	0	0	0	0
2043	0	0	-	0	0	0	0	0	0	0	0
2044	0	0	-	0	0	0	0	0	0	0	0
2045	0	0	-	0	0	0	0	0	0	0	0
2046	0	0	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>40,360</b>	<b>38,468</b>		<b>2,231,144</b>	<b>193,974</b>	<b>836,000</b>	<b>124,000</b>	<b>93,100</b>	<b>0</b>	<b>984,070</b>	<b>780,575</b>

<b>Present Worth (10<sup>3</sup>U.S.\$) at:</b>	
<b>5 Percent</b>	<b>875,155</b>
<b>15 Percent</b>	<b>699,708</b>
<b>20 Percent</b>	<b>630,973</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.

**TABLE 20**  
**PROJECTION of FUTURE NET REVENUE from TOTAL PROVED RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**POLVO and TUBARÃO MARTELO FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETROLIO S.A.**



Year	Gross Oil Production (10 <sup>3</sup> bbl)	Net Oil Production (10 <sup>3</sup> bbl)	Oil Price (U.S.\$/bbl)	Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
2022	6,789	6,449	58.00	374,042	29,452	76,000	15,500	0	0	253,090	239,898
2023	6,534	6,207	58.00	360,006	27,935	76,000	15,500	0	0	240,571	206,417
2024	6,432	6,110	58.00	354,380	26,723	76,000	43,000	0	0	208,657	162,064
2025	5,455	5,183	58.00	300,614	23,606	76,000	15,500	0	0	185,508	130,426
2026	4,658	4,448	58.00	257,984	20,793	76,000	15,500	0	0	145,691	92,723
2027	3,991	3,831	58.00	222,198	18,597	76,000	15,500	0	0	112,101	64,582
2028	3,439	3,301	58.00	191,458	16,621	76,000	15,500	0	0	83,337	43,460
2029	2,956	2,837	58.00	164,546	14,967	76,000	15,500	0	0	58,079	27,417
2030	2,555	2,453	58.00	142,274	13,530	76,000	15,500	0	0	37,244	15,915
2031	2,215	2,126	58.00	123,308	12,237	76,000	15,500	0	0	19,571	7,570
2032	1,930	1,853	58.00	107,474	10,333	76,000	0	0	0	21,141	7,403
2033	1,671	1,604	58.00	93,032	9,618	76,000	0	0	0	7,414	2,350
2034	0	0	-	0	0	0	0	93,100	0	(93,100)	(26,712)
2035	0	0	-	0	0	0	0	0	0	0	0
2036	0	0	-	0	0	0	0	0	0	0	0
2037	0	0	-	0	0	0	0	0	0	0	0
2038	0	0	-	0	0	0	0	0	0	0	0
2039	0	0	-	0	0	0	0	0	0	0	0
2040	0	0	-	0	0	0	0	0	0	0	0
2041	0	0	-	0	0	0	0	0	0	0	0
2042	0	0	-	0	0	0	0	0	0	0	0
2043	0	0	-	0	0	0	0	0	0	0	0
2044	0	0	-	0	0	0	0	0	0	0	0
2045	0	0	-	0	0	0	0	0	0	0	0
2046	0	0	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>48,625</b>	<b>46,402</b>		<b>2,691,316</b>	<b>224,412</b>	<b>912,000</b>	<b>182,500</b>	<b>93,100</b>	<b>0</b>	<b>1,279,304</b>	<b>973,513</b>

<b>Present Worth (10<sup>3</sup>U.S.\$) at:</b>	
<b>5 Percent</b>	<b>1,112,988</b>
<b>15 Percent</b>	<b>857,596</b>
<b>20 Percent</b>	<b>761,388</b>

Notes:

1. Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
2. SPF = Special Participation Fee.
3. Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.

**TABLE 21**  
**PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**POLVO and TUBARÃO MARTELO FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

Year	Gross Oil Production (10 <sup>3</sup> bbl)	Net Oil Production (10 <sup>3</sup> bbl)	Oil Price (U.S.\$/bbl)	Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>3</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
2022	7,338	6,972	58.00	404,376	30,920	76,000	15,500	0	0	281,956	267,259
2023	7,273	6,910	58.00	400,780	29,786	76,000	15,500	0	0	279,494	239,814
2024	7,378	7,009	58.00	406,522	29,336	76,000	43,000	0	0	258,186	200,533
2025	7,363	7,012	58.00	406,696	28,863	76,000	53,500	0	0	248,333	174,597
2026	6,844	6,571	58.00	381,118	27,030	76,000	15,500	0	0	262,588	167,120
2027	6,089	5,845	58.00	339,010	24,399	76,000	15,500	0	0	223,111	128,536
2028	5,442	5,225	58.00	303,050	22,440	76,000	15,500	0	0	189,110	98,621
2029	4,848	4,654	58.00	269,932	20,270	76,000	15,500	0	0	158,162	74,663
2030	4,339	4,165	58.00	241,570	18,641	76,000	15,500	0	0	131,429	56,163
2031	3,891	3,735	58.00	216,630	16,944	76,000	15,500	0	0	108,186	41,848
2032	3,504	3,364	58.00	195,112	14,863	76,000	15,500	0	0	88,749	31,076
2033	3,144	3,018	58.00	175,044	16,580	76,000	15,500	0	0	66,964	21,225
2034	2,833	2,720	58.00	157,760	16,246	76,000	15,500	0	0	50,014	14,350
2035	2,558	2,455	58.00	142,390	14,666	76,000	15,500	0	0	36,224	9,408
2036	2,318	2,225	58.00	129,050	13,295	76,000	15,500	0	0	24,255	5,702
2037	2,090	2,006	58.00	116,348	11,989	76,000	15,500	0	0	12,859	2,737
2038	1,887	1,811	58.00	105,038	10,826	76,000	0	0	0	18,212	3,509
2039	1,713	1,645	58.00	95,410	9,836	76,000	0	0	0	9,574	1,670
2040	1,562	1,499	58.00	86,942	8,964	76,000	0	0	0	1,978	312
2041	0	0	-	0	0	0	0	93,100	0	(93,100)	(13,303)
2042	0	0	-	0	0	0	0	0	0	0	0
2043	0	0	-	0	0	0	0	0	0	0	0
2044	0	0	-	0	0	0	0	0	0	0	0
2045	0	0	-	0	0	0	0	0	0	0	0
2046	0	0	-	0	0	0	0	0	0	0	0
2047	0	0	-	0	0	0	0	0	0	0	0
2048	0	0	-	0	0	0	0	0	0	0	0
2049	0	0	-	0	0	0	0	0	0	0	0
2050	0	0	-	0	0	0	0	0	0	0	0
2051	0	0	-	0	0	0	0	0	0	0	0
2052	0	0	-	0	0	0	0	0	0	0	0
2053	0	0	-	0	0	0	0	0	0	0	0
2054	0	0	-	0	0	0	0	0	0	0	0
2055	0	0	-	0	0	0	0	0	0	0	0
2056	0	0	-	0	0	0	0	0	0	0	0
2057	0	0	-	0	0	0	0	0	0	0	0
2058	0	0	-	0	0	0	0	0	0	0	0
2059	0	0	-	0	0	0	0	0	0	0	0
2060	0	0	-	0	0	0	0	0	0	0	0
2061	0	0	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>82,414</b>	<b>78,841</b>		<b>4,572,778</b>	<b>365,894</b>	<b>1,444,000</b>	<b>313,500</b>	<b>93,100</b>	<b>0</b>	<b>2,356,284</b>	<b>1,525,840</b>

Notes:

- Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
- SPF = Special Participation Fee.
- Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
- Probable reserves and the values associated with probable reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.
- The estimated economic limit for the Polvo and Tubarão Martelo fields occurs after the expiration date of the concession agreements. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extensions. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extensions for the Polvo and Tubarão Martelo fields.

<b>Present Worth (10<sup>3</sup> U.S.\$) at:</b>	
<b>5 Percent</b>	<b>1,876,141</b>
<b>15 Percent</b>	<b>1,267,567</b>
<b>20 Percent</b>	<b>1,073,768</b>

**TABLE 22**  
**PROJECTION of FUTURE NET REVENUE from PROVED-plus-PROBABLE-plus-POSSIBLE RESERVES**  
as of  
**JANUARY 1, 2022**  
for the  
**POLVO and TUBARÃO MARTELO FIELDS**  
in  
**BRAZIL**  
with interests attributable to  
**PETRORIO S.A.**

Year	Gross Oil Production (10 <sup>3</sup> bbl)	Net Oil Production (10 <sup>3</sup> bbl)	Oil Price (U.S.\$/bbl)	Future Gross Revenue (10 <sup>3</sup> U.S.\$)	Royalties Paid in Cash (10 <sup>3</sup> U.S.\$)	Operating Expenses (10 <sup>3</sup> U.S.\$)	Capital Costs (10 <sup>2</sup> U.S.\$)	Abandonment Costs (10 <sup>3</sup> U.S.\$)	SPF (10 <sup>3</sup> U.S.\$)	Future Net Revenue (10 <sup>3</sup> U.S.\$)	Present Worth at 10 Percent (10 <sup>3</sup> U.S.\$)
2022	7,645	7,263	58.00	421,254	31,783	76,000	15,500	0	0	297,971	282,440
2023	7,778	7,389	58.00	428,562	31,417	76,000	15,500	0	0	305,645	262,252
2024	8,102	7,697	58.00	446,426	31,763	76,000	43,000	0	0	295,663	229,641
2025	9,014	8,613	58.00	499,554	33,355	76,000	53,500	0	0	336,699	236,725
2026	8,843	8,489	58.00	492,362	32,842	76,000	15,500	0	0	368,020	234,221
2027	8,099	7,775	58.00	450,950	30,088	76,000	15,500	0	0	329,362	189,748
2028	7,452	7,154	58.00	414,932	28,118	76,000	15,500	0	0	295,314	154,006
2029	6,831	6,558	58.00	380,364	25,783	76,000	15,500	0	0	263,081	124,192
2030	6,290	6,039	58.00	350,262	24,108	76,000	15,500	0	0	234,654	100,273
2031	5,802	5,570	58.00	323,060	22,574	76,000	15,500	0	0	208,986	80,839
2032	5,374	5,159	58.00	299,222	20,298	76,000	15,500	0	0	187,424	65,627
2033	4,957	4,759	58.00	276,022	24,971	76,000	15,500	0	0	159,551	50,572
2034	4,592	4,409	58.00	255,722	26,295	76,000	15,500	0	0	137,927	39,574
2035	4,260	4,090	58.00	237,220	24,397	76,000	15,500	0	0	121,323	31,510
2036	3,967	3,809	58.00	220,922	22,727	76,000	15,500	0	0	106,695	25,084
2037	3,679	3,532	58.00	204,856	21,078	76,000	15,500	0	0	92,278	19,638
2038	3,425	3,288	58.00	190,704	19,626	76,000	15,500	0	0	79,578	15,330
2039	3,193	3,065	58.00	177,770	18,298	76,000	15,500	0	0	67,972	11,853
2040	2,987	2,867	58.00	166,286	17,119	76,000	15,500	0	0	57,667	9,103
2041	2,782	2,671	58.00	154,918	15,952	76,000	15,500	0	0	47,466	6,783
2042	2,601	2,497	58.00	144,826	14,915	76,000	15,500	0	0	38,411	4,968
2043	2,433	2,336	58.00	135,488	13,956	76,000	15,500	0	0	30,032	3,516
2044	2,276	2,185	58.00	126,730	13,056	76,000	15,500	0	0	22,174	2,350
2045	2,128	2,043	58.00	118,494	11,849	76,000	15,500	0	0	15,145	1,453
2046	1,998	1,918	58.00	111,244	11,124	76,000	15,500	0	0	8,620	749
2047	1,877	1,802	58.00	104,516	10,452	76,000	15,500	0	0	2,564	202
2048	1,770	1,699	58.00	98,542	9,854	76,000	0	0	0	12,688	903
2049	1,661	1,594	58.00	92,452	9,245	76,000	0	0	0	7,207	464
2050	1,564	1,501	58.00	87,058	8,706	76,000	0	0	0	2,352	137
2051	0	0	-	0	0	0	0	93,100	0	(93,100)	(4,914)
2052	0	0	-	0	0	0	0	0	0	0	0
2053	0	0	-	0	0	0	0	0	0	0	0
2054	0	0	-	0	0	0	0	0	0	0	0
2055	0	0	-	0	0	0	0	0	0	0	0
2056	0	0	-	0	0	0	0	0	0	0	0
2057	0	0	-	0	0	0	0	0	0	0	0
2058	0	0	-	0	0	0	0	0	0	0	0
2059	0	0	-	0	0	0	0	0	0	0	0
2060	0	0	-	0	0	0	0	0	0	0	0
2061	0	0	-	0	0	0	0	0	0	0	0
<b>Total</b>	<b>133,380</b>	<b>127,771</b>		<b>7,410,718</b>	<b>605,749</b>	<b>2,204,000</b>	<b>468,500</b>	<b>93,100</b>	<b>0</b>	<b>4,039,369</b>	<b>2,179,239</b>

Notes:

- Future social contribution taxes and corporate incomes taxes were not taken into account in the preparation of these estimates.
- SPF = Special Participation Fee.
- Operating expenses and capital costs do not include the indirect taxation that may be applicable to these expenditures.
- Probable and possible reserves and the values associated with probable and possible reserves have not been risk adjusted to make them comparable to proved reserves and the values associated with proved reserves.
- The estimated economic limit for the Polvo and Tubarão Martelo fields occurs after the expiration date of the concession agreements. PetroRio has represented that it expects to meet the conditions required by the ANP to obtain the concession extensions. Based on this representation, and at PetroRio's request, the reserves estimated herein considered the potential concession extensions for the Polvo and Tubarão Martelo fields.

**Present Worth (10<sup>3</sup>U.S.\$) at:**

<b>5 Percent</b>	<b>2,893,505</b>
<b>15 Percent</b>	<b>1,712,320</b>
<b>20 Percent</b>	<b>1,391,987</b>

