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Equatorial Margin as a New Exploration Frontier for Brazilian Oil: Possibilities and Petroleum Potential

Equatorial Margin As A New Exploratory Frontier Of Brazilian Oil: Possibilities And Petroleum Potentia

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Summary

The Brazilian Equatorial Margin stands out as one of the country's main oil exploration frontiers, combining high geological potential and the capacity to strengthen national energy security. With estimates pointing to billions of recoverable barrels, its exploration is considered strategic given Brazil's reserve/production ratio of only 13.7 years. In addition to expanding reserves, the region can significantly boost the economic development of the North and Northeast, through job creation, increased GDP, and expanded public revenue. However, environmental and institutional obstacles have delayed licensing, despite several technical studies contesting the risks attributed to the project. In the legal sphere, the conflict between national development and environmental protection requires a balancing of constitutional principles, as argued by Dworkin, Alexy, and Barroso. Thus, it is concluded that the viability of exploration depends on a balance between sustainability, technical safety, and public interest.

Keywords: Equatorial marker; Exploration frontier and reserves; Economic development; Environmental legal protection.

Abstract

The Brazilian Equatorial Margin stands out as one of the country's main oil exploration frontiers, combining high geological potential and the capacity to strengthen national energy security. With estimates pointing to billions of recoverable barrels, its exploration is considered strategic given Brazil's reserve/production ratio of only 13.7 years. In addition to expanding reserves, the region can significantly boost the economic development of the North and Northeast, through job creation, increased GDP, and expansion of public revenues. However, environmental and institutional obstacles have delayed licensing, despite several technical studies contesting the risks attributed to the project. In the legal sphere, the conflict between national development and environmental protection requires a balancing of constitutional principles, as argued by Dworkin, Alexy, and Barroso. Thus, it is concluded that the feasibility of exploration depends on a balance between sustainability, technical safety, and public interest.

Keywords: Equatorial Margin; Exploration frontier and reserves; Economic development; Environmental legal protection.

INTRODUCTION

The Brazilian Equatorial Margin region is configured as an area of high value.

Strategic and of fundamental importance for the future of the country. This is an area endowed with expressive natural wealth, marked by significant cultural diversity and vast potential.

energy. In this context, aspects such as national defense, energy security, and the reduction of regional inequalities and the economic and social development of Brazil, both in the short and long term.

In the long term, they are directly linked to the responsible and sustainable use of natural resources and existing energy resources there. According to the Agency's Oil and Gas Resources Report

National Agency of Petroleum, Natural Gas and Biofuels (ANP, 2025), the current relationship between reserves and Production (R/P) in Brazil is approximately 13.7 years. Considering that the period between the beginning

From exploration to the effective start of oil production, which can vary between seven and ten years, it becomes

It is evident that there is an urgent need to discover new reserves to maintain current levels of

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production and to guarantee the national energy supply. Therefore, investment in

Exploratory activities in new frontiers become essential, especially on the Margem River.

Equatorial regions are a strategic area for the growth of the Brazilian economy in the coming decades.

The extensive basins of the pre-salt and the equatorial margin are emerging as promising sources for...

oil and natural gas exploration, playing an essential role in ensuring safety.

Brazil's energy supply in the coming years. Furthermore, these regions represent a significant role for Brazil.

potential for stimulating economic development and job creation in the territory

national. Due to their remarkable geological similarities, both are considered borders.

Strategic exploratory projects, with the Equatorial Margin often being compared to the Pre-Salt due to

due to their capacity to harbor significant hydrocarbon reserves. Known as the "new

"Pre-salt" areas contain significant deposits of oil and natural gas. (Margin)

Equatorial, located in a still relatively unexplored region, stands out especially for its high

geological potential. Prospecting in this area is understood as a fundamental strategy for

to ensure the country's energy supply and reduce, in the future, dependence on imports.

Oil and gas. Although global demand for oil continues to grow, albeit in a more moderate way.

Uncertain, the Brazilian production curve, if no new reserves are discovered, tends to reach...

A peak and then the beginning of a decline process throughout this decade. The advancement of activities

Exploratory and productive activities in these regions have the potential to attract investment and generate jobs.

and to increase the collection of taxes and royalties, benefiting states and municipalities. In this specific case

From the Equatorial Margin, the increase in oil and gas production can strengthen in a way...

significant to the economy of the Northern region, contributing to the growth of the Gross Domestic Product.

nationally. For Petrobras, these areas represent significant strategic opportunities: while

With the pre-salt layer already in full production phase, the Equatorial Margin is emerging as a new...

Exploratory frontier in deep and ultra-deep waters. However, a perception is observed.

problematic regarding the way Brazilian society and government have viewed the Margin

Equatorial, often reducing it to a mere space for economic exploitation, with its

Resources being treated merely as commodities. Social, environmental, and energy aspects.

unique characteristics of the region, as well as its relevance to energy security and the future of the country,

They have not received the necessary attention and seriousness in public and institutional debate. This gap

This becomes evident in light of the proposed offer of 65 blocks for deepwater exploration by

Equatorial Margin in the 5th Cycle of the Permanent Concession Offer (5th OPC), scheduled to take place.

on June 14, 2025. It is understood that the adoption of the concession regime for these areas may

to reduce the State's participation and control over the generated oil revenue, to the detriment of the interest.

public. Furthermore, such a choice could weaken Petrobras, a strategic company for the State.

Brazilian energy security is at risk, as is the national supply chain, jeopardizing energy security.

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and the long-term development of the oil industry. The methodology adopted for the

The research development was based on bibliographic research, through the analysis of studies and
Existing works on the subject address issues related to legal protection.

environmental, to the oil potential of the Brazilian Equatorial Margin and to the institutional positioning
from Petrobras, the Ministry of Mines and Energy, and the Attorney General's Office. Given this, the
The overall objective of this study is to discuss the possibilities and petroleum potential of the Margin.

The Brazilian equatorial region, in conjunction with the pre-salt layer, represents a new exploratory frontier for oil.
in Brazil.

The Equatorial Margin as a New Exploratory Frontier of Brazilian oil

The Brazilian Equatorial Margin region is configured as the most recent frontier.
oil exploration in the national territory. Located between the North and Northeast regions, this extensive
The coastal strip is over 2,200 kilometers long, encompassing the states of Amapá, Pará,
Maranhão, Piauí, Ceará, and Rio Grande do Norte. The sedimentary basins of [the following are located in this area] are situated within this region.
The mouth of the Amazon River, Pará-Maranhão, Barreirinhas, Ceará, and Potiguar, which have been attracting great attention.
interest due to the high potential for oil and natural gas discovery, especially in
Due to its geological proximity to Guyana, where reserves exceeding [amount missing] have already been identified.
11 billion barrels of oil. Oil exploration in Guyana has promoted a profound
economic transformation in the country, resulting in growth of approximately 62% of
Gross Domestic Product in 2022, driven mainly by exports from the sector,
representing the highest economic growth recorded in the world that year, according to data from
International Monetary Fund. Projections indicate that the country, with a population of less than 800,000
The population, with a total of approximately 25% of inhabitants, is expected to maintain growth rates of around 25% per year in the coming years.
In the Brazilian context, studies by the Ministry of Mines and Energy point to the possibility of the existence of...
of approximately 10 billion barrels of technically recoverable oil in the Equatorial Margin. For
For comparison, Brazil's proven oil reserves total approximately 14,856
billions of barrels. The potential economic impact of exploration in this region is significant, with
Estimates suggest attracting around US\$56 billion in investments and generating approximately
US\$200 billion in revenue. Furthermore, a study prepared by the National Observatory of Industry...
The National Confederation of Industry highlights the economic importance of oil production in
Equatorial Margin, estimating the creation of more than 320,000 jobs, an increase of R\$ 65 billion.
in the Gross Domestic Product and the collection of approximately R\$ 3.87 billion in indirect taxes.

The Brazilian coastal area located in the equatorial region is mainly composed of a petroleum system originating in the Cretaceous period. This geological formation comprises fields oil and gas producers along the coast of the states of Sergipe and Espírito Santo, in addition to several small and medium-sized fields located in the Santos and Campos basins. This refers to a widely known system, with high productivity and well-defined geological characteristics defined and predictable. Its relevance is evidenced by the fact that this same system is responsible for Venezuela's significant oil reserves, a country that holds the largest reserves of the world's hydrocarbons. The continental margins surrounding the Atlantic Ocean in the strip Equatorial regions began receiving more attention starting in 2007, with the discovery of the Jubilee field in deep waters off Ghana, on the west coast of Africa. Since then, several significant discoveries have been made. These operations were carried out both in Ghana and in neighboring Ivory Coast. In Ghanaian territory, they have already been conducted. more than 1 billion barrels of technically recoverable oil equivalent have been identified, while Countries such as Sierra Leone and Liberia also recorded significant discoveries in later years. From a geological perspective, these findings are of great importance to Brazil, since... The continental margins of Ghana and Ivory Coast share structural similarities and stratigraphic similarities with the Brazilian basins of Pará–Maranhão and Barreirinhas. This similarity suggests that the conditions favorable to oil generation and accumulation observed in the African region They may also be present in Brazilian territory. Furthermore, recent discoveries have been made in Guyana, Suriname, and French Guiana, this perspective is further reinforced, indicating that The high oil potential of these countries may extend along the Brazilian coast, encompassing The states of Amapá, Pará, Maranhão, Piauí, Ceará, and Rio Grande do Norte. In the international context contemporary times, characterized by increasing disputes over energy sources, such as the conflicts in The far north of Europe involving Ukraine and Russia, or tensions over natural resources between For countries in South America, such as Guyana and Venezuela, it becomes essential that Brazil Maintain strategic focus on your energy security. The geopolitical struggle for resources. Energy demand is progressively intensifying, as can be seen in the initiatives of countries such as The United States, which, despite internal resistance, has been expanding the exploitation of its reserves. in Alaska. Similarly, nations like Norway and the United Kingdom have expanded their Exploratory activities in the North Sea, both for oil production and prospecting. of metals in deep water.

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The Question of Poverty and Brazil's Role in the Energy Transition

Considering the problem of poverty on a global scale, recent studies published by International organizations, such as the World Health Organization and the World Bank, indicate that Approximately 675 million people worldwide still lack access to electricity, with the majority concentrated in Sub-Saharan Africa. The data reveals that the Goal of... Sustainable Development, established in 2015 by the United Nations, aims to ensure access to... Universal access to clean and affordable energy by 2030 is far from being achieved, according to experts. They emphasize that tackling poverty is impossible without an adequate supply of energy to... more vulnerable populations, since poverty constitutes a relevant social determinant of health, being strongly associated with an increased risk of mortality. In this sense, study A study published in the journal Nature analyzed the impacts of income transfer programs on various... countries, demonstrating that extreme poverty, characterized by individuals living in less than R\$10 a day still affects one in ten people worldwide. The research, led by Aaron Richterman evaluated the effects of large-scale government programs in 37 low-income countries. and middle income, observing its influence on overall mortality rates among adults and children. The results indicated that such policies are associated with a reduction of approximately 20% in The risk of death is 8% among adult women and among children under five years old. In this context In Brazil, it is observed that regions such as the North and Northeast face difficulties related to Oil exploration on the Equatorial Margin, while a significant portion of the population depends of income transfer programs for their subsistence. In the state of Amapá, for example, Approximately 60% of the population are beneficiaries of the Bolsa Família Program, highlighting their vulnerability. local socioeconomic situation. The absence of these support mechanisms reinforces the finding that there is still In 21st-century Brazil, there is a real risk of extreme food insecurity. In this scenario, the Brazil's role in the energy transition is gaining prominence, considering that, in recent decades, The national energy sector has undergone profound transformations. The country, previously dependent on importing energy, it achieved self-sufficiency in the production of oil and natural gas and It has established itself as an exporter, currently ranking among the ten largest oil producers in the world. world. This achievement has historical significance, especially in light of the negative impacts. caused by the oil crises of the 1970s on the Brazilian economy. in accordance with the main strategic planning instruments of the energy sector, notably The National Energy Plan 2050 and the preliminary version of the Ten-Year Energy Expansion Plan. By 2030, still under public consultation, Brazil is expected to reach a production level of... approximately 5.26 million barrels of oil per day, representing significant growth. In relation to the 3.26 million barrels per day produced in 2021, which corresponds to a

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an increase of approximately two million barrels per day. However, for this projection to materialize, the PNE 2050 highlights the existence of significant challenges, especially the dependence on reserves that are still present. undiscovered and uncontracted projects with the Federal Government, as well as socio-environmental obstacles. related to the licensing of oil and gas exploration and production activities. Overcoming Addressing these issues is essential to ensure the predictability of bidding processes and compliance. of the established deadlines. Brazil, already recognized as a relevant player in the global energy sector, This position is likely to strengthen even further in the coming years. The significant availability of Energy resources constitute a strategic asset of great value, expanding the country's capacity. to play a leading role in the international geopolitical arena and to strengthen the various dimensions of its National Power, including the political, economic, and scientific-technological fields. However, For this potential to translate into concrete results, continuous effort is necessary and structured in a way that transforms potential reserves into actual production. Only from Realizing this energy potential will make it possible to consolidate Brazil's leadership role. in the international arena and fulfill its role as a strategic nation in the 21st century.

POSSIBILITY OF ECONOMIC DEVELOPMENT AND POTENTIAL

Oil Fields on the Equatorial Margin: Reasons for Inactivity and Dilemma

Potential for Economic Development in the Region

The focus of the studies, for the most part, is to confirm the existence of an area. oil exploration, with the potential to extract 400 million barrels of oil. This quantity represents approximately 65% of what was found in Liza, the field where its activities began. in 2020, marking an important moment for Guyana. It is estimated that this new field, located in Brazil, it could inject around R\$ 14.25 billion into the local economy (Duque Dutra; Carmona, 2021).

To get an idea of the magnitude of this value, simply compare it to the GDP of Pará and Maranhão to understand its economic impact. The R\$14 billion represents 14% of the GDP. Maranhão represents 9% of Pará's GDP. Currently, there is no other initiative in the region that promises... economic growth size (Duque Dutra; Carmona, 2021).

In another study, commissioned by Gasmar, Duque Dutra (2023) examined the impacts of exploration of the Pará-Maranhão, Barreirinhas (offshore) and Parnaíba (onshore) river basins in the generation of jobs and income in Maranhão. For this analysis, the researcher also considered the estimate conservative estimate of 400 million barrels recoverable. In a 12-year scenario, investments in The state could boost revenue from R\$1 billion to R\$21 billion.

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The study also indicates that, by 2034, the projects could generate around 45,000 jobs in the region. construction phase, in addition to 3,000 direct and 15,000 indirect jobs in the operational phase. In total, there would be approximately 63,000 jobs, equivalent to 10.6% of the total formal jobs registered in Maranhão in 2022. It is important to emphasize that the study only considered the exploitation of one a field with an estimated minimum capacity of 400 million recoverable barrels.

Oil Potential of the Equatorial Margin

Thus, with regard to the oil potential of the Equatorial Margin, the progress of studies The search for information on the continental margins of the Equatorial Atlantic boosted the performance of the Norwegian company. Spectrum, currently known as TGS, in conducting extensive data acquisition campaigns. Seismic data from the Brazilian Equatorial Margin. Over the past three years, data have been acquired, processed, and... thousands of kilometers of two-dimensional (2D) seismic lines were reprocessed, covering virtually the entire extent of this region. The operations employed modern equipment and High-performance algorithms, ensuring the use of the most advanced tools. available technologies. Of particular note are the surveys conducted in the areas coastal areas of the states of Amapá, Pará, and Maranhão, which presented high results. technical quality. It should be noted that a specialized consultancy is responsible for the interpretation. Seismic analysis of this data over the past three years has identified significant oil potential. in the basins analyzed. Such results are not surprising, especially when considering the historical data. of exploratory activities on the coast of the state of Amapá. During the 11th Bidding Round of National Agency of Petroleum, Natural Gas and Biofuels, conducted in 2013, several companies Foreign companies have acquired exploration blocks in the region, with locations having been defined several years ago. Potential for drilling. Companies like Total have identified nine exploratory prospects. while British Petroleum identified three others. Furthermore, national companies, such as Petrobras and Queiroz Galvão — currently called Enauta —, They had also previously identified promising areas. However, despite the efforts undertaken, drilling activities have not These actions could not be carried out due to the non-issuance of the necessary environmental licenses by the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA). Although the Oil exploration involves inherent risks, just like any economic activity; the effective Identifying and utilizing these resources will only be possible with the implementation of new initiatives. bidding rounds and the drilling of exploratory wells. It should also be noted that the prospects They tend to become even more favorable with the use of three-dimensional seismic technologies. (3D) state-of-the-art, which can raise the probability of geological success to new levels estimated between 60% and 80%, significantly reducing the risks associated with investments in

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drilling when compared to the current level of available technical knowledge.

Reasons for Brazil's Inactivity in Exploration

Given the above, and considering the reasons for Brazil's lack of exploratory activity, the media...

This specialized company has extensive knowledge about the oil production capacity in the coastal areas of Africa and South America, bathed by the Equatorial Atlantic Ocean. Countries such as Ghana, Costa Rica, and others are examples of this. Ivory Coast, Guyana, and Suriname stand out in this context, as does, to a lesser extent, Sierra Leone. Leone, Liberia, and French Guiana.

In the Brazilian context, although much information has been gathered about the Margin

Equatorial over the years, we have not yet explored this region with drilling to confirm if

The successful models of other countries are being replicated here. This hesitation can be attributed to some... reasons:

I. The Brazilian population, especially in the northern states, is not fully aware of

Brazil's Equatorial Margin has enormous oil potential.

II. Distorted information is circulating about the environmental impacts in the region, which facilitates the

Acceptance of "politically correct" ideas that come from outside. This harms both conservation and conservation.

of the environment based on scientific data regarding the economic development of

Local communities. Environmental preservation depends directly on the living conditions of these communities.

People, and poverty is one of the biggest obstacles.

III. Biased scientific studies influence the resistance of sectors within IBAMA to releasing

Licenses for exploratory drilling off the coast of Amapá.

IV. Brazilian energy authorities face difficulties in balancing interests

of the country in relation to energy and the environment, such as presenting documents like the PDE and the PNE. This difficulty is reflected in the decision to increase environmental restrictions on the areas.

promissory notes in the states of Pará and Maranhão, in addition to bidding for locations with great potential. of oil in deep waters.

Dilemma between Economic Development and Environmental Protection

It therefore incurs the dilemma between economic development and environmental protection, where the Exploration and production in the Brazilian Equatorial Margin area represent a strategic opportunity. to boost the country's economy. Estimates from the Ministry of Mines and Energy indicate that this Intensification could inject US\$56 billion in direct investments, in addition to guaranteeing a Federal revenue exceeding \$200 billion. However, the lack of new exploratory projects.

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This could result in a significant loss of revenue, estimated at R\$3.9 trillion by 2055. A study

The National Confederation of Industry projects that, in Pará alone, approximately 52,000 jobs would be created. job openings, with a 6.2% increase in the state's Gross Domestic Product, equivalent to R\$ 10.7 billion.

Petrobras experts warn that without oil from the Equatorial Margin, Brazil is at risk.

The risk of becoming dependent on fuel imports again. Greater self-sufficiency in production.

Domestic production could reduce import costs and strengthen the country's energy security.

reducing external dependence. These gains could result in lower prices for...

Consumers and greater stability in the sector. However, the implementation of these projects faces challenges. obstacles related to environmental issues and the complexity of licensing processes conducted by regulatory bodies.

The difficulties in obtaining licenses stem from previous governments, with the first refusal being made by... Ibama during Michel Temer's government (2016-2018). In 2023, already under Lula's government, Ibama again rejected Petrobras' proposals for drilling in the region, citing weaknesses in the measures. emergency response and in the environmental prevention and mitigation plans presented.

Thus, a conflict arises between two national objectives: the promising opportunities The economic aspects of exploiting the Equatorial Margin and the environmental concerns that highlight Brazil on the international stage as a champion of sustainability. The country, which will host COP 30 in Belém, seeks to strengthen its leadership in this area. However, this duality between development Economic concerns and environmental protection have caused delays in resolving the issue, generating narratives that They do not always reflect reality. This paradox highlights the urgent need for discussions. strategies that reconcile environmental preservation with Brazil's economic progress.

The Equatorial Margin from a Weighing Perspective: Contributions of DWORKIN, ALEXY AND BARROSO TOWARDS A BALANCE BETWEEN PRINCIPLES CONSTITUTIONAL

In the Brazilian Constitution, the development of Brazil and its economy are foreseen in Article 170 links the economy to the value of work. The aim is to guarantee a dignified life and To promote justice, driving the country's progress and reducing inequalities. Furthermore, the Article 3 defines National Development as one of Brazil's main objectives, reinforcing its importance in laws (Brazil, 1988).

The Constitution, also known as the "green" Constitution for its sustainability focus, guarantees in article 225 The right of all to a balanced environment, vital for quality of life (Brazil, 1988). This obliges The government and everyone involved must protect natural resources, both now and for the future. It also defines actions.

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from the government, such as environmental licensing, the responsible use of species, and the promotion of education about the environment and the creation of protected areas.

These two ideas from the Constitution are very important when discussing the exploitation of Equatorial Margin. There is a strong debate between those who advocate protecting the environment as much as possible. environment, wanting to save the region's fragile ecosystems, and those who want stricter environmental regulations. Flexible, considering economic development and the benefits of natural resources.

Thus, a difficult legal question arises, as it brings two principles into conflict. Important constitutional principles: national development, with a focus on economic progress and... reduction of inequalities (article 170 in conjunction with article 3, II, of the 1988 Constitution), and protection environmental, seeking to preserve ecological balance and defend an increasingly healthy environment. protected, in accordance with article 225 of the 1988 Constitution (Brazil, 1988).

This dispute reveals a tension within the Constitution itself, requiring that laws find a balance. A balance between these objectives, considering current social, economic, and environmental challenges.

Principles of Proportionality and Balancing in Constitutional Conflicts, According to Robert Alexy, Ronald Dworkin, and Luis Roberto Barroso, as a Possible Path to... Constitutional Conflict Regarding the Equatorial Margin Issue

The legal-constitutional doctrine generally establishes that fundamental rights They do not possess an absolute character, but are essentially relative. This relativity is justified by... coexistence of different constitutional rights or values that sometimes impose limits on one another. others. Fundamental rights are heterogeneous, defending a diversity of values and presenting dynamic content that can be adapted to the specific characteristics of each case.

Robert Alexy, the renowned German jurist, a prominent figure in the field. Academics, especially in Brazil, built their vision on fundamental rights in the work "Theory of Fundamental Rights". His perspective was strongly influenced by Ronald Dworkin, a thinker. An American who established a distinction between two types of norms: rules and principles.

For Dworkin, valid rules should be applied absolutely, while... Principles serve as guides, directing decisions, but without completely determining them. Alexy, However, he considered this view somewhat simplistic, seeking a more complete model, while maintaining The essential distinction between the initial character of principles and the definitive character of rules.

Dworkin proposed criteria for differentiating these norms: the rules operate in a more rigid, requiring strict application when valid; principles, in turn, show Flexibility, evolving according to the weight or relevance in each situation. Alexy, in exploring these He defined the concepts as optimization guidelines. For him, the principles order...

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that efforts be made to achieve them to the fullest extent, within the limits imposed by legal possibilities and factual.

The crucial point in distinguishing rules from principles lies in the fact that principles They allow for different degrees of satisfaction, depending on the factual and legal conditions. The set of Legal possibilities are determined by the confrontation between the principles and rules involved in specific situation. When there is a conflict between two or more principles, Dworkin suggests that one should evaluate The importance or weight of each. In this type of dispute, the most relevant principle prevails; However, this does not invalidate the other, it only prevents its application in that case. In future situations, with In new circumstances, a previously disregarded principle may become a priority.

In Alexy's theory, the ideal technique for resolving these conflicts between principles is the Weighing. This method is based on the principle of proportionality and requires that one principle yield. in favor of another that has greater weight or strength in that specific context. This assessment may varying greatly depending on the circumstances of each case. Alexy points out that the very nature of These principles imply the use of the principle of proportionality. This principle is divided into three parts: Adequacy, necessity, and proportionality in the strict sense.

For Alexy, these three dimensions of maximization not only define how the process Deoptimization should occur in the application of the principles, but it also reveals the principled nature of the principles. inherent to fundamental rights.

Furthermore, Alexy created a detailed analysis on how to handle complex cases of A conflict between fundamental rights. He argues that restricting one right in favor of another can be... appropriate and necessary to resolve the conflict; however, this does not always guarantee a solution. complete. Thus, he suggests applying proportionality in the strict sense. At this point, Alexy presents a thorough and technically well-constructed line of reasoning, comparing his This approach is based on a mathematical formula—the so-called Collision Law. This formulation establishes... Clear guidelines for the evaluation process involve several methodical and carefully considered phases. organized.

From this perspective, it is possible to define a regulatory framework for the relationship between choices. conditionalities and legal norms, as follows: if principle P1 takes precedence over principle P2 in specific situations C, that is, $(P1 > P2) C$, and if from principle P1, in those same If situations C result in legal implication R, then we can confirm the existence of a norm in In situations C, which act as the factual basis, and R manifests itself as its legal consequence: $C - R$. Simply put, situations in which one principle overrides another form the factual basis of a... A norm that reflects the legal consequence of the dominant principle. This statement, called "law" "collision" is one of the pillars of the theory of principles that this text seeks to defend.

This law highlights the fundamental characteristic of principles as optimization norms.

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Nature reveals itself, first and foremost, in the lack of a fixed order among principles in all scenarios.

and secondly, in its connection with actions and situations that often defy established criteria. purely quantitative. Furthermore, this theoretical basis addresses criticisms that suggest a excessive similarity between the theory of principles and traditional value theories, emphasizing its uniqueness.

In Dworkin's view, the solution to principle-based impasses lies in the weight given to... principle in a given context, that is, in its relative relevance when judging the case. specific. On the other hand, in Alexy's approach, the solution is found through weighing, implemented by the principle of proportionality. This method allows for a rationalization of Decisions are necessary in scenarios where certain principles must prevail without overriding others.

Luiz Roberto Barroso's vision of neoconstitutionalism inaugurates a new phase of overcoming legalistic positivism, where the law reigned supreme and the judge merely replicated the norms. Thus, the Constitutions gain normative force, guiding government actions and transforming rights. basic principles in providing real direction for public policies. For Barroso, this post-positivist view It brings law closer to ethics, prioritizing human dignity.

Neoconstitutionalism emerges when law reconnects with philosophy. Law. The moral values of a society, at a given moment, enter into law through... principles in the Constitution, either explicitly or implicitly. Ideas such as freedom and equality gain... new meanings. Other values, such as democracy, republic, and separation of powers, are viewed from New forms, and current principles, such as human dignity and reasonableness, are explored further.

Barroso emphasizes that proportionality is essential to go beyond positivist legalism. advancing the relationship between norm and law. The open nature of principles, with greater moral value. and ethical, it facilitates his role in the legal system. He believes that principles can conflict, but this Disputes should not be seen as simply right or wrong; each aspect needs to be given a different weight in the... decisions.

For Barroso, even with distinct origins – proportionality in Europe and reasonableness In the United States of America (USA), both have similar legal content. Reasonableness It evolved in the US, starting with the legal process, with guarantees such as the right to defense and the right to challenge evidence. Then, It gained a wider scope, allowing the Justice system to assess whether the laws were fair, looking at the... objectives and means, primarily to protect basic rights against abuses of political power.

In this context, both reasonableness and proportionality seek to verify whether the laws And norms are rational. Barroso links reasonableness to Robert's sub-principles of proportionality. Alexy – adequacy, necessity and proportionality in the strict sense necessity. This union reinforces the importance of these principles for a legal system that seeks Balancing ethical values and practical applications. –, seeing the reasonableness in

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These ideas can be seen in *Habeas Corpus* No. 124306 from Rio de Janeiro, with rapporteur [name of rapporteur]. from Minister Marco Aurélio and the vote of Luís Roberto Barroso. In the judgment, the minister considered proportionality and reasonableness as synonyms. In the same process, it was noted that the minister viewed reasonableness as part of proportionality, showing that its form with regard to Proportionality coincides with the ideas of Robert Alexy.

This view demonstrates that basic rights have inherent limits and may have clear restrictions. Sometimes, these rights may clash with each other, with other principles of the Constitution, or with... the government's goals. Whether there are restrictions or conflicts, the practical solution is... Each case should follow the principle of reasonableness or proportionality as a tool.

Thus, the principle of proportionality serves to ensure that government actions are... Truly reasonable, seeking balance or the right measure. In short, justice.

According to a widely accepted idea throughout the world, the principle of proportionality is subdivided in three parts:

- (i) suitability, which verifies whether the action is right to achieve the objective;
- (ii) necessity, which defines the limit to avoid exaggeration; and
- (iii) proportionality in the more specific sense, which compares the costs and benefits of the action,

seeing if what is gained is greater than what is lost. For Luís Roberto Barroso, the

Proportionality functions as an instrumental principle, based on Robert's theories.

Alexy considers the principle of reasonableness to be equal to the sub-principle of necessity.

Based on the theoretical contributions of Dworkin, Alexy, and Barroso, it can be stated that the Petrobras' environmental licensing process for exploring the Equatorial Margin not only He admits it, but incorporates a legitimate space for Ibama to grant the license, provided that certain conditions are respected. the relevant constitutional parameters.

These approaches show that, when faced with conflicts between principles such as environmental protection, For economic development and energy security, the solution requires careful consideration of... Instead of a binary decision.

Dworkin's perspective highlights that rights and principles are not absolute, allowing The State must seek the balance most appropriate to the specificities of the particular case. The theory of... Alexy's proportionality provides Ibama with an essential technical tool for predicting a eventual authorization, provided that it is demonstrated that the prevention and mitigation measures That the measures and actions presented by Petrobras are adequate, and that they are strictly enforced in response to expected benefits. In turn, Barroso emphasizes that complex administrative decisions, such as the Environmental licensing gains greater legitimacy when based on rational criteria. scientific and transparent, based on the Constitution.

Thus, these three theoretical approaches converge to support the idea that there is a possibility.

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concrete legal and constitutionally sound grounds are necessary for Petrobras to obtain the environmental license. provided that the process objectively demonstrates the assessment and mitigation of impacts, guaranteeing The balance between environmental protection and national development.

Thus, the theoretical frameworks of Dworkin, Alexy, and Barroso not only guide the analysis, but they also provide a basis for the legal oversight of licensing by the environmental authority. competent.

**ENVIRONMENTAL LICENSING AND UNFOUNDED ASSUMPTIONS BY
PART OF THE BRAZILIAN INSTITUTE OF ENVIRONMENT AND RENEWABLE NATURAL RESOURCES
RENEWABLE NATURAL RESOURCES (IBAMA) FOR NON-CONCESSION**

The refusal to grant environmental permits stems from three issues, namely:

I. The idea of extensive coral reefs stretching from Amapá to Maranhão is inaccurate and gained traction with the Greenpeace Brazil, involving IBAMA. This notion has been refuted by scholars of...

Federal Fluminense University, as Figueiredo Jr. demonstrated in 2018. In waters

Deep and dark, under the influence of the Amazon delta, there are no corals.

In this respect, there are rhodolith beds there, formed by fossilized red algae and

dead. Corals, organisms dependent on sunlight, need clear, shallow waters without

sediments. In Maranhão, the few existing corals are in shallow waters, outside the geological area.

from the Pará-Maranhão Basin.

II. Some fear that an oil spill from the exploration could contaminate the mangroves of Amapá and

Pará. However, such fear also proves unfounded. The strong North Brazilian Current would carry

any material floating to a vortex in the Equatorial Atlantic.

Here, oil companies, when seeking licenses, must present plans to mitigate...

Accidents with environmental risk. It is important to note that there have never been oil spills in

Deepwater exploration in Brazil: an activity using safe and well-established technologies.

III. The recent withdrawal of the Pará-Maranhão Basin blocks from Bid 17 was justified by the risk to

Parcel de Manuel Luís, on the coast of Maranhão. This environmental site is a national heritage site and

It deserves protection.

Here, the Parcel is in shallow waters, outside the geological boundaries of the basin and far from the areas of

Deep-water exploration. Furthermore, due to the strength of the North Brazilian Current, the chance

The risk of contamination in this area is almost nonexistent.

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Institutional Analysis of the Denial of Environmental Licensing:

PETROBRAS, MME AND AGU IN LIGHT OF IBAMA'S DECISION

Petrobras's stance regarding IBAMA's refusal to grant licensing.

Petrobras expressed its astonishment at IBAMA's refusal to authorize exploration in Foz do Amazonas, in a statement issued fifteen hours after the presidential decision. The company reiterated his commitment to proceeding with the process, as he believed he had fulfilled all the requirements of the agency. environmental impact assessment for the project. The company also regretted IBAMA's requirement to conduct an environmental assessment. Emergency response simulation, or Pre-Operational Assessment, which aimed to test the plans of Contingency plan for potential oil spills in the ocean.

Petrobras has stated that by not exploring the Amazon River mouth basin, Brazil would be missing opportunities to boost economic and social progress in the Northern regions and Northeast. Meanwhile, the company emphasized its determination to obtain approval for drilling in... The Potiguar basin, seen as the starting point on the Equatorial Margin, where other companies already operate. They are involved in oil extraction. The company argues that expanding energy sources is fundamental. Beyond the pre-salt oil reserves, in order to meet the country's future energy needs.

It is worth noting that Petrobras' website has a section called "New Frontiers," where... The company expresses an openly positive stance regarding the release of new areas. for oil exploration, with emphasis on actions in the Equatorial Margin.

The Brazilian Strategic Plan (2023-2027) foresees an investment of US\$ 2.9 billion in this region. over the next five years and the drilling of 16 wells starting in the first quarter of 2023. This will allow us to contribute to meeting the growing demand for energy through production carried out with technological investments that guarantee operational safety and environmental care.

It is well known that Jean-Paul Prates, the current leader of Petrobras, faithfully expresses the line of The company's thinking is reflected in his speeches. An expert in Petroleum Economics, Prates has ties... with the Workers' Party, having been elected senator for Rio Grande do Norte in 2019. In In January 2023, he was appointed by Lula to lead Petrobras. On August 16th, during a meeting of the Senate's Regional Development and Infrastructure Committees, Prates He commented on the initiative to explore the mouth of the Amazon River, presenting relevant observations. on the subject.

It seems paradoxical. We're going to drill down to the bottom of the sea, extract perhaps the last oil in the world, To pay for, compensate for, and structure a standing forest economy. Otherwise, it will be through our tax money. It's a paradox we'll have to live with. Transition The energy sector is a constantly evolving entity: producing oil to generate revenue and pay for the transition.

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energetic.

However, in the same context, Prates wrote that "despite the team's assessments

"Even though IBAMA's techniques are unfavorable, it is the least bad alternative in the production chain," because the author

He still believes that "oil and gas exploration off the Amazon coast is justified."

Also in drilling practice, there has never been a single incident in many years of history.

from Petrobras , but also because it is the operation with the lowest risk of causing damage and with the greatest

"Opportunities to generate revenue for governments."

Position of the Ministry of Mines and Energy regarding the Licensing Denial

Environmental protection by IBAMA.

After Petrobras had its request denied, the Ministry of Mines and Energy (MME) came to

The public issued a statement saying that it had accepted IBAMA's decision regarding the Equatorial Margin.

in a calm manner and in accordance with institutional protocol. Furthermore, he emphasized that the entire process

The discussion of the topic has ensured the full participation of the bodies involved in the issue and

will respect the guidelines of President Lula's government, of unity and reconstruction, of trust and

dialogue, taking into account respect for the environment and social and economic issues of

country's interest.

Alexandre Silveira, from the PSD party and current Minister of Mines and Energy, has been advocating more strongly.

He strongly supports the idea of exploring for oil in the Amazon River mouth region. (Participating in the Commission)

Regarding infrastructure in the Senate, Silveira did not hold back in his criticism of the decision made by IBAMA.

classifying it as "unacceptable" and minimizing it to a mere "bureaucratic issue".

The aforementioned Minister called into question Marina Silva's political weight abroad, stating...

that the true "environmental ambassador of Brazil," with great prestige in the world, is the president.

Lula, who had already shown himself to be somewhat skeptical about the potential for major environmental impacts of

project, in a previous speech. Silveira made a point of highlighting the strategic importance of the exploration,

saying that the government cannot treat the matter as something forbidden, highlighting the importance of

exploratory activity, arguing that the subject cannot be seen as something forbidden in

governmental scope.

Silveira stressed that he remains confident that common sense will prevail, and that the request for

The reconsideration will be analyzed by IBAMA; whether they will call for reconsideration, licensing, the...

The name they give me doesn't matter much. What matters is that Brazilian women and men

They have the right to know the subsoil of their country, its potential. We will not tolerate taboos.

In our government, we need to discuss and address environmental issues whenever possible.

The Minister expressed that the Environmental Assessment of Sedimentary Areas (AAAS) should be

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applied only to blocks that will be made available in future auctions on the Margin

Equatorial, excluding the blocks already awarded in the 2013 auction, as requested by

Petrobras, when explaining that reopening the licensing process in these cases would constitute a breach of contract, not only with Petrobras, but also with other oil companies that

They invested in land blocks in that region. Such action could result in compensation claims against the Federal Government.

based on investments already made, including the amounts paid for the concession. Similar to Prates,

Silveira also emphasized that oil exploration in the Equatorial Margin is crucial for the

future progress of the North and Northeast regions of the country.

Position of the Attorney General's Office (AGU) regarding the Denial of Licensing due to

Part of IBAMA

Due to IBAMA's refusal to issue the environmental license for Petrobras...

If the Ministry of Mines and Energy (MME) were to explore block FZA-M-59 in the Amazon River mouth basin, it contacted the Attorney General's Office (AGU) in July. 2023. The Ministry of Mines and Energy (MME) alleged the existence of a legal impasse between it and the Ministry of the Environment (MMA) regarding the need to present the Environmental Assessment of Sedimentary Areas. (AAAS) and a document called the Joint Statement. In light of this, the Attorney General's Office was summoned. to interpret Interministerial Decree MME/MMA No. 198/2012, which governs these two items.

The General Counsel's Office of the Union, a sector of the Attorney General's Office (AGU), has the function of providing legal advice. to the Executive Branch, establishing uniform interpretations of laws and administrative regulations. In addition to analyzing the issue from a legal standpoint, the Attorney General's Office (AGU) has opened a conciliation process in federal courts. The Mediation and Conciliation Chamber of the Federal Public Administration (CCAF), with the objective of Involve IBAMA, Petrobras, MME, and MMA in the search for a consensual solution.

On August 22, 2023, a technical-legal opinion prepared by Giselli was released. dos Santos, supplemented by orders signed by Priscila Cunha do Nascimento, Bruno Moreira Fortes and André Augusto Dantas Motta Amaral. This set of documents responded to MME's questioning of the legality of the AAAS requirement or the Joint Statement in the environmental licensing process, emphasizing that the intention was to avoid safety risks. energy shortages and damage to Brazil's self-sufficiency in oil production.

The report examined the legal nature of AAAS and issues related to it. mandatory nature. It also addressed the validity, the temporary nature, and the possible expiration of Joint Statement in light of Interministerial Decree No. 198/2012. The General Counsel of the Union concluded that, although AAAS is not strictly mandatory as an administrative requirement for environmental licensing, the mentions made by the president of IBAMA to AAAS and the Demonstration Taken together, they indicate that they are important. However, it was stressed that the AAAS should be seen as

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It is an aid to the licensing process, not an end in itself.

The report also highlighted the harmony with recent decisions of the STF (Supreme Federal Court), which established, in July 2023, that environmental approval for projects must be proven directly in the licensing process, eliminating the initial need for AAAS. The AGU also noted. Unlike the analyses required for environmental licensing, the development of the AAAS is paid for with public money, creating extra expenses for the population and going against the principle of polluter-pays principle, since these expenses are not the responsibility of the company that carries out the work. project.

Regarding the Joint Statement, the Attorney General's Office indicated that the Interministerial Ordinance defines a maximum term of five years, requiring review and confirmation for areas not yet granted – something which would not fit into the FZA-M-59 block under discussion. Thus, conclusions were presented. aiming to reconcile legal interpretation with current law and the interests related to the case.

CONCLUSION

The Brazilian Equatorial Margin is consolidating itself as one of the most promising and strategic. The country's oil exploration frontiers, bringing together high geological potential and capacity to... To boost regional and national economic development and has direct relevance to security. Energy in the coming decades. The growing need to expand reserves, in the face of a The estimated reserves-to-production (R/P) ratio is only 13.7 years, and the long interval between the discovery... And the start of production reinforces the urgency of investments in new exploration areas. especially in historically less developed regions, such as the North and Northeast of Brazil. This study demonstrates that the Equatorial Margin presents geological characteristics. similar to those in already consolidated areas in neighboring countries, such as Guyana, Suriname, and Ghana, where Significant oil discoveries have brought about profound transformations in their respective landscapes. Economic. In the Brazilian context, the expectation of billions of barrels of oil is technically recoverable resources, coupled with the projection of generating thousands of jobs and attracting substantial investments. Investments highlight the strategic nature of this new exploratory frontier. However, expansion The activities face significant obstacles, ranging from distorted public perceptions and Environmental controversies and institutional obstacles, especially in the area of licensing. environmental. The analysis carried out indicates that some of the environmental denials lack justification. consistent technique, although in some cases it relies on inaccurate interpretations of sensitive ecosystems or those at potential risk, which, according to specialized studies, are not confirms this in light of available scientific evidence and the dynamics of ocean currents. predominant. Furthermore, the observed impasses between different government bodies, such as the

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Brazilian Institute of Environment and Renewable Natural Resources, the Ministry of Mines and

The energy sector, the Attorney General's Office, and Petrobras reveal that the debate extends beyond the field. strictly technical, taking on political and legal dimensions, marked by interpretative disputes

Regarding institutional norms, procedures, and responsibilities. In this context, the contributions

The theories of Ronald Dworkin, Robert Alexy, and Luís Roberto Barroso offer an interpretative basis.

fundamentally, by emphasizing the need for balance, proportionality, and rationality in

decisions involving conflicts between constitutional principles. The tension between development

National environmental protection does not allow for absolute solutions, since the Federal Constitution

It does not grant unrestricted primacy to any of these values, but rather demands the pursuit of a

A balance that ensures harmonious coexistence between both. Thus, environmental licensing.

It can and should move forward, provided it is guided by rigorous technical criteria, in adopting measures.

adequate impact mitigation measures and justifications proportionate to the strategic importance of

Equatorial Margin for the country. It is concluded, therefore, that the Equatorial Margin represents not only

An economic opportunity, but also an energy, social, and geopolitical imperative. The main challenge

The Brazilian reality does not lie in the choice between environmental protection or economic development, but in...

building integrated solutions that reconcile these dimensions and strengthen the role of the State,

guarantee legal certainty, ensure environmental protection based on scientific evidence.

and enable the transformation of national energy potential into sustainable prosperity.

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