Growth Lab

Bolivia's Economic Pivot: Reviving the Energy Sector

Lucas Lamby, Lucila Venturi, José Ignacio Hernández, and Ricardo Hausmann

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GROWTH LAB
HARVARD KENNEDY SCHOOL
79 JFK STREET
CAMBRIDGE, MA 02138

GROWTHLAB.HKS.HARVARD.EDU

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About the Growth Lab

The Growth Lab at Harvard University's multidisciplinary team, led by Professor Ricardo Hausmann, pushes the frontiers of research on economic growth and development policy. The Lab advances academic research on the nature of economic growth and conducts applied, place-based engagements that aim to understand context-specific growth processes, address key constraints, and identify promising opportunities. Through its research and teaching activities, the Lab has become a global thought leader offering breakthrough ideas, methods, and tools — including Growth Diagnostics, Economic Complexity and Green Growth — that help practitioners, policymakers, and scholars understand how to accelerate economic growth and expand opportunity across the world. Consistent with the mission of the Harvard Kennedy School of Government, in which the program is housed, the Lab works to expand capabilities for improved economic policy-making such that more people and societies can enjoy higher levels of wellbeing through stronger, more sustainable, and more inclusive economic growth processes.

About the Series

The "Bolivia's Economic Pivot" series, produced by the Growth Lab, comprises seven documents: (1) Main findings and reform priorities, which integrates and synthesizes the six thematic studies in the series (Hausmann et al., 2026) ; (2) The Making of a Macroeconomic Crisis (García et al., 2026); (3) Early Macroeconomic Achievements and Remaining Challenges (Arcay et al., 2026); (4) Reviving the Energy Sector (Lamby et al., 2026); (5) Unlocking the Mining and Lithium Potential (Lamby & Hausmann, 2026); (6) Opportunities and Challenges in Agriculture (Shah & Hausmann, 2026); and (7) A Growth Diagnostics of the Tourism Sector (Freeman & Hausmann, 2026). See references.

Acknowledgments

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contributions to the project, as well as our colleagues at the Growth Lab for their continuous intellectual support and engagement.

We note that the views expressed in this report are solely those of the authors and do not necessarily reflect the views of those acknowledged here.

Data and Information Disclaimer

This report is based exclusively on available information and statistics at the time of writing. Official datasets in Bolivia are often outdated, incomplete, or published with significant lags, which limits the precision of certain estimates and the depth of the analysis. Where possible, these gaps have been addressed through secondary sources, historical trends, or internationally comparable data, though some figures should be interpreted as indicative rather than definitive. Given this, judgment was applied in preparing some of the numbers and calculations contained in this report, and any changes or developments occurring after February 28th, 2026, are not fully accounted for.

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1.) Executive Summary

Bolivia's macroeconomic crisis is fundamentally an energy crisis. For two decades, natural gas exports provided the foreign exchange and fiscal revenues that underpinned public spending, exchange rate stability, and external balance. That model has reversed. Gas production has declined sharply since its 2014 peak, export volumes have collapsed, and hydrocarbons have shifted from being a net generator of foreign exchange to becoming a net drain on reserves. Fuel subsidies have placed additional pressure on the external balance by increasing demand for imported liquid fuels. Meanwhile, the domestic natural gas price subsidy distorted investment incentives by discouraging both upstream gas development and investment in hydropower and solar generation. The result is a structural external constraint in which the energy sector sits at the center of fiscal, balance-of-payments, and growth dynamics.

The decline in production is not primarily geological. It reflects a break in the institutional and contractual framework governing hydrocarbons. The investment-oriented regime of the 1990s combined with the construction of the gas pipeline between Bolivia and Brazil generated a surge in exploration, reserve growth, and export expansion. Following the Gas War of 2003 and the 2004 referendum, Bolivia restructured its hydrocarbons sector through Law 3058 (2005), Supreme Decree 28701 (2006), and the 2009 Constitutional change. The post-nationalization framework centralized commercialization authority within *Yacimientos Petrolíferos Fiscales Bolivianos* (YPFB), increased government take through the *Impuesto Directo a los Hidrocarburos* (IDH), and constrained contractual flexibility. While this model increased state revenue capture during the commodity boom, it weakened the risk–reward profile of high-risk exploration. Because hydrocarbon investments operate on long time horizons, the production collapse observed after 2014 represents the lagged consequence of reduced exploration incentives.

The new administration has taken a significant step toward macroeconomic stabilization and a more sustainable energy system. Supreme Decree 5516 (January 2026) substantially reduced liquid fuel subsidies, raising diesel prices by 163%, gasoline by 86%, and vehicular natural gas by 64 %. The reform was accompanied by social compensation measures such as the increase in *Renta Dignidad* and the introduction of *Bono Pepe* transfer. Together these measures are estimated to generate approximately net fiscal savings worth 4.9% of GDP.[1] Political resistance has been more limited than initially expected, in part because recurring fuel shortages had already exposed the unsustainability of the previous system. Inflationary pass-through has also been moderate. As a result, the reform has eased immediate fiscal and foreign-exchange pressures.

However, the energy reform remains incomplete. Gasoline prices remain below international parity, limiting the feasibility of private participation in fuel import and commercialization. The price-setting framework under Supreme Decree 5516 retains discretionary elements and lacks fully transparent, automatic adjustment formulas and fiscal stabilization mechanisms. Most importantly, the largest distortion in the energy system, subsidized domestic natural gas, remains untouched. Domestic gas is sold at a fraction of export parity prices, forgoing more than $900m in potential export earnings in 2025, discouraging upstream exploration, and crowding out renewable electricity development. As domestic production continues to decline, the implicit gas subsidy risks becoming an explicit fiscal burden

[1]

if Bolivia is forced to import gas derivatives such as liquefied petroleum gas (LPG) in the short term and natural gas in the near future.

The central objective of Bolivia's energy policy should be to leverage the country's abundant natural resources to support macroeconomic stability and long-term economic development. Natural gas exports had provided the fiscal revenues and foreign exchange that underpinned public spending, exchange rate stability, and external balance. While it will not be possible to return to those revenue levels in the short term, the immediate priority must be to stabilize the energy system and halt the decline in gas production. In practical terms, this means restoring reliable supply in the liquid fuel market and preventing Bolivia from becoming a net importer of natural gas as domestic production continues to fall.

Achieving this objective requires mobilizing investment and technical capacity to develop Bolivia's energy resources while ensuring that the benefits accrue to the country and its citizens. The aim of reform is not to transfer control of natural resources to private actors, but to create the conditions under which those resources can be developed efficiently and generate sustained economic benefits for the country. Bolivia possesses substantial untapped potential in hydrocarbons, hydropower, and solar energy. A well-designed energy policy should therefore seek to restore upstream investment in natural gas while simultaneously expanding renewable generation capacity. Together, these resources can support domestic economic activity, strengthen the external balance through energy exports, and provide a more sustainable foundation for long-term growth.

To achieve these objectives, three priority areas stand out:

First, fuel pricing reform must be finalized and embedded in a transparent, rules-based pricing system. Full convergence of fuel prices to international reference levels is necessary to enable private participation in supply and relieve *Yacimientos Petrolíferos Fiscales Bolivianos* (YPFB) of financially unsustainable obligations. Automatic and transparent pricing formulas, linked to international benchmarks and supported by stabilization mechanisms, are essential to prevent the re-emergence of subsidies and to build credibility. Targeted social protection should replace untargeted energy subsidies to protect vulnerable households and preserve political support.

Second, the hydrocarbons sector must be restructured to restore exploration and production incentives. Under the current constitutional framework (Arts. 359–361), the authority to commercialize domestically produced hydrocarbons is reserved to the State, limiting contractual flexibility. While constitutional reform could allow greater flexibility in contractual design, meaningful improvements are possible within existing constraints. Adjustments to Law 3058, particularly regarding commercialization rights and cash-flow allocation, could reduce counterparty risk and improve investor's legal certainty. [2] Fiscal terms for new fields should include greater progressivity and risk sensitivity, potentially through a variable tax mechanism that replaces or modifies the IDH for new exploration areas (Arts. 53–58). Institutional reform is equally important: strengthening the independence of *Agencia Nacional de Hidrocarburos* (ANH), separating regulatory and operational functions, and strengthening corporate governance of YPFB can improve transparency and credibility without relinquishing public ownership.

[2] Given past instances of private operators failing to receive contractually stipulated USD payments from YPFB, reversing the payment flow, whereby operators collect revenues directly and remit YPFB's share, would reduce investor uncertainty.

Because exploration outcomes materialize with multi-year lags, credible reform signals are needed immediately.

Third, Bolivia should accelerate the development of hydropower and solar resources in order to free up natural gas for export and develop its renewable power as a new comparative advantage. The country possesses significant renewable potential, but subsidized domestic gas renders renewable generation uncompetitive. Aligning gas prices with opportunity costs would create space for renewable deployment and reduce domestic gas consumption in electricity generation. Competitive renewable energy auctions, embedded in cost-reflective tariffs and supported by creditworthy offtake agreements and grid investments, can procure new capacity at a lower cost. Over time, a more diversified generation mix would strengthen energy security, reduce fiscal exposure, and enhance foreign exchange resilience.

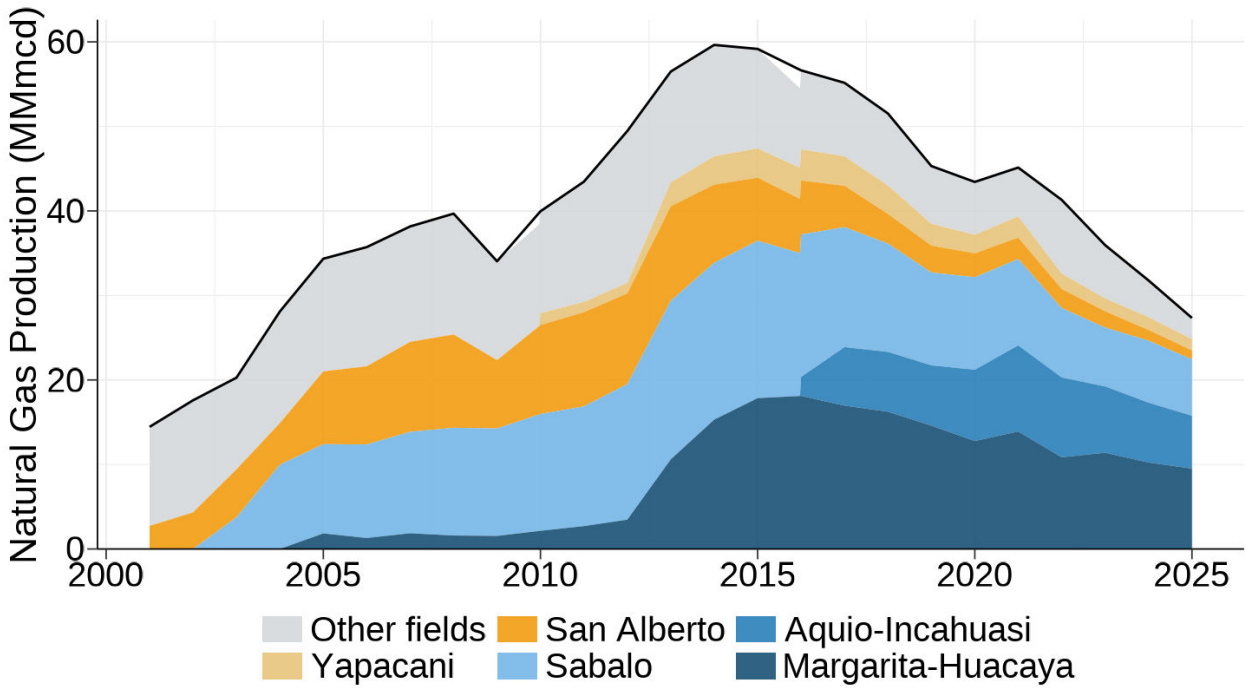
Ultimately, Bolivia's energy reform is not a retreat from sovereignty but a strategy to preserve it. Untargeted subsidies and declining production undermine fiscal and external stability. By replacing regressive subsidies with targeted transfers, restoring exploration incentives while maintaining state ownership, and leveraging renewable potential to protect export capacity, Bolivia can rebuild an energy system that supports macroeconomic stability, investor confidence, and long-term development. The durability of the reform will depend on transparency, institutional credibility, and the visible sharing of benefits across society and regions. Without such reforms, the continued decline in gas production and rising dependence on imported fuels will place increasing pressure on fiscal and external balances, ultimately constraining the country's ability to sustain economic growth and macroeconomic stability.

2.) The Collapse of Bolivia's Energy Model

Bolivia's economy and energy system are structurally dependent on hydrocarbons. For many years, natural gas exports to Brazil and Argentina formed the backbone of the country's macroeconomic model. Gas exports generated large inflows of foreign currency, financed public spending through a high government take, and provided the dollars required to sustain a fixed exchange rate regime. During the commodity boom, this model appeared highly successful: export revenues surged, fiscal space expanded, and international reserves accumulated to historic highs.

That model has now reversed as natural gas production is plummeting. Natural gas production peaked in 2014 and has now reached levels last seen 20 years ago. While Bolivia produced 59.6 Mm^3/d of natural gas 2014 it declined to 27.3 Mm^3/d by 2025 (Figure 1). This is a contraction of 54.2%. The production decline was in large parts driven by the reduction in the production from megafields like Margarita, Sábalo and San Alberto. These are all fields that entered production in the early 2000s and have entered their decline. At the peak in 2014, these three fields accounted for more than 70% of the total natural gas production. As production started falling, domestic market needs were prioritized and consequently exports fell. In 2014 Bolivia exported 48.3 Mm^3/d, these natural gas exports collapsed to just 10.8 Mm^3/d in 2025 (−78 %).

Figure 1: Natural gas production in Bolivia 2001 – 2025



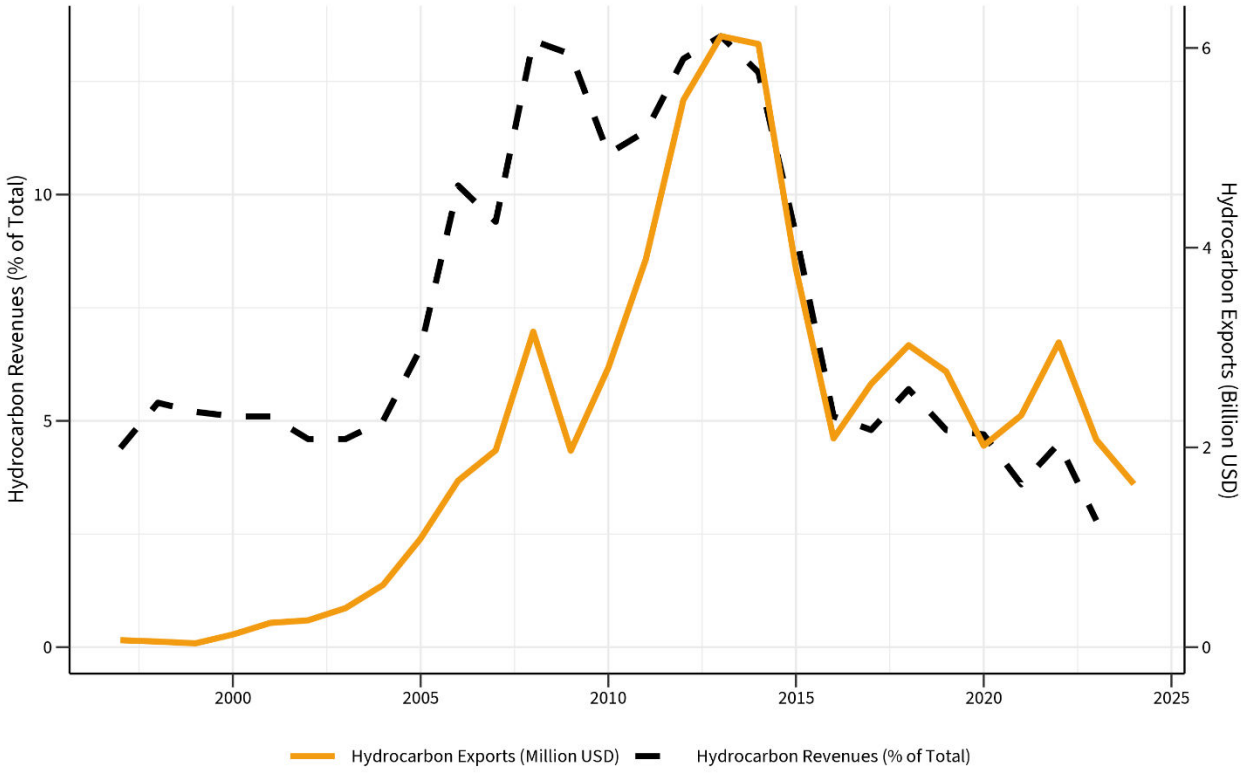
Source: Authors' elaborations based on data from Ministry of Hydrocarbons and Energy (MHE), INE, Fundación Jubileo and S&P.

The decline in natural gas production translated directly into a sharp reduction in fiscal revenues as well as foreign exchange earnings. Following the reforms of the mid-2000s, Bolivia significantly increased the government take from the hydrocarbon sector and therefore captured a large share of the windfall generated during the commodity boom. The combination of royalties and taxes from the

hydrocarbon sector generated approximately $ 12.8 billion in fiscal revenues in 2013, equivalent to roughly 33 % of total fiscal revenues that year. These revenues allowed the government to substantially expand public spending during the boom period. As gas production declined and international prices weakened, however, hydrocarbon revenues fell dramatically, dropping to roughly USD 2.8 billion in recent years. Despite this collapse in revenues, public spending remained high (García et al. 2026), contributing to the widening of the fiscal deficit.

Export earnings followed a similar trajectory. Natural gas exports generated approximately 6.1 billion in revenue in 2013 but had fallen to about $1.08 billion by 2025 (Figure 2). The decline reflected a combined volume and price effect: the implied natural gas export price peaked at roughly USD 10/MMBtu in 2012, fell sharply to USD 3.5/MMBtu in 2016, and has since stabilized near USD 6/MMBtu (Figure A.1). Because hydrocarbon exports simultaneously generated fiscal revenues and foreign exchange, this collapse weakened both the government's budget and the country's external balance. With fewer export earnings available to finance imports, Bolivia increasingly used its international reserves to sustain import demand. The depletion of these reserves has therefore become one of the central macroeconomic consequences of the decline of Bolivia's hydrocarbon export model.

Figure 2: Hydrocarbon Revenues and Exports



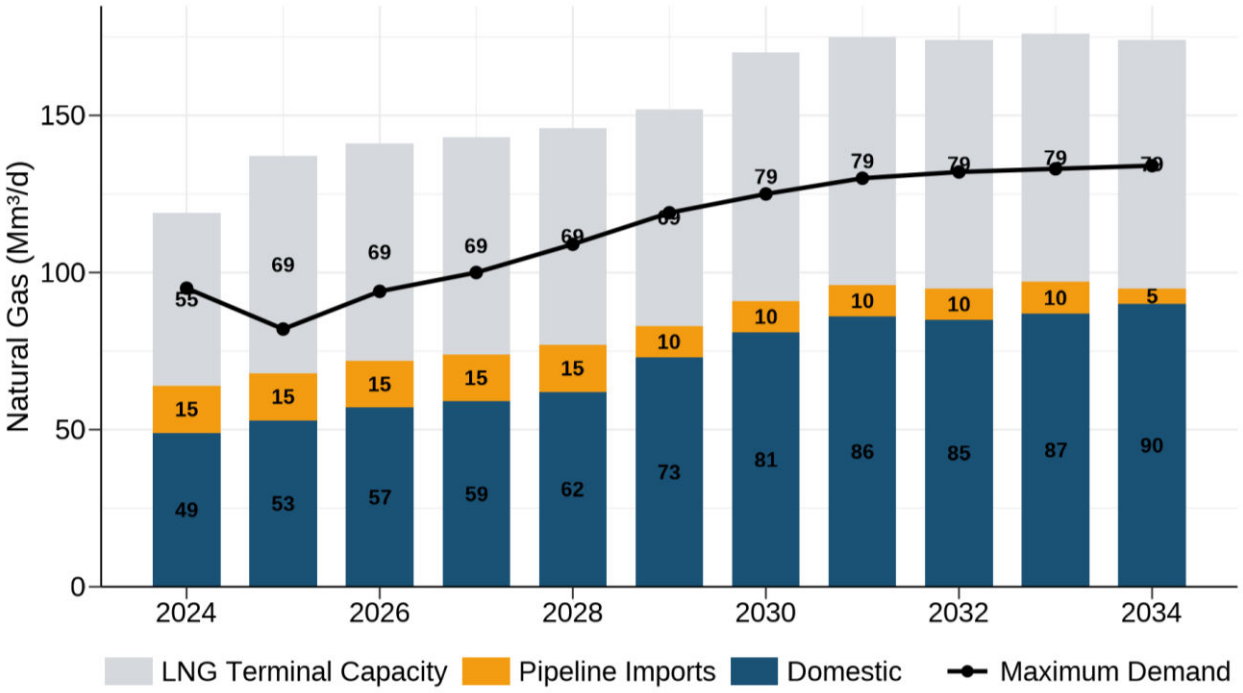
Source: Authors' elaborations based on IMF (2000-2024) and INE (2025).

The decline in Bolivia's natural gas exports has also coincided with a structural shift in its export markets, most notably the loss of Argentina as a major buyer. For two decades, Bolivia's gas export model relied on long-term contracts with both Brazil and Argentina, which together absorbed the majority of its production. This dynamic has changed fundamentally with the rapid development of

Argentina's unconventional gas resources in the Vaca Muerta formation. The production from Vaca Muerta today is already three times that of Bolivia (Ares, 2025). As the field is the second largest shale gas field in the world it is projected to keep growing its production. This development has made Argentina independent of Bolivia's gas.

Argentina's growing production has not only eliminated a key export destination for Bolivian gas but has also introduced a new regional competitor for the Brazilian market. Argentina is increasingly seeking to supply neighboring markets, including Brazil. It will therefore be a competitor of Bolivia in supplying Brazil. However, the pipeline infrastructure to Brazil is the constraining factor as there is only an indirect pipeline connection via Bolivia. While this would allow Bolivia to collect transit fees, the revenues from exporting gas directly to Brazil would be much larger. Brazil, by contrast, has already reduced its projection of future gas imports from Bolivia due to the uncertainty over the production outlook. Brazil's national energy plan is projecting that imports from Bolivia will decrease from 15 Mm^3/d — the contracted volume at the time of the plan —, to 10 Mm^3/d by 2029 and 5 Mm^3/d by 2034 (EPE, 2024) (Figure 3). Reassuring Brazil that Bolivia can be a reliable supplier through policy measures that can lead to an increase in production would be important. Since Brazil plans to import large amounts of LNG that are less competitive than Bolivian pipeline gas, the market still exists.

Figure 3: Brazil – Natural Gas Balance of the Integrated Network



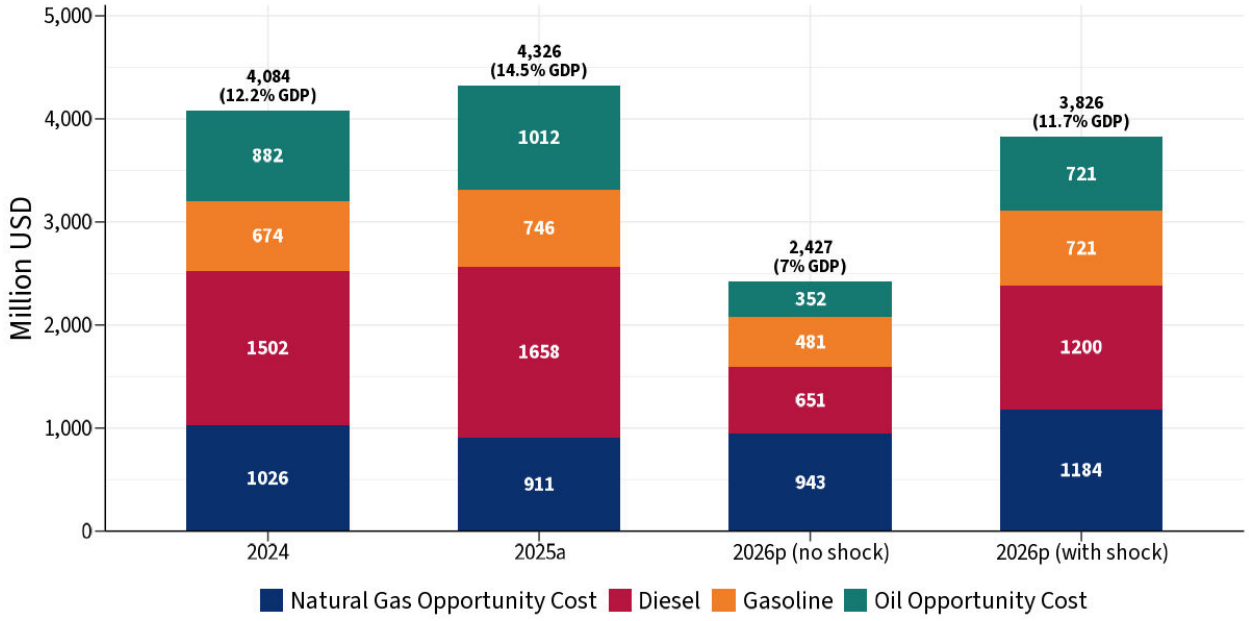
Source: Authors' elaborations based on data from EPE (2024).

The loss of foreign exchange from declining natural gas exports has coincided with rising demand for subsidized liquid fuel imports, creating an increasing drain on Bolivia's external accounts. For the past two decades, Bolivia maintained regulated prices for gasoline and diesel at levels substantially below international market prices, while natural gas has also been sold domestically at a fraction of export parity prices. These price controls have encouraged high domestic consumption and limited incentives for efficiency or substitution to more sustainable alternatives, especially in the case of

natural gas (Figure A.2). They have also led to substantial smuggling activities, which are estimated to account for 30% of domestic fuel demand (ANF, 2025)As a result, Bolivia's demand for imported diesel and gasoline steadily increased even as the country's export revenues from natural gas declined.

By 2025, the combined explicit and implicit cost of hydrocarbon subsidies was estimated at approximately USD 4.3 billion, an amount nearly equivalent to the overall fiscal deficit. The combination of declining export revenues and rising subsidized fuel imports ultimately transformed Bolivia into a net importer of hydrocarbons, reversing a position it had held for decades. This growing imbalance placed increasing pressure on the country's foreign exchange reserves and contributed to the fuel shortages observed in recent years. The new administration took important steps to reduce liquid fuel subsidies in January 2026, a reform that will be discussed in section 5, but the underlying structural pressures on Bolivia's energy balance have not yet been fully resolved**.**

Figure 4: Energy Subsidies by Category

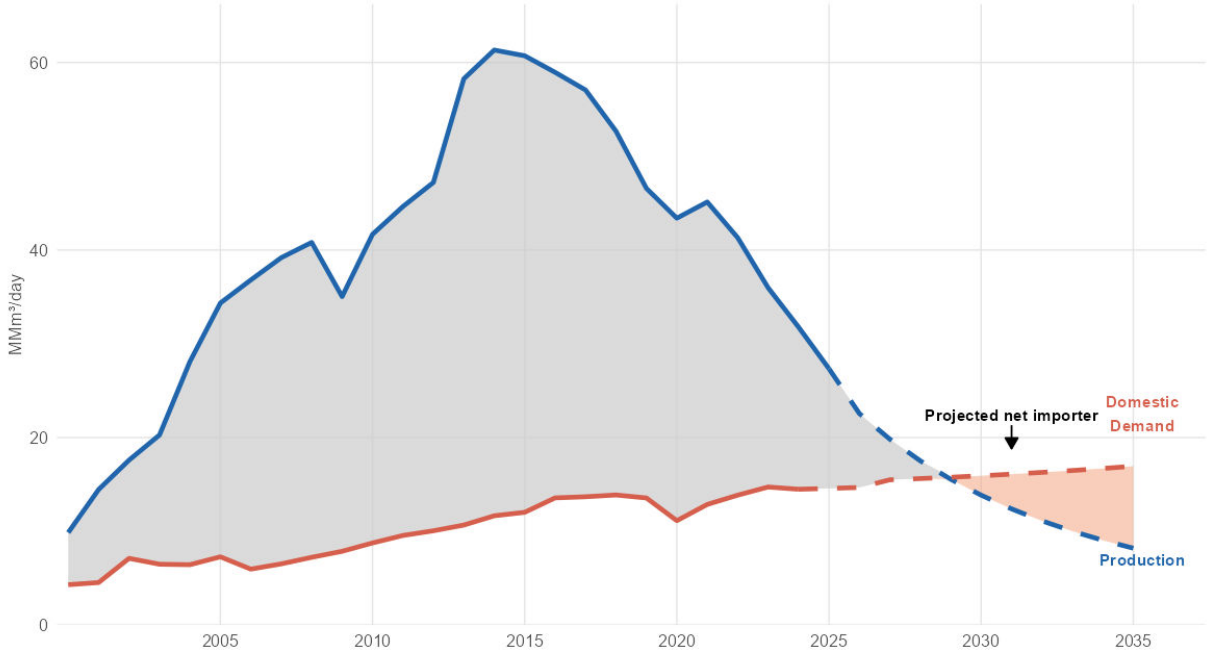


Note: This was estimated by calculating the difference between the domestic price and international reference price. The international reference price was reduced by 25% to account for taxes and margins. This difference was then multiplied by the quantity sold in the Bolivian market. For natural gas the international reference price was the export price that Bolivia is currently obtaining, as this is the opportunity cost. The exchange rates that were used were the following: 2024: 9.6, 2025: 12.6, 2026p (no shock): 10.9 and 2026p (with shock): 11.5 Source: Authors' elaborations based on data from the ANH and MHE as well as (S. M. Medinaceli Monroy & Velázquez Bilbao La Vieja, 2023)

Bolivia now faces the risk of becoming a net importer of natural gas within the next three to five years as production from its existing fields continues to decline (Figure 4). Most of the country's major gas fields are mature and experiencing rapid depletion, while limited exploration activity has failed to generate sufficient new discoveries to replace declining output. As a result, medium-term supply and demand projections suggest that domestic production may soon fall short of internal demand. This risk is particularly significant because Bolivia's electricity system relies heavily on gas-fired generation. In 2024, approximately 66% of total electricity generation was fueled by natural gas (CNDC, 2025). If Bolivia were forced to import gas at international prices while maintaining regulated electricity tariffs, the fiscal cost of the power system would increase substantially. The transition from exporter to importer would

therefore create a new and potentially large demand for foreign currency, in the context of limited generation of foreign reserves. If foreign exchange shortages were to constrain gas imports, the electricity system could face supply disruptions and power outages, much like the fuel shortages observed in recent years.

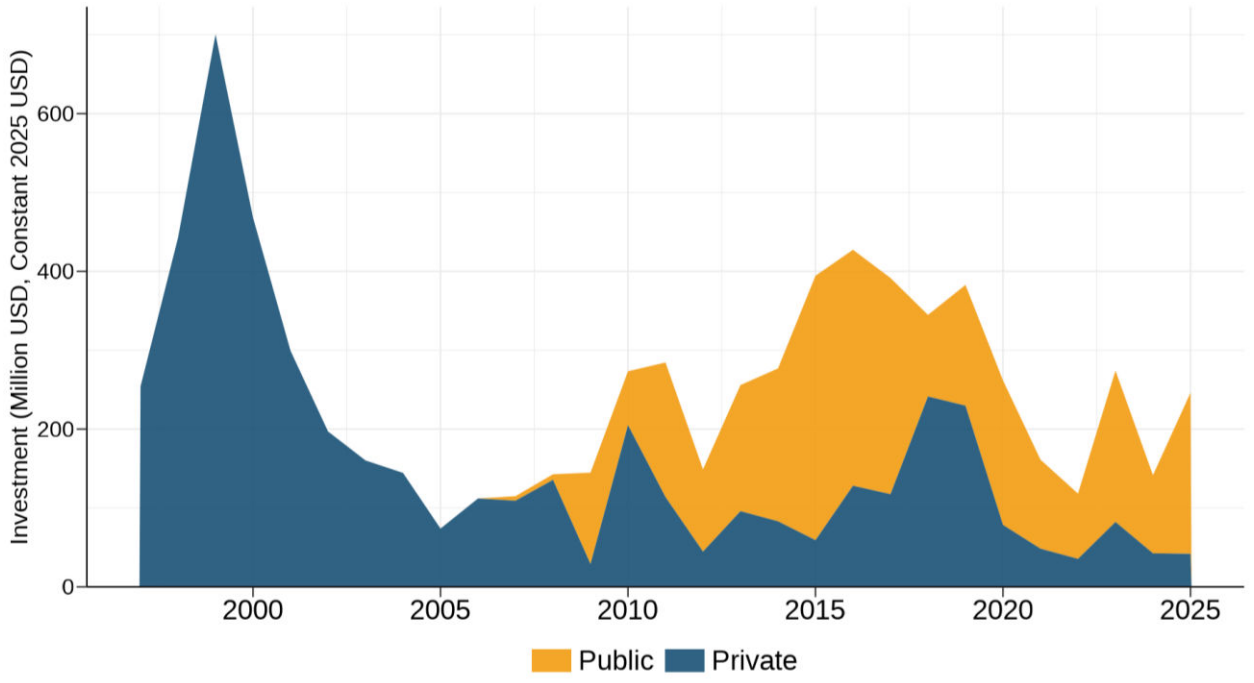
Figure 5: Natural Gas Production and Domestic Demand (incl. Projections)



Note: The supply projection uses hyperbolic and exponential production projections per field based on historical, monthly production data and the past decline curves. The demand projection calculates annual growth rates between 2015 – 2024 and applies these growth rates to project future demand. It also assumes additional demand of 0.7MMmd coming from the El Mutun steel project from 2027 onward. Source: Authors' elaboration based on S&P, INE and MHE data,

The decline in production reflects a sustained drop in investment in exploration. Output from Bolivia's mature gas fields has not been replaced by new discoveries, largely because exploration activity has fallen sharply over the past fifteen years. Many of the country's currently producing fields were discovered during the late 1990s and early 2000s, when private companies carried out extensive exploration campaigns under the liberalized hydrocarbons framework of that period. Since the mid-2000s, however, private exploration investment has declined significantly, and few large new discoveries have been made. The state-owned company YPFB has attempted to compensate for the reduction in private exploration since its expanded role after 2009, but it has not succeeded (Figure 5). As production from existing fields continues to fall, restoring Bolivia's gas supply will require a renewed wave of exploration investment. This challenge is compounded by the fact that a growing share of the country's remaining hydrocarbon potential is located in more complex or unconventional areas, where exploration costs and risks are substantially higher.

Figure 6: Hydrocarbons Exploration Investment in Bolivia (1997 - 2024)



Source: Authors' elaboration based on data from ANH & MHE

The current crisis is therefore not the result of a temporary shock but the manifestation of deeper structural imbalances in Bolivia's energy system. Declining natural gas production has reduced export revenues and fiscal income while the country's dependence on subsidized fuel imports has increased pressure on the external balance. At the same time, the absence of new discoveries means that production from Bolivia's aging gas fields is not being replaced, raising the risk that the country could eventually transition from a gas exporter to a gas importer. At the center of these dynamics lies the sustained decline in exploration investment over the past fifteen years. Understanding why exploration activity collapsed is therefore critical to explaining Bolivia's current energy and macroeconomic challenges. This is happening at a critical moment in which Argentina is emerging as a competitor in the regional gas market and Brazil is doubting the reliability of gas supply from Bolivia. Moreover, this is happening in a context in which the electricity system is highly dependent on natural gas as 66% of electricity stems from gas-powered generation (CNDC, 2025). The continuity of the collapse of Bolivia's natural gas production would have dire consequences for the country. Therefore, it is important to understand the underlying causes of the current situation. The next section examines the institutional and regulatory evolution of Bolivia's hydrocarbons sector and analyzes the key factors that have shaped investment incentives in the industry.

3.) Nationalization and Its Investment Consequences

Bolivia's current energy constraints, described in section 2, are not merely the result of geological depletion or adverse commodity cycles. They reflect a transformation in the institutional architecture of the hydrocarbons sector that reshaped investment incentives over time. Because hydrocarbon production depends on sustained high-risk exploration with long development cycles, institutional design affects output with significant lags. Today's production shortfall is therefore the delayed consequence of earlier changes in contractual structure, fiscal regime, pricing policy, and governance.

The Investment-Oriented Framework of the 1990s

Bolivia's gas boom between the late 1990s and 2014 was rooted in institutional reforms that aligned the sector with international investment norms. The 1996 Hydrocarbons Law (Law 1689) fundamentally redefined the contractual relationship between the state and private operators by replacing earlier service-type arrangements with so-called "*contratos de riesgo compartido*." In the standard international classification (Johnston, 2003), the "*contratos de riesgo compartido*" under Law 1689 most closely resembled a royalty/tax system: companies assumed ownership of production at the wellhead and held the right to commercialize it directly, subject to royalty and tax obligations. However, the contracts included a domestic supply obligation requiring operators to deliver volumes to YPFB for the domestic market and for pre-existing export commitments, such as the gas supply agreement with Argentina. This created a hybrid structure in which companies controlled most commercialization decisions, including export pricing and volumes for new markets like Brazil, while YPFB retained a role in domestic allocation and legacy contracts.

The 1996 reform restructured the fiscal regime of the hydrocarbon sector making it more attractive to investors. Under the previous law (Law 1194 from 1990), the state captured 50% of the value of production at the wellhead through royalties and taxes levied on gross revenue regardless of the operator's profitability. Law 1689 maintained this 50% levy for reserves certified as of April 1996 ("existing hydrocarbons") but reduced the upfront burden on new discoveries to 18% in combined royalties. In exchange, the sector was brought under the general tax code for the first time, subjecting companies to a 25% corporate income tax (IUE), a 25% surtax on extraordinary profits, and an effective 12.5% tax on remitted profits (IRUE). However, since companies could deduct capital expenditures against these profit-based taxes, the fiscal burden on new fields was relatively low during the investment phase and higher as projects became profitable. The economic rationale was to make exploration viable in unproven areas, particularly in low-price environments where a 50% gross revenue levy could render projects unprofitable (M. Medinaceli Monroy, 2007). However, this design created a political vulnerability: as existing hydrocarbon volumes depleted and profit taxes on new fields had not yet matured, the observable fiscal take declined sharply, fueling the widespread perception that the state was capturing only 18% of its hydrocarbon wealth.

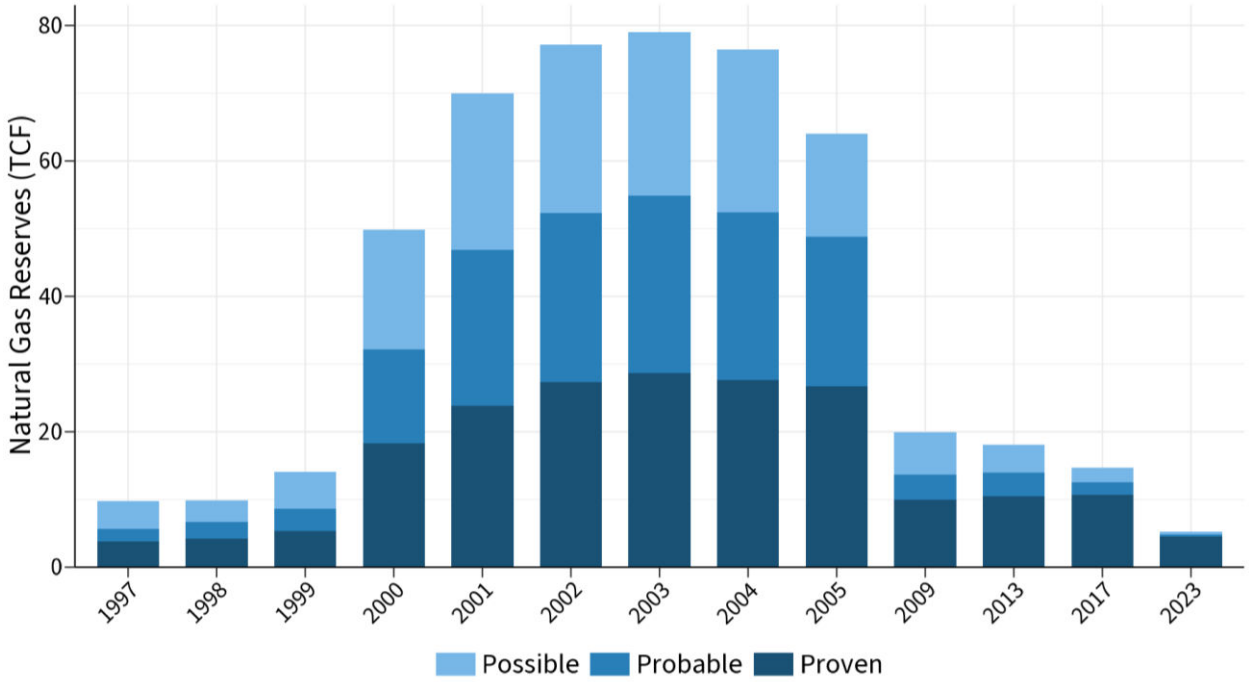
These reforms significantly improved the expected risk–reward balance for investors. At the same time, Bolivia secured long-term access to the Brazilian market through the Gas Supply Agreement between YPFB and Petrobras, supported by the joint construction of the Gasbol pipeline beginning in 1996. This infrastructure commitment reduced demand uncertainty and created a credible export anchor for new discoveries. despite uncertainty about Bolivia's reserves base at the time.

The response was substantial. Large international firms including Petrobras, Repsol, Total, and others invested heavily in exploration. Proven gas reserves increased dramatically between 1997 and

2004, and major fields such as Margarita, Sábalo, San Alberto, and Incahuasi were discovered and developed (Figure 6). By the early 2000s, Bolivia had become the second-largest holder of proven gas reserves in South America after Venezuela. Production expanded steadily, exports surged, and by 2014 gas output reached its historic peak.

Importantly, the production peak in 2014 reflected investment decisions made many years earlier. From exploration to first gas, projects often require seven to ten years. The boom therefore embodied the lagged outcome of the incentive structure established by the hydrocarbon's law of 1996. Export prices rose in parallel: the implied natural gas export price climbed from roughly USD 2/MMBtu in the early 2000s to a peak of USD 10/MMBtu in 2012, delivering a double dividend of expanding volumes and rising unit values (Figure A.1).

Figure 7: Evolution of certified natural gas reserves in Bolivia



Note: The decline in gas reserves between 2005 and 2009 cannot solely be attributed to production during that period. Rather, it likely reflects a combination of previous overestimation and changes in the methodology used for reserve assessments. Source: Authors' elaboration based on Ryder Scott and Fundación Jubileo, which in turn draws on data from YPFB and MHE.

Institutional Reversal and Nationalization

Beginning in the mid-2000s, Bolivia fundamentally altered its hydrocarbons governance framework and shifted towards greater state control. Mounting social conflict over the distribution of hydrocarbon rents culminated in the 2003 "Gas War". The conflict exposed deep public dissatisfaction with the 1996 Hydrocarbon Law, the regime it inaugurated, its perceived distribution of benefits and plans to export gas to the USA via ports in Chile. In 2004, a national referendum signaled broad support for expanding state control over natural gas resources and increasing the public capture of revenues. In response, Law 3058 (2005), Supreme Decree 28701 (2006), and ultimately the 2009 Constitution reasserted state ownership at the wellhead and restructured the sector around majority state participation

through YPFB. The reforms marked a decisive shift away from the investment-oriented framework of the 1990s toward a model centered on centralized commercialization, higher fiscal participation, and stronger state control. The nationalization decisions can be understood as a response to widespread public perception that Bolivia was not capturing a fair share of its natural resource wealth, with rents instead flowing to large foreign companies.

The reforms marked a decisive departure from the investment-oriented framework of the 1990s. While the earlier regime emphasized private commercialization rights, decentralized risk-taking, and competitive fiscal terms, the post-2006 model prioritized centralized control, higher public revenue participation, and direct state oversight. The shift affected the sector along two critical dimensions: the contractual allocation of risk and commercial authority, and the fiscal capture of hydrocarbon rents.

This restructuring fundamentally altered the risk–reward profile facing investors. Exploration risk, including geological uncertainty and upfront capital expenditure, remains with the private company. However, commercialization rights and strategic allocation between domestic and export markets are centralized within YPFB. The result is an asymmetric incentive structure: investors bear high exploration risk while participating only indirectly and contractually in potential upside revenues. For high-risk, long-horizon exploration projects, this reduces expected returns and makes investment decisions heavily dependent on the perceived reliability of state institutions.

While this framework succeeded in increasing public revenue capture during the commodity boom, it simultaneously reduced the expected net present value of new exploration investments. In a sector where returns depend on large discoveries and long development horizons, higher fiscal burdens combined with constrained commercialization rights materially affect investment decisions.

Nationalizing the hydrocarbons sector led to a sharp decline in private exploration investment, which has been a major driver of falling production in recent years. The shift to service operator contracts removed the incentive for private firms to invest in inherently risky exploration projects. With limited upside and insufficient investment safeguards, private exploration activity remained well below previous levels. YPFB tried to fill this gap instead, without having much success as its investment has not led to an increase in discovery of new fields and an increase of reserves. This may be due to the fact that YPFB's investment decisions were influenced by political factors or that it lacks the technical knowhow of experienced international firms, which tend to be more successful in exploration activities (Brunnschweiler & Poelhekke, 2021).

Four elements help explain why the new regulatory framework has discouraged private exploration investment up until today:

Contractual Setup: Under the current constitutional and legal framework, hydrocarbons at the wellhead belong exclusively to the State, and upstream activities are structured as service-type contracts or joint ventures in which YPFB retains majority control. Unlike under the 1996 risk-sharing regime, private companies no longer have the right to commercialize production. All output must be delivered to YPFB, which holds the exclusive authority to market hydrocarbons domestically and internationally. After commercialization, YPFB pays royalties and taxes, reimburses the company for recoverable costs, and distributes the remaining profits according to the contractual formula. This structure significantly limits private upside participation and price exposure while leaving exploration risk entirely with the investor. The result is an asymmetric risk–reward profile: companies bear the geological and capital risk of

exploration but have limited control over commercialization and constrained participation in upside revenues, reducing the expected return on high-risk exploration projects.

Government Take: The government's participation in the revenues of Bolivia's hydrocarbon sector is comprised of a 50% production tax which stems from a 18% royalty[3] and a 32% tax on production called the *Impuesto Directo a los Hidrocarburos* (IDH). Beyond that YPFB also retains a share of the profits which is determined by the respective contract. This has led to a government take which can go beyond 100% of the operational profits of a field (M. Medinaceli Monroy, 2007). This is in stark contrast to the regulation of the 1996 regime which had a significantly lower government take. The 32% IDH and YPFB's profit participation were introduced by the new regulatory framework which substantially increased the government take.

Price Structure (Subsidy): Bolivia maintains regulated domestic prices for natural gas and refined fuels that are substantially below international market levels. Natural gas is sold domestically at USD 1.6/Mcf instead of $6.4/Mcf which is the price captured when exporting to Brazil.[4] While these policies aim to support consumers and industrial competitiveness, they weaken upstream investment incentives by reducing potential revenue streams from the domestic market. Because YPFB controls commercialization and allocates volumes between domestic and export markets, private operators have limited exposure to international price upside and are partially tied to a low-price domestic system. In an environment where export volumes have declined, the domestic price cap further reduces the expected value of new discoveries. This dampens the commercial attractiveness of exploration investments.

Institutional Structure: The post-nationalization regulatory framework has positioned YPFB as a monopolistic actor in Bolivia's hydrocarbons sector, concentrating operational, contractual, and strategic authority within a single entity. In practice, YPFB acts simultaneously as operator, contractual counterparty to private firms, and gatekeeper in the administration of contracts. This institutional overlap creates potential conflicts of interest, particularly because YPFB is responsible for approving and recognizing companies' recoverable costs, an area that has generated recurring disputes. Payment practices have further strained investor relations: in recent years, companies have reported that payments contractually denominated in U.S. dollars were effectively settled in Bolivianos, exposing firms to exchange-rate risk amid the widening gap between official and parallel market rates. These tensions have in some cases escalated into formal arbitration proceedings, including claims brought by international operators alleging breaches of contractual obligations (Moody, 2024). [5]Operationally, YPFB has not had a stable internal governance as it has had 14 different executive presidents over the past 19 years (Velásquez, 2025). Taken together, the concentration of authority, uncertainty over cost recovery and

[3] Of that royalty 11% goes to the producing department 6% goes to the central government and 1% goes to the departments of Beni and Pando that were the poorest departments of the country at the time of designating this royalty.

[4] This is a weighted average price based on the natural gas prices documented in Medinaceli (2023) and MHE (2025). The most important factor is the natural gas sold to electricity generators as this makes up 36% of all domestic natural gas use. The price applied here is of $1.3/Mcf.

[5] In 2024 Shell won a case against the Bolivian government over $10m due to outstanding debts. It is estimated that that the Bolivian government faces pending cases totaling almost $1bn in claims(Uribe Teran, 2025).

payment practices, and limited institutional separation between YPFB and the regulator constrain the credibility of the investment framework.

A central issue is the limited development of an independent and technically capable regulator. A role that the ANH should play in theory. In successful hydrocarbon systems, the regulator plays a critical role in structuring the market: it defines and enforces contract terms, manages geological information, oversees cost recovery, and ensures that both public and private actors operate under clear and predictable rules. This function is essential not because it provides clarity to investors per se, but because it allows the state to exercise effective control over its resources while attracting the capital and expertise required to develop them. It maximizes the value of its resources and the rent that the state can retain. The ANH has not executed this role as it also lacks authority over YPFB where much of the power is centralized (Velásquez, 2025). Where regulatory institutions lack independence, technical capacity, or credibility, the result is not greater sovereignty, but weaker outcomes in terms of investment, production, and ultimately public revenue.

Investment Safety: An additional factor that reduces investment security is the prohibition of international arbitration in the hydrocarbons sector under Article 366 of the Constitution. Bolivia also withdrew from its Bilateral Investment Treaties, removing access to established international dispute resolution mechanisms. As a result, disputes must be resolved under Bolivian law and in domestic courts. These changes were motivated by a desire to regain sovereignty, especially given concerns that international arbitration can limit policy space and favor foreign investors. However, they have weakened investor confidence. In a sector with high upfront costs and long investment horizons, the lack of a credible and neutral dispute resolution mechanism increases perceived risk. This is particularly important in Bolivia, where past nationalizations continue to shape investor expectations.

4.) The Unexplored Potential

Bolivia holds sufficient unexplored subsoil potential to reverse the declining trend in production. Reserves grew very quickly in Bolivia between the liberalization of the sector in the 1990s and the 2006 expropriation showing the promise that its subsoil has. While natural gas production has collapsed, the country still holds significant untapped resources including vast, unexplored basins like Madre de Dios, which could reshape Bolivia's energy outlook, if proven viable. Most of Bolivia's untapped natural gas potential lies in non-conventional resources, which present additional challenges due to higher extraction costs and greater environmental risks. However, even conventional prospective resources are estimated at 21.6 TCF, a volume that far exceeds current reserves (Figure 7). At present, Bolivia produces 0.4 TCF of natural gas annually and as explained in section 2, the outlook under a business-as-usual scenario is not promising.

Bolivia's oil sector presents a parallel and highly acute challenge as domestic production is low and the potential remains highly unexplored. Domestic crude production covered only around 20% of petroleum product consumption in 2024, and proven reserves stand at 11.1 MMBBLS which equal to less than four months of current demand (Figure 8). Conventional prospective resources of 227 MMBBLS could provide the equivalent of roughly six years of current consumption, while non-conventional prospective resources of 8,930 MMBBLS represent a far larger horizon of approximately 235 years (Figure 8). Both estimates remain geologically uncertain and unproven economically; the non-conventional tier in particular would require advanced extraction technology and levels of private investment that Bolivia's current contractual environment has yet to attract.

These resource estimates remain highly uncertain and have not been proven economically viable, as they are based on geological probability rather than confirmed discoveries. Turning this potential into actual reserves will require a major push to attract exploration investment and with it, the financial capital, the advanced technology and technical expertise that such efforts demand. Technology must be placed at the center of the reform strategy. Without deploying cutting-edge exploration tools, Bolivia simply will not know where its gas is. In addition, given Bolivia's strained fiscal space YPFB is unlikely to have all the financial resources to allocate to such risky exploration investments and its exploration track record has not been successful.

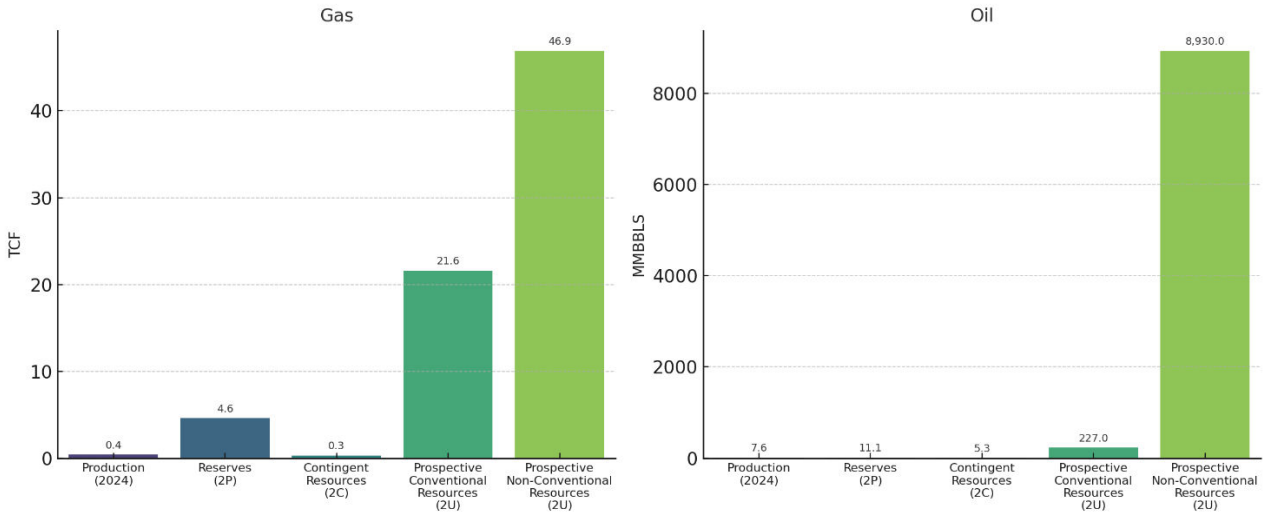
The question is how YPFB and the Bolivian government can mobilize the financial, managerial and technological capacities of the world to maximize the value of its natural endowment. Countries that do this well have a national agency that accumulates and makes available high-quality geological information for the purpose of de-risking projects, which would increase the value of Bolivia's subsoil assets and allow the government to capture higher rents in future projects. Strategic international partnerships with highly capable firms will be essential. However, for this to happen, substantial reform is needed.

While new gas fields may be an opportunity for the medium and long-term, improving marginal recovery in existing fields must be the short-term focus. Developing new gas fields will take significant amount of time as the road from exploration to production typically takes seven years in the sector (Mihalyi, 2021). Therefore, large new exploration projects are unlikely to help avoid becoming a net importer of natural gas within the next five years. They are a solution for the long-term problem of Bolivia's energy situation rather than the short-term. In the short and medium-term Bolivia must focus on improving enhanced recovery in existing mature fields as well as consider reactivating idle wells.[6] For the medium term there may be a couple of well-studied prospective fields such as Vitiacua and Domo Oso that YPFB estimates to have 2.1 TCF each.[7] Both could add significantly to the production within the next five years.

[6] YPFB has an upstream reactivation plan which focuses on reactivating mature fields. It is unclear whether this has gone beyond technical feasibility studies.

[7] Domo Oso-X3 has been subject to legal, environmental, and social disputes linked to its proximity to the Tariquía protected area and questions regarding the community consultation process (CEDIB, 2024). These disputes have generated litigation and public controversy, introducing additional execution risk and potential delays to drilling and development schedules.

Figure 8: Production, reserves and resources in gas and oil



Source: Authors' elaboration based on INE (2024) and Ryder Scott (2023).

A crucial determinant of exploration investment is the credibility of prospective offtake markets. The emergence of Argentina's Vaca Muerta shale development has fundamentally altered Bolivia's regional gas position: Argentina has already ceased large-scale imports from Bolivia and is unlikely to return as a buyer in the foreseeable future. This effectively leaves Brazil as Bolivia's only major export market. However, even maintaining current export volumes to Brazil is challenging in the short term given Bolivia's declining production, making the credibility and reliability of supply a central strategic concern. Moreover, looking ahead, Brazil's supply options are expanding through rising domestic pre-salt production as well as growing access to Argentine gas, increasing competition in the Brazilian market and potentially reducing Bolivia's bargaining power and achievable export prices. For potential exploration investors, the concentration of export demand in a single increasingly competitive market raises commercialization risks. Strengthening long-term supply arrangements with Brazil and evaluating alternative export routes, including potential links to Chile or LNG exports, would improve the investment outlook for new gas development. The feasibility of such options would also depend on political acceptance, as earlier proposals to expand gas exports were a major factor in the social unrest that culminated in Bolivia's 2003 "Gas War."

A different way to increase exports or prevent a further decline is to reduce the domestic usage of natural gas. The domestic price for natural gas is regulated and capped at different rates depending on the consumer. The weighted average of the price that is used domestically is $1.6/Mcf.[8] This is far below the opportunity cost of $6.4/Mcf which is the price that Brazil paid for Bolivia's natural gas in 2025. It is therefore a very significant implicit subsidy in terms of "lost revenue" which amounted to a total volume of more than $900m in 2025. The biggest domestic uses of natural gas are for electricity generation (36%), industrial uses (20%) and the transportation sector (19%) (MHE, 2025a).

[8] The price of natural gas differs by the end user but the largest share (36%) is used for electricity generation where the regulated price is $1.25/MMBTU. This is followed by industrial use (20%) which is kept at $2.43/MMBTU.

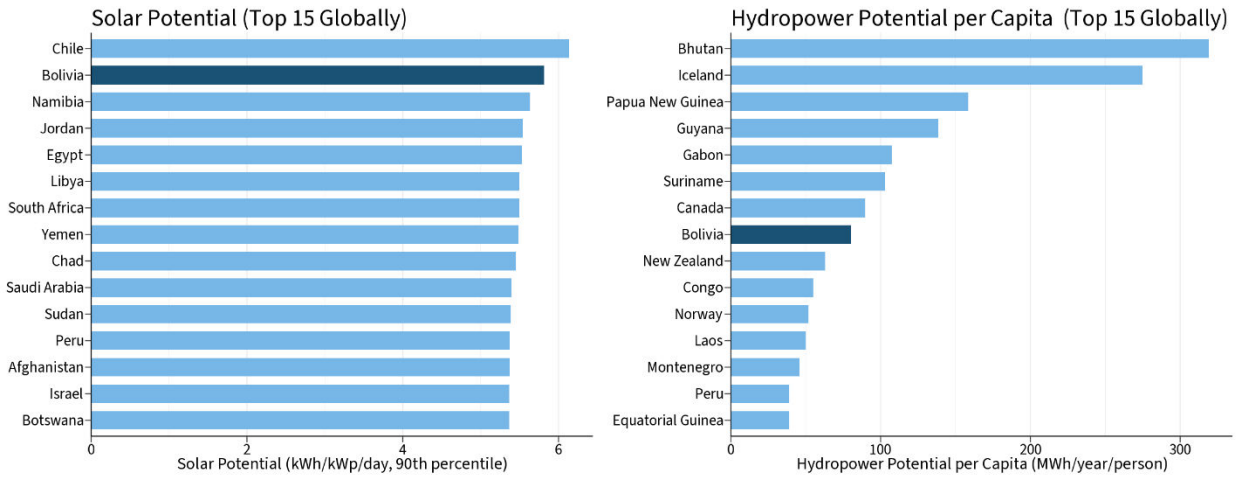
The subsidized natural gas renders other forms of electricity generation uncompetitive even though Bolivia has abundant hydropower and solar energy potential. The electricity sector has become structurally reliant on natural gas generation due to the heavily subsidized natural gas price. Of all electricity generation in 2024 66% came from natural gas while hydropower accounted for 24%, followed by wind (4.2%), solar (3), biomass (2.5%) and diesel oil (2%) (CNDC, 2025). The cheap natural gas makes thermal generation artificially cheap which in turn results in a very low wholesale electricity market price. In 2024 Bolivia's wholesale electricity price averaged at $16.4/MWh (CNDC, 2025) compared to $47/MWh in the USA (Lutz, 2025). At this price investments in other forms of electricity generation are unfeasible.

Bolivia has introduced differentiated remuneration mechanisms for renewable energy projects to make renewable energy projects viable despite the natural gas subsidy. Renewable projects are compensated through administratively determined premiums layered on top of the wholesale price (DS 2048, 2014: DS 4408, 2022). This mechanism provides de facto cost recovery without formal long-term offtake contracts and thus hinges on the discretion of the regulator. While this approach reduces revenue uncertainty, it does not rely on competitive procurement and therefore limits cost discovery, competitive price determination, and private sector participation. It has resulted in slow buildout and high prices as the Oruro project and Uyuni solar plants that generate at a cost of $77per MWh and $58 per MWh respectively show (AETN, 2020, 2025). Meanwhile Chile has reached prices for solar generation as low as $29 per MWh (Forbes, 2019). The current approach is a missed opportunity as Bolivia has amongst the highest solar power potential in the world as well as world class hydropower resources (Figure 8).

Increasing electricity generation from renewable sources would also enable electrification of domestic fuel uses to reduce the import demand. As Bolivia reforms its electricity sector to make larger use of its renewable energy potential it can look to electrifying sources of domestic liquid fuel demand to reduce its import necessities. Incentivizing the uptake of electric vehicles (EVs) would be one opportunity given that the transport sector is by far the biggest user of gasoline (100%) and diesel (83.5%) (MHE, 2025a). Such a strategy would require sufficient electric transmission and distribution infrastructure as well as EV charging infrastructure. Nepal and Ethiopia have followed these strategies in recent years (DePillis & Sharma, 2025; Harter, 2025). Their experiences may be informative of the benefits and risks that Bolivia may encounter.

Bolivia's renewable energy potential could open a longer-term economic development opportunity in attracting energy-intensive industries. As global decarbonization pressures intensify, energy-intensive industries face growing incentives to relocate operations closer to abundant and affordable sources of clean power (Verpoort et al., 2024). An effect that we call "powershoring" (Lamby, 2024). Many of these energy-internsive activities currently take place in countries without strong renewable endowments, and the cost of energy is a dominant factor in their competitiveness. Bolivia's combination of world-class solar irradiation and hydropower resources could, if properly developed, position the country as a competitive host for this type of investment. Realizing this potential will require more than energy reform. Attracting capital-intensive industrial investment also demands lower financing costs, reliable contract enforcement, and a predictable regulatory environment. Bolivia has yet to leverage its renewable endowment as an economic development anchor, but with the right institutional foundations in place, powershoring could become a meaningful complement to its broader energy and industrial strategy.

Figure 9: Bolivia's Renewable Energy Potential in Global Context



Source: Authors' elaborations based on ESMAP (2019) and Hoes et al. (2017).

5.) The Paz Administration's Initial Reforms

The December 2025 fuel reform marked a decisive break with Bolivia's long-standing subsidy regime. Through Supreme Decree 5516, the government raised diesel prices by 163 %, gasoline by 86 %, and vehicular natural gas (GNV) by 64 % (Table 1). In a country that had relied on heavily subsidized fuels for two decades, this constituted a major structural shift. The reform was accompanied by social compensation measures, including the temporary cash transfer "Bono Pepe," an increase in the minimum wage, and expansions of existing social programs, designed to mitigate the distributional impact of the subsidy reform. The reform is estimated to generate net fiscal savings of approximately $1.4 bn, easing immediate fiscal and foreign exchange pressures.

Table 1: Fuel Price Reform and Remaining Subsidy Gap as of February 2026

Bolivia: Fuel Price Reform and Remaining Subsidy Gap

Prices in Bolivianos (Bs); USD conversion at parallel exchange rate

Fuel	Old Price (Bs)	New Price (Bs)	Price Change	New Price (USD)	Reference Price (USD)	Remaining Gap (% of reference price)
Diesel (liter)	3.72	9.80	163%	1.05	1.28	18%
Gasoline (liter)	3.74	6.96	86%	0.75	1.25	40%
GNV (liter)	1.66	2.73	64%	0.29	0.43	32%
LPG (kg)	2.25	2.25	0%	0.24	0.74	67%
Natural gas (MMBTU)	8.70	8.70	0%	0.94	6.50	86%

* USD values converted using the parallel market exchange rate of **9.3 Bs/USD** (February 2026). Reference prices are import parity or regional benchmarks.

Note: USD values converted using the parallel market exchange rate of 9.3 Bs/USD. Reference prices are import parity prices taken from the ANH, export parity prices in the case of natural gas and a lower bound reference price from Peru in the case of LPG. Source: Authors' elaboration based on ANH, BCB and (Osinergmin, 2026)

The reform's political acceptance was driven by the visible failure of the previous system. Fuel price increases of this magnitude have historically triggered large-scale protests, including in Bolivia

during previous reform attempts. Although the initial decree was met with demonstrations, opposition centered primarily on the special investment framework rather than on the fuel price adjustments themselves. The widespread fuel shortages preceding the reform had made the unsustainability of the previous regime evident. When supply became unreliable and queues became frequent, consumers were already paying a "shadow price" in the form of time losses and reduced productivity. Securing reliable fuel availability, even at higher prices, therefore became preferable to continued scarcity.

The macroeconomic pass-through of the reform has been more limited than widely anticipated. Concerns that eliminating fuel subsidies would trigger a sharp increase in the general price level have not materialized. Between November 2025 and January 2026, the general price level increased by only 1.3%. This was marked by different mechanisms of passing through the increases of fuel price increases on to consumer prices. While public transportation fares doubled the feared increase in food prices did not take place. Monthly food prices fell 0.5% in January and 1.4% in February 2026. This modest transmission can be partly explained by the prior shortages and the inflation that had already occurred. Transport companies and other firms had already raised prices to compensate for lost time and uncertainty during fuel queues. Food prices had increased by 30.2% in 2025. Once supply was normalized, the fuel prices increase that came with Supreme Decree 5516 did not translate into a proportional rise in overall prices because part of the adjustment had already occurred.

Despite these achievements, the fuel subsidy reform remains incomplete. For private suppliers to enter the fuel import and commercialization market, domestic prices must fully converge to international reference levels. While diesel prices are now broadly aligned with international benchmarks, gasoline remains 40 % below parity. No private operator can sustainably assume gasoline supply if required to sell below acquisition cost. Unless the remaining price gap is closed, the announced transfer of supply responsibilities to private companies from June 2026 (MHE, 2025b) is unlikely to materialize in practice.

The institutional structure of fuel price-setting requires further strengthening to ensure long-term sustainability. Supreme Decree 5516 introduces foundational elements of a more structured system, including a reference price for crude oil (PPI), defined margins along the supply chain, and criteria for adjustments. The domestic fuel prices in bolivianos are determined by the formula *price in bolivianos* = *dollar reference price* × *official exchange rate* × *adjustment factor*. The decree further establishes that pump prices must adjust whenever the dollar reference price moves by more than 5% relative to its current level. However, the methodology for estimating this reference price and the adjustment factor are not publicly specified.

The current pricing arrangement remains structurally vulnerable and risks gradually reintroducing the very distortions the reform sought to eliminate. **This occurs through three compounding channels.**

First, key components of the pricing formula including the reference price and margins along the distribution chain are fixed in nominal bolivianos during the transitional period. Inflation therefore erodes the system on two fronts. On the demand side, the real price paid by consumers declines over time, effectively recreating the subsidy in real terms. On the supply side, the real value of margins compresses in parallel, weakening the financial viability of refiners, distributors, and retailers.

Second, the decree does not clearly define how exchange rate movements are transmitted into domestic prices. In a context of external imbalances and exchange rate pressures, this creates significant uncertainty. A depreciation could either require an automatic adjustment in domestic prices or, if not

passed through, lead to a widening fiscal burden through renewed subsidies. Clarity on this aspect would be key for any private fuel supplier that needs to understand their vulnerability to exchange rate volatility.

Third, the absence of a built-in stabilization mechanism forces recurring trade-offs between absorbing fiscal costs and implementing politically costly price increases. The adjustment mechanism established by Supreme Decree 5516 sets a 5 % threshold for price revisions but includes no smoothing provision, leaving the system exposed to international price volatility in theory. The global context following the Iran conflict in March 2026 illustrates the structural fragility this creates. The decree anchored fuel prices at a reference price of $64.45 per barrel; since March 2026, international prices have exceeded $110 per barrel and are very volatile (Chia, 2026). Despite the decree's adjustment provisions being met, the government chose not to revise final fuel prices, citing import contracts signed at pre-surge prices covering two to three months of supply (Cori, 2026). Once YPFB signs its next import contract at prevailing prices, the fiscal and pricing pressures that the government has deferred will become binding. This global context confirms that a discretionary system operating without a stabilization buffer does not eliminate adjustment costs and that the current system is not providing certainty with respect to price changes.

Beyond these fiscal and operational vulnerabilities, the current system also prevents progress toward a more fundamental objective: the development of a competitive fuel market. As long as fuel is commercialized below import parity, private participation is not simply discouraged, it is commercially unviable. No private operator can sustainably import and distribute fuel at a loss. Establishing a credible pricing mechanism is therefore not only a matter of fiscal sustainability, but a prerequisite for attracting private investment in logistics, storage, and distribution, which is essential to improve supply reliability and reduce the operational burden on the state.

Subsidized domestic natural gas remains the most significant unaddressed distortion in Bolivia's energy system. Domestic gas continues to be sold to power generators at $1.25/MMBTU against export prices of $6–7/MMBTU, forgoing over $900m in potential annual export earnings. As discussed in Section 2, this pricing gap simultaneously weakens upstream investment incentives, artificially suppresses electricity costs in ways that crowd out renewable development, and risks transforming an implicit subsidy into an explicit fiscal burden as domestic production declines and import dependence grows.

The Paz administration has announced that it is drafting a new hydrocarbons law with the focus to incentivize private investment in exploration and increase hydrocarbon production (MHE, 2026). The proposal includes a tribute ceiling of 50 percent, which, if enacted, would represent a meaningful reduction from effective government take rates. Nonetheless, the current statement on this leaves a lot of room for different interpretations and the ultimate fiscal burden will have to be analyzed once the law is published. Additionally, the law intends to eliminate the recuperable costs of service contracts. While here too the details of new contractual structures will be key, the intended direction appears promising.

6.) Policy Priorities

The central objective of Bolivia's energy reform should be energy security and economic development. Natural resources are a means to that end: they generate the fiscal revenues, foreign exchange, and productive energy that an economy requires to grow and improve living standards. For the past two decades, Bolivia leveraged its natural gas endowment to finance public investment and sustain macroeconomic stability. But the model prioritized maximizing short-term rents over the long-

term investment needed to sustain production. That dynamic is a central reason why Bolivia's energy system is under severe strain today. Restoring it requires mobilizing the capital, technology, and technical expertise needed to develop Bolivia's resources while ensuring that the benefits accrue broadly to the country and its citizens. Private investment is an instrument in this strategy, not its purpose. The design challenge is therefore to construct a framework that is commercially attractive enough to draw in the partners Bolivia needs, while preserving the state's capacity to capture a fair share of resource rents, enforce contracts effectively, and build the institutional foundations for sustained energy development.

The new administration has taken important first steps toward stabilizing the energy sector. Yet the structural distortions identified in the previous chapters remain only partially addressed. Restoring macroeconomic stability and rebuilding hydrocarbon production will require a coherent reform program built around three policy actions:

(1) finalizing fuel subsidy reform to establish an efficient supply system,
(2) restructuring the hydrocarbons sector to restore exploration incentives, and
(3) developing hydropower and solar resources to reduce domestic gas consumption and increase natural gas export capacity.

These reforms must be designed with political sustainability in mind in order to instill confidence in their long-term durability. Bolivia's history of liberalization followed by nationalization has created a credibility problem for long-term investments. A guiding principle must therefore be durability: reforms should be transparent, rule-based, and visibly beneficial to the broader population to generate public support and hence withstand future political cycles.

Finalizing fuel subsidy reform to establish an efficient supply system

The first priority is to complete the transition from a discretionary and subsidy-driven fuel regime toward a rules-based and transparent system. The December 2025 price adjustments represented a necessary correction, but gasoline prices remain below international parity. Without full price convergence and a transparent pricing mechanism, private participation in fuel import and commercialization will remain limited. No private supplier can sustainably enter the market if required to sell below acquisition cost. The announced transfer of supply responsibilities from YPFB to private actors (MHE, 2025b) will only materialize if prices reflect underlying costs and adjust automatically to changes in international prices, the exchange rate, and inflation.

In competitive urban markets, full automatic pass-through represents the most transparent and fiscally robust option and is the most conducive to private sector entry. Prices should update in regular time intervals based on transparent formulas linked to international benchmarks, with all formula components, including reference prices, adjustment factors, margins, and exchange rate application, published and subject to independent audit. Colombia, for example, applies a monthly formula linked to Gulf Coast and Caribbean reference prices, published fifteen days in advance and implemented automatically. Such a schedule prevents the accumulation of price distortions and reduces the political exposure of each individual adjustment.

To mitigate short-term volatility, the pricing mechanism can be complemented by a smoothing mechanism. Three broad approaches can be considered. The first is a variable excise tax that adjusts countercyclically. The tax burden rises when international prices fall and turns into a subsidy when they increase, as seen in Chile and Mexico (Gómez & Portillo, 2017). The second is a price band supported

by a stabilization fund, as implemented in Peru and Colombia.(El Espectador, 2024) However, stabilization funds have often proven fiscally costly during prolonged periods of high prices, accumulating large deficits that ultimately require budgetary support. A third mechanism would involve hedging: once the price is set, it can be assured by buying the appropriate options on the price of oil, such that upward deviations do not have to be passed on to the consumer, as they would be compensated by the rise in the value of the options. The coverage of protection against a rise in prices can be done by selling the risk of a fall in prices. We believe that Bolivia should explore this option.

Finally, implementation should be anchored in a credible institutional framework. Regardless of the model chose, delegating price-setting to an independent regulatory authority, such as the ANH, would help ensure transparency, strengthen credibility, and remove pricing decisions from short-term political pressures.

Political economy considerations are central. Fuel reforms are traditionally contentious. However, the recent reform faced limited resistance, partly because of the social compensation hat accompanied the reform. Moving diesel and gasoline to full parity will require renewed social cushioning for vulnerable groups and clear public messaging that highlights the regressive nature of fuel subsidies. Evidence shows that higher-income households capture a disproportionate share of fuel subsidies. Emphasizing this fact can strengthen the reform's legitimacy. Additionally, the fact that YPFB has been having issues with the quality of fuels should increase the acceptance of a larger private participation (El Deber, 2026). Importantly, higher global oil prices force a clear choice: either pass costs through to consumers or absorb them through fiscally costly subsidies.

Restructuring the hydrocarbons sector to restore exploration incentives

To stem the continued decline in natural gas production, incentives for investment in exploration must be reset. Because exploration is high-risk and capital intensive, investors' decisions depend critically on contractual security, commercialization rights, fiscal terms, and institutional credibility. Reform therefore begins with the constitutional and legal framework governing hydrocarbon activities.

The 2009 Constitution provides important restrictions to private participations in the Bolivian hydrocarbons sector. It establishes that hydrocarbons at the wellhead belong exclusively to the Bolivian State and that it is the government's exclusive right to conduct hydrocarbon activities (Arts. 359–361). These provisions specify that YPFB exercises these rights on behalf of the State and that commercialization activities are reserved to the State. As a consequence, a concession regime in which private companies own production at the wellhead and commercialize it independently is constitutionally precluded. Such a concession system, however, is widely regarded as the contractual form that provides the strongest security of tenure and the clearest alignment of risk and reward for investors.

One possible reform path would therefore involve a partial constitutional amendment that removes the exclusive reservation of commercialization to the State and leaves the design of contractual forms to ordinary legislation. This would resemble the approach taken under the 1967 Constitution, which did not rigidly prescribe contractual structures. Under such a framework, Bolivia could adopt a flexible system similar to Mexico's 2013 hydrocarbons reform. Mexico preserved state ownership of hydrocarbons while allowing the national hydrocarbons agency to award service contracts, profit-sharing contracts, production-sharing contracts, or licenses depending on the geological risk profile of each area. In high-risk frontier areas, production-sharing or concession-style contracts could be offered

to attract capital, while mature or lower-risk areas could remain under service-type structures. This flexibility allows the State to calibrate incentives without relinquishing ownership.

However, constitutional reform presents significant political challenges. Resource nationalism remains deeply embedded in Bolivia's political economy following the Gas War and the 2004 referendum. Any proposal perceived as reintroducing concessions may be framed as "giving away" national resources to foreign companies. The political backlash against the special investment framework under Supreme Decree 5516 illustrates how quickly such reforms can encounter resistance. For this reason, while constitutional flexibility would provide the strongest long-term signal, it may prove politically infeasible in the short term.

If constitutional amendments are not viable, meaningful improvements can still be achieved within the current framework. A fundamental reform should focus on simplifying the regulations for contractual models by eliminating overlaps. This could involve narrowing the contractual options to the two types acknowledged in the Constitution: the service contract, and partnership and joint venture contracts. Importantly, administrative simplification related to cost recovery, along with clearer regulatory rules, will enhance legal certainty regarding rights.

A significant improvement through a reform within the current constitutional framework could be achieved by allowing private firms to commercialize on behalf of YPFB. Changing who receives the initial cash flow does not alter constitutional ownership but can materially improve investor security. In practice, this reduces counterparty risk by limiting full dependence on YPFB's payment capacity. A comparable structure has been used in Venezuela's joint venture arrangements between PDVSA and Chevron, where enhanced commercialization flexibility contributed to stabilizing and increasing production despite broader institutional constraints. A practice that has recently been enshrined in Venezuela's new hydrocarbons law passed in January 2026 (S&P, 2026). While Bolivia's context differs, the principle of reallocating cash flow timing and control is transferable.

Beyond contractual form, the fiscal regime must be recalibrated to improve exploration incentives. The current structure combines an 18 % royalty with the 32 % IDH, effectively creating a 50 % production-based levy before profit participation through YPFB. Articles 53–58 of Law 3058 govern this structure. While this regime maximizes revenue capture in mature fields, it significantly compresses the expected net present value of high-risk exploration projects. This is especially pertinent as much of the remaining potential is in unconventional areas which increases the exploration risk.

A more investment-compatible structure would introduce a progressive fiscal mechanism for new fields. For example, the IDH could be reduced or replaced by a variable tax linked to price levels or project profitability. Under high international prices, the State would capture windfall rents; under lower price environments, the tax burden would automatically decline, protecting investor downside and preserving exploration viability. Importantly, such changes should apply only to new fields to preserve legal stability and avoid retroactive alteration of existing contracts. Calibrating the specific rates and thresholds of such a progressive mechanism would require a dedicated comparative analysis of government take across peer hydrocarbon jurisdictions that is beyond the scope of this paper.

Fiscal reform must also confront Bolivia's fiscal federalism realities. IDH revenues are shared with subnational governments, which rely heavily on these transfers.[9] A reform of the IDH would, therefore, imply a reform to an important funding mechanism of local governments. The Paz administration has established the broader goal to transfer more obligations and funding to local governments within the context of the so called "50/50" project. A restructured hydrocarbons taxation would likely be considered by subnational governments within the broader context of ensuing fiscal reforms. Ideally, a new mechanism should insulate local governments from shocks of volatile gas prices and provide a stable flow of revenues.

Institutional reform is equally critical to restoring credibility. Currently, YPFB exercises multiple roles, including operational participation, contractual counterparty, and influence over regulatory processes. This concentration of authority generates perceived conflicts of interest. Strengthening the independence and technical capacity of the ANH is therefore essential. ANH should be responsible for organizing competitive bidding rounds for new exploration areas, publishing model contracts, and overseeing cost recovery with transparent procedures, similar to the institutional arrangements in Brazil or Colombia. Bolivia itself operated a comparable model under the Sistema de Regulación Sectorial (SIRESE, Law 1600, 1994), which included a dedicated hydrocarbons sub-regulator financed independently and insulated from ministerial discretion. Its experience offers a directly applicable domestic reference for the design of a reformed ANH.

At the same time, YPFB should be reorganized to focus on commercial operations rather than regulatory influence. Improving corporate governance of YPFB, with professional board appointments, transparent financial reporting, and independent auditing standards, could increase efficiency and investor confidence without relinquishing state ownership. The experience of Ecopetrol in Colombia suggests that corporatization can improve governance while preserving public control (OECD, 2017). A return to the privatization model of the 1990s is neither politically feasible nor necessary. However, YPFB should compete for exploration blocks on equal terms rather than retain priority areas reserved for itself.

Arbitration regulation can play a significant role in restoring confidence in the sector. The Bolivian Constitution limits arbitration to disputes between the state and foreign investors. Article 320 states that arbitration must follow Bolivian Law and fall under its courts' jurisdiction, while Article 366 prohibits international arbitration in hydrocarbon production. These restrictions were extended by the Arbitration Law (Law 708, 2015) and the Investment Protection Law (Law 516, 2024), which banned arbitration outside Bolivia and governed by non-Bolivian law. To enhance investment protection, reforms to Articles 320 and 366 are needed to establish an international investment system that respects the right to regulate extractive industries. Without constitutional change, legal certainty in domestic arbitration could be improved by creating a framework that shields arbitration from domestic court review while protecting the right to regulate. Fiscal stabilization clauses as well as political risk insurance mechanisms could also play a role in this context.

Resetting exploration incentives will not immediately reverse production decline. Because hydrocarbon projects require several years from exploration to first gas, reforms implemented today will

[9] In fact, 43.75% of the IDH goes to subnational governments. These funds are split up between 66.9% going to municipal governments, 24.39% going to departmental governments and 8.62% going to public universities (Sánchez & Velásquez, 2020).

influence output only in the medium term. Nevertheless, credible legal and fiscal adjustments can shift investor expectations immediately and begin altering capital allocation decisions.

Developing hydropower and solar resources to reduce domestic gas consumption and increase natural gas export capacity.

The third priority is to reduce domestic gas consumption in the power sector by accelerating the development of hydroelectric and solar resources. Bolivia possesses significant renewable potential that remains underutilized. Expanding renewable generation would allow natural gas currently used for electricity production to be redirected toward export markets, thereby strengthening foreign exchange earnings.

Making use of the rich hydropower and solar potential of Bolivia requires removing the natural gas subsidy. As long as domestic natural gas prices remain artificially low, gas-fired generation will crowd out renewable alternatives even where they are economically viable at opportunity cost prices. Electricity reform and gas pricing reform are therefore mutually reinforcing. Removing the natural gas subsidy will inevitably lead to higher electricity tariffs. However, this may happen at a lower rate than expected. Given that generation costs are estimated to be only 31% of the final electricity tariff the transmission is limited.[10] However, this should be studied in detail by the regulating agencies *Autoridad de Fiscalización de Electricidad y Tecnología Nuclear* (AETN) and *Comité Nacional de Despacho de Carga* (CNDC). The social costs of increasing electricity tariffs could also be cushioned by designing a cross subsidy which would ensure that vulnerable households would be less affected. The respective structures for this exist already with *Tarifa Dignidad* and other similar measures.

A central instrument for accelerating renewable deployment in Bolivia would be the introduction of competitive renewable energy auctions. Well-designed auctions allow the government or system operator to procure new generation capacity at the lowest possible cost through transparent bidding processes. By awarding long-term power purchase agreements (PPAs) to the most cost-competitive projects, auctions reduce investment risk, lower financing costs, and create price discovery in the electricity sector. For Bolivia, this mechanism would provide a structured pathway to scale up solar and hydropower while maintaining fiscal discipline. Crucially, auctions must be embedded in a broader framework of cost-reflective tariffs and credible payment mechanisms; otherwise, even competitively bid projects will struggle to secure financing.

Two design features are critical to making auctions work in Bolivia's institutional context. The first is offtaker creditworthiness. Lenders to renewable projects will only finance against PPA cash flows if they are confident the counterparty can honor its long-term obligations. A financially weak offtaker raises the cost of debt or deters investors entirely, and this is one of the most common reasons auction programs in developing countries fail to attract bids or result in uncompetitively high prices (IRENA, 2013). Bolivia's distribution companies are not well placed to serve as offtakers: a decentralized approach concentrates counterparty risk in financially fragile entities and weakens bankability. Centralizing offtake through ENDE is preferable, but ENDE's standalone creditworthiness is itself constrained in Bolivia's current macroeconomic environment. Making the arrangement bankable will therefore require an explicit sovereign guarantee from the Treasury, backed by partial risk guarantees

[10] The distribution margin makes up 33%, transmission 18% and the other 18% stem from taxes.

from multilateral institutions such as the IDB or World Bank. These instruments have been used successfully in comparable contexts, including Zambia's Scaling Solar program and South Africa's REIPPPP, where IFC and MIGA support allowed auction programs to proceed in environments where the national utility alone could not serve as a credible counterparty (IRENA, 2019).

The second design challenge is the currency denomination of PPAs. Capital costs and project debt for renewable investments are typically denominated in US dollars, reflecting global supply chains for equipment and international financing markets. This creates pressure on developers to seek USD-denominated PPAs. However, electricity tariffs in Bolivia are collected in bolivianos, meaning a USD PPA shifts exchange rate risk onto the electricity system. In Bolivia's current context, where a gap between official and parallel exchange rates persists and international reserves remain under pressure, this fiscal exposure is not hypothetical. Local-currency PPAs avoid this mismatch but require developers to price in currency depreciation risk, raising bids, particularly since long-tenor hedging instruments are unavailable for the boliviano at the duration these contracts require (OECD, 2025). Resolving this tension is not a secondary design detail. It requires a deliberate policy choice about where exchange rate risk sits in Bolivia's energy system, and that choice will directly affect the prices achieved in any auction. If properly designed with these constraints in mind, renewable auctions can help displace gas-fired generation in the power mix, freeing natural gas for export and strengthening foreign exchange earnings. In this sense, auctions are not merely an electricity policy tool but a macroeconomic instrument that supports external stabilization and energy sector restructuring simultaneously.

Table 2: Summary of Key Policy Actions

Reform Pillar	Key Policy Action
Finalizing fuel subsidy reform to establish an efficient supply system	Close the gap between the domestic fuel price and international parity price
	Publish a clear formula to update prices based on international price movements
	Build a stabilization mechanism that absorbs price shocks and short-term volatility
	Enable private liquid fuel supply and auction off areas in blocks
Restructuring the hydrocarbons sector to restore exploration and production incentives	Restructure of the contractual setup: Under the current constitution private companies could be allowed to commercialize on behalf of YPFB After a constitutional reform ANH could choose the correct contractual model for each field, reflecting the different risk profiles
	Replace the IDH with a progressive tax that varies depending on international price levels, production volumes of the field and previous investments.

	Strengthen the role of the independent regulator ANH
	Improve corporate governance of YPFB by increasing its transparency and independence
	Eliminate the domestic natural gas subsidy and move prices to export parity. Introduce cross-subsidies to mitigate impact on electricity tariffs.
Developing hydropower and solar resources to reduce domestic gas consumption, increase natural gas export capacity and develop renewable energy as a comparative advantage	
	Run competitive renewable energy auctions and make conscious design choices about offtaker and currency denomination

Sources

AETN. (2020). *RESOLUCIÓN AETN N° 433/2020*. https://www.aetn.gob.bo/docfly/app/webroot/uploads/AETN-AETN%20SABADO%2024%20VALE%20OK-2020-11-03-a.pdf

AETN. (2025). *Resolución AETN N 336/2025*. https://sawi.aetn.gob.bo/docfly/app/webroot/uploads/AETN25-0520102219.JPG

ANF. (2025). *Espinoza asegura que el 30% del combustible sale de contrabando, viceministro dice que recuperaron 252.000 litros—ANF Agencia de Noticias Fides Bolivia*. Agencia de Noticias Fides. https://www.noticiasfides.com/economia/espinoza-asegura-que-el-30-del-combustible-sale-de-contrabando-viceministro-dice-que-recuperaron-252-000-litros

Arcay, G., García, F., Venturi, L., Werner, A., & Hausmann, R. (2026). *Bolivia's Economic Pivot: Early Macroeconomic Achievements and Remaining Challenges* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

Ares, A. (2025, September 17). *Vaca Muerta producing three times as much gas as Bolivia*. Buenos Aires Times. https://www.batimes.com.ar/news/argentina/record-breaking-vaca-muerta-produces-three-times-as-much-gas-as-bolivia.phtml

Brunnschweiler, C. N., & Poelhekke, S. (2021). Pushing one's luck: Petroleum ownership and discoveries. *Journal of Environmental Economics and Management*, *109*, 102506. https://doi.org/10.1016/j.jeem.2021.102506

CEDIB. (2024, October 9). ¡Tariquía resiste a la presión petrolera! *La nueva CEDIB*. https://www.cedib.org/destacados/tariquia-resiste-a-la-presion-petrolera/

Chia, O. (2026, April 6). *Oil prices choppy after expletive-laden Trump threat to Iran*. BBC. https://www.bbc.com/news/articles/c8dl7g6e59eo

CNDC. (2025). *Resultados de la Operación del SIN - Memoria Anual 2024*. Comité Nacional de Despacho de Carga.

Cori, J. (2026, March 30). Ministro de Economía revela que Bolivia compra combustibles a crédito y que tiene asegurada las entregas hasta abril. *eju.tv*. https://eju.tv/2026/03/ministro-de-economia-revela-que-bolivia-compra-combustibles-a-credito-y-que-tiene-asegurada-las-entregas-hasta-abril/

DePillis, L., & Sharma, B. (2025, July 28). The Country Where 76% of Cars Sold Are Electric. *The New York Times*. https://www.nytimes.com/2025/07/28/business/nepal-electric-vehicles-china.html

El Deber. (2026). *YPFB atribuye crisis de calidad del combustible a fallas arrastradas desde 2025*.

El Espectador. (2024). *Colombia will review the impact of the fuel stabilization fund on Ecopetrol*. El Espectador. http://www.americaeconomia.com/en/node/287642

EPE. (2024). *Plano Decenal de Expansão de Energia 2034*. Empresa de Pesquisa Energética.

ESMAP. (2019). *Global Solar Atlas 2.0*. World Bank. https://globalsolaratlas.info

Forbes. (2019). *Chile's Cheap Power—Sign Of A Solar Future?* https://www.forbes.com/sites/feliciajackson/2019/06/05/chiles-cheap-power-sign-of-a-solar-future/

Freeman, T., & Hausmann, R. (2026). *Bolivia's Economic Pivot: A Growth Diagnostics of the Tourism Sector* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

García, F., Arcay, G., Werner, A., & Hausmann, R. (2026). *Bolivia's Economic Pivot: The Making of a Macroeconomic Crisis* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

Gómez, A. G., & Portillo, A. L. (2017). *Precio de la gasolina: Determinantes históricos – CIEP*. CIEP. https://ciep.mx/precio-de-la-gasolina-determinantes-historicos/

Harter, F. (2025). Powering up: How Ethiopia is becoming an unlikely leader in the electric vehicle revolution | Global development | The Guardian. *The Guardian*. https://www.theguardian.com/global-development/2025/sep/12/ethiopia-electric-vehicle-power-petrol-diesel-cars-dam-green-energy

Hausmann, R., Venturi, L., Brenot, C., Abad, A., Arcay, G., Freeman, T., García, F., Lamby, L., & Shah, T. (2026). *Bolivia's Economic Pivot: Main Findings and Reform Priorities* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

Hoes, O. A. C., Meijer, L. J. J., Van Der Ent, R. J., & Van De Giesen, N. C. (2017). Systematic high-resolution assessment of global hydropower potential. *PLOS ONE*, *12*(2), e0171844. https://doi.org/10.1371/journal.pone.0171844

Johnston, D. (2003). *International exploration economics, risk, and contract analysis*. PennWell.

Lamby, L. (2024). *Green Growth Opportunities for Hermosillo: "Powershoring."* Growth Lab Working PAper Series No. 243.

Lamby, L., & Hausmann, R. (2026). *Bolivia's Economic Pivot: Unlocking the Mining and Lithium Potential* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

Lutz, M. (2025). *Electricity prices to continue rise in 2026: EIA | Utility Dive*. https://www.utilitydive.com/news/electricity-prices-demand-to-continue-rising-in-2026-eia/805395/

Medinaceli Monroy, M. (2007). *La Nacionalización del Nuevo Milenio: Cuando el precio fue un aliado*.

Medinaceli Monroy, S. M., & Velázquez Bilbao La Vieja, M. G. (2023). *Hydrocarbon Prices and Subsidies in Bolivia 1986—2025*. Development Working Paper Series. https://www.econstor.eu/bitstream/10419/297018/1/1878095242.pdf

MHE. (2025a). *Balance Energético Nacional*. https://www.mhe.gob.bo/wp-content/uploads/2025/10/Version-Final-BEN-2020-2024-low0.pdf

MHE. (2025b, December 17). El sector privado asumirá el abastecimiento de combustibles porque cuenta con la capacidad financiera para asegurar el suministro. *MHE*. https://www.mhe.gob.bo/2025/12/17/el-sector-privado-asumira-el-abastecimiento-de-combustibles-porque-cuenta-con-la-capacidad-financiera-para-asegurar-el-suministro/

MHE. (2026, April 20). Gobierno plantea nueva ley de hidrocarburos con tributos de hasta el 50% para atraer inversión. *MHE*. https://www.mhe.gob.bo/2026/04/20/gobierno-plantea-nueva-ley-de-hidrocarburos-con-tributos-de-hasta-el-50-para-atraer-inversion/

Mihalyi, D. (2021). *The Long Road to First Oil*. Kiel Institute. https://www.kielinstitut.de/fileadmin/Dateiverwaltung/Events/Archiv/Staff_Seminar/Paper/2021/Mihalyi_April2021.pdf

Moody, S. (2024). *Shell wins damages from Bolivian oil company*. Global Arbitration Review. https://globalarbitrationreview.com/article/shell-wins-damages-bolivian-oil-company

OECD. (2017). *Corporate Governance in Colombia*. OECD. https://doi.org/10.1787/9789264281134-en

Osinergmin. (2026). *Precios de Referencia de Combustibles Derivados del Petróleo*.

Sánchez, S., & Velásquez, R. (2020). *Situación de la Renta Petrolera en Bolivia*. Fundación Jubileo.

Shah, T., & Hausmann, R. (2026). *Bolivia's Economic Pivot: Opportunities and Challenges in Agriculture* [Growth Lab Working Paper]. Growth Lab, John F. Kennedy School of Government, Harvard University.

S&P. (2026, January 22). *Venezuela's new oil law to allow private companies to market crude*. S&P Global Energy. https://www.spglobal.com/energy/en/news-research/latest-news/crude-oil/012226-venezuelas-new-oil-law-to-allow-private-companies-to-market-crude

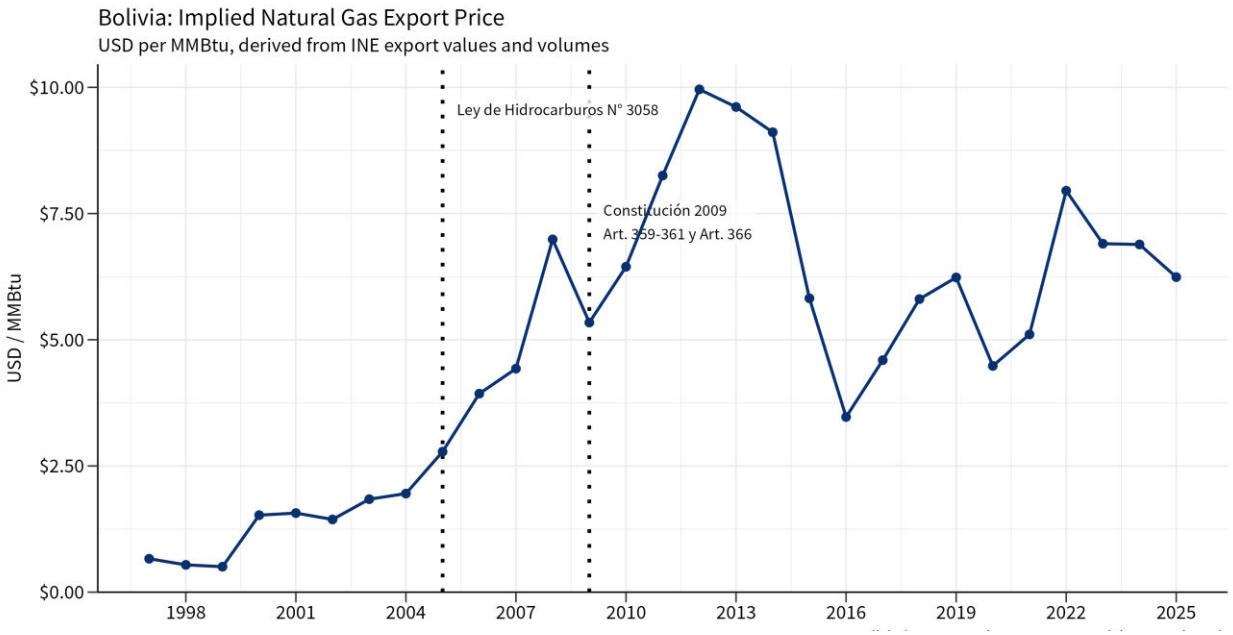
Uribe Teran, D. (2025). Contract-based Arbitration: Lessons Learned from Bolivia's Extractives Industries. *Southviews No. 281*. https://www.southcentre.int/wp-content/uploads/2025/01/SV281_250131.pdf

Velásquez, R. (2025). *Problemas y Propouestas ante la crisis de Hidrocarburos*. Fundación Jubileo.

Verpoort, P. C., Gast, L., Hofmann, A., & Ueckerdt, F. (2024). Impact of global heterogeneity of renewable energy supply on heavy industrial production and green value chains. *Nature Energy*, *9*(4), 491–503. https://doi.org/10.1038/s41560-024-01492-z

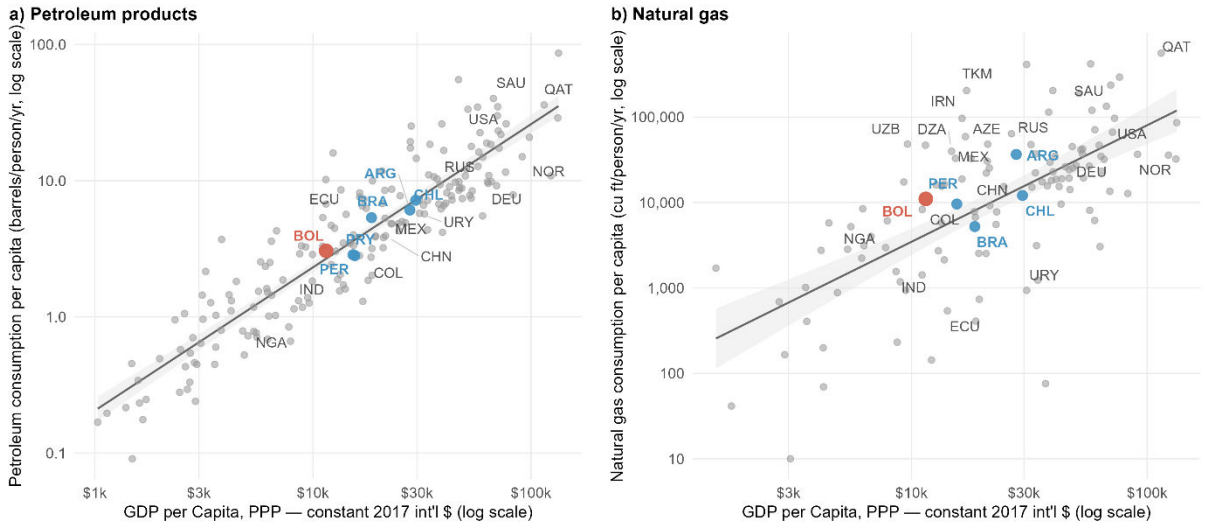
Appendix

Figure A.1: Bolivia – Implied Natural Gas Export Price, 1997–2025



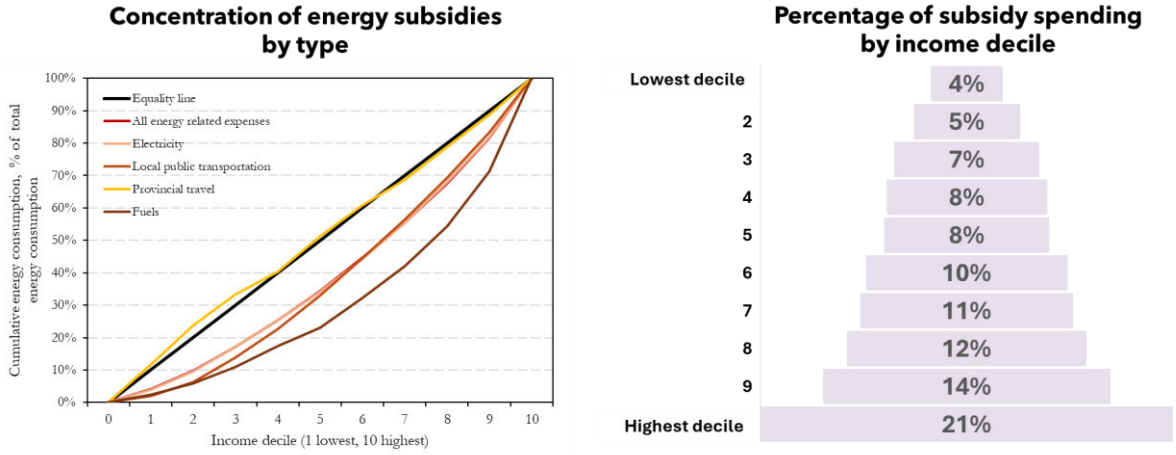
Note: Implied price calculated as annual gas export value (USD) divided by annual export volume (metric tons), with conversion based on a calorific value of 35.4 MJ/m³ and density of 0.72 kg/m³ (1 metric ton ≈ 49 MMBtu). Dashed lines mark Law 3058 (2005) and Arts. 359, 361, and 366 of the 2009 Constitution. Source: Authors' elaboration based on INE Bolivia export value and volume data.

Figure A.2: Hydrocarbon Consumption per Capita & GDP per Capita (2022)



Sources: Authors' elaborations based on data from U.S. Energy Information Administration and World Bank

Figure A.3: Distributive Effects of Bolivia's Energy Subsidies



Note: The subsidy represents the additional cost required to maintain households' current consumption levels if energy prices rose to the reference price. This is a maximum estimate based on the assumption that households do not change their consumption levels. The household survey records spending in bolivianos on electricity, gasoline, and public transportation. Assuming the average exchange rate for 2025 (12.6). Reference prices from ANH for gasoline, LPG at USD 1, and public transportation at 5 bolivianos. Source: (Hausmann et al., 2026)