"I MAY NOT HAVE GONE WHERE I INTENDED TO GO, BUT I THINK I HAVE ENDED UP WHERE I NEEDED TO BE."[1]

The brilliant journalist Paulo Francis used to recount, as a personal metaphor, the moment he decided to leave Brazil. It was in 1971 during a screening at the historic São Luiz cinema in the Catete neighborhood of Rio de Janeiro. Francis was with his friend, the writer and poet José Lino Grunewald, when he noticed the image being projected was completely out of focus. He complained to his friend, who replied something along the lines of: "Well, expecting a film to be in focus is asking too much." That was enough. For Francis, that scene epitomized the precariousness, negligence, and widespread disregard in the country. It was the push he needed to move to New York, in search of an environment more suited to his expectations.

The returns from Brazilian equities in the last decade have been disappointing. Today, the market capitalization of all companies listed on the B3 is smaller than that of Broadcom, an American firm that most Brazilian investors have probably never even heard of. This should come as no surprise in a country marked by anemic growth and a persistently high cost of capital. The prevailing perception is that everyone has given up on Brazilian stocks—nobody wants to invest in underdevelopment. It feels far more comfortable to turn toward modern American companies that keep growing and reshaping entire markets.

However, the negative perception of Brazil carries a trap: it suffers from selection bias. When Nasdaq-listed companies with significant exposure to the Brazilian market are included in the analysis, the picture improves materially. In recent years, large local companies have experienced significant waves of technological disruption. Sectors such as media, finance, and retail have undergone profound transformations, each characterized by distinct dynamics and impacts.

In the media sector, the big losers were private companies—with Rede Globo, previously considered unshakable, suffering the most precisely because of its historical dominance. Meanwhile, the winners were global technology giants like Google and Meta, whose exposure to Brazil remains marginal. This episode illustrates how even strong monopolies can be swiftly eroded by unexpected innovation. For local investors on the Brazilian stock exchange, however, the impact was barely noticeable.

The financial sector, on the other hand, experienced a broader, more diffuse disruption. The substantial profit pools, coupled with essentially domestic and relatively permissive regulation, attracted significant capital inflows from both private and public markets, creating intense competition for listed incumbents. Although numerous investment opportunities emerged, most returns ultimately concentrated in the hands of private investors associated with a single company—Nubank. Three years after its IPO, Nubank's premium to book

[1]Douglas Adams, author of the book *The Hitchhiker's Guide to the Galaxy*

value (market capitalization minus shareholders' equity) surpassed that of Itaú, Bradesco, Banco do Brasil, Santander, BTG, XP, B3, Inter, Stone, and Pagseguro combined.

In retail, the disruption took a different form. Digitization transferred economic value away from Brazilian companies, both public and private—such as Renner and other specialized firms—and toward marketplaces like Mercado Libre, which is listed abroad but has significant operations in Brazil. More recently, the competitive landscape for traditional retailers has deteriorated further due to the aggressive expansion of Chinese platforms.

Each of these three cycles of disruption follows its own rhythm and pattern. What unites them is the technological backdrop. The semiconductor revolution enabled continuous coexistence with computing, while the combination of smartphones and cloud services embedded the digital world into everyday life. As a result, distribution channels once protected by structural barriers—such as bank branches, physical retail outlets, or television broadcasting licenses—began facing competition from scalable digital solutions characterized by positive network effects and near-zero marginal costs.

Ultimately, what truly sustains value over time is the market structure. The ability to consistently deliver results and command attractive multiples depends on stable and predictable competitive dynamics. Investors must therefore evaluate the resilience of competitive advantages—both of incumbents and disruptors—across various possible future scenarios. This assessment requires a clear perspective on the pace of change and companies' ability to respond and adapt to emerging equilibriums.

Although there is often a fascination with being the lookout at the ship's masthead, ready to shout "Land ahoy!", a significant portion of returns actually comes from companies already established as clear leaders in their sectors. In other words, the real rewards do not necessarily go to those who boldly predict the winning technology, but rather to those who accurately interpret the pace and economic fundamentals of change. An obsession with making early calls says more about an analyst's ego than their true ability to generate returns.

"LANGUAGE IS AN INSTRUMENT THAT SERVES NOT ONLY TO COMMUNICATE, BUT TO CONVINCE, TO SEDUCE, TO DOMINATE."[2]

The energy transition, central subject of this trilogy, is a multifaceted theme stemming from growing awareness about harmful impacts of our current development model and an urgency to mitigate them. As a result, it often carries emotional judgments that are unhelpful to the investment process. When analysis is clouded by hope and desire, investment outcomes tend to disappoint over time. After an extensive analytical effort culminating in this series of letters, we concluded that it is more appropriate to approach the topic as yet another cycle of technological and institutional disruption. Ethical reflections on the matter are legitimate, but as professional investors with a fiduciary duty to our clients, we believe our role is to interpret the world as it is—not as we wish it to be.

[2] Jean-Paul Sartre, husband of Simone de Beauvoir.

The disruption cycles outlined above highlight a fundamental point: a company's ability to consistently generate returns above its cost of capital is closely tied to the structure of the market in which it operates. It is through this lens that we assess the impacts of the energy transition. In the energy sector, the semiconductor revolution did not have a direct effect through computing power, but indirectly, by driving a sharp decline in solar panel costs. This development, combined with political momentum supporting the transition, accelerated the adoption of intermittent energy sources, triggering a range of second-order effects that are reshaping the sector's competitive dynamics. Technological advances in lithium batteries have further reinforced this shift—not only by enabling greater integration of intermittent sources, but also by setting the stage for the deep and irreversible electrification of transport.

In a world where technology evolves exponentially, attempting to predict the dominant energy matrix 10 or 20 years from now often generates more noise than insight. Our focus, therefore, must be on understanding how these transformations will affect portfolio companies over the next few years. It is not about forecasting a distant future. The odds of success improve—and mistakes become less costly—when we take a more pragmatic approach. Investors who navigated the shift from horse-drawn carriages to automobiles provide a useful analogy: those who tried to predict the winning carmaker among thousands embarked on a journey of low probability of success; those who simply sold the horses made a bet with a much higher expected return.

In response to the competitive pressures brought by these transformations, it is natural for stakeholders to deploy a wide array of arguments to defend and advance their interests. In this context, narrative creation and dissemination become powerful tools. Even when easily refutable, such narratives are often repeated ad nauseam by those who should be committed to technical rigor. Part of this behavior is explained by the LinkedIn phenomenon, which imported the mechanics of social networks to the corporate world: individuals signal their identity by expressing opinions about the world. Posts become tools of social signaling—means of crafting personal and professional identity. In this environment, professing belief in the energy transition becomes, for many, a virtue signal. This identity-driven posture distorts judgment and hinders the development of an agnostic worldview—an essential trait for long-term capital accumulation. The distributed generation (DG) sector, for example, only managed to reach its current size due to a skillfully articulated campaign: the proposal to reduce subsidies was framed as an alleged attempt to tax the sun. Even President Bolsonaro joined the chorus, forcing ANEEL—previously prepared to revise the policy—to retreat. When this identity-driven logic merges with patriotic and chauvinistic impulses, there is a risk of society pursuing misguided goals. The debate over electric vehicles (EVs) in Brazil illustrates this dynamic.

The idea that hybrid vehicles powered by ethanol would be environmentally superior to electric ones ended up gaining the status of truth after being repeated to exhaustion. The number of decision-makers who accepted this view is not small. In fact, there is a study by Unicamp[3] that supports this conclusion[4]. Pride in our relevance in the global biofuels market, combined with the constant lobbying by agents involved in the sector, fuels a groupthink that overlooks crucial aspects of the analysis.

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[3] State University of Campinas

[4] Gauto, M. A., Carazzolle, M. F., & Pavan, M. E. (2020). *Hybrid vigor: Why hybrids with sustainable biofuels are better than pure electric vehicles*

In electric vehicles, battery manufacturing is the main subject being contested. Indeed, the extraction, refining, and processing of critical minerals are energy-intensive, as is the synthesis of cathodes and anodes, and the manufacturing of the cells that make up the batteries. This means that the initial environmental cost is high and needs to be offset over time by lower emissions during vehicle use. It is important to remember that EVs are more efficient than combustion engine cars even when powered by electricity from fossil fuel power plants. The combination of centralized generation and the electric motor exceeds, in efficiency, the localized combustion of fossil fuels. In the case of the Brazilian grid, with its high penetration of renewable sources, the advantage is amplified[5].

The main variables that determine the level of emissions in the life cycle of an electric vehicle are the absolute emissions in battery manufacturing, the efficiency of the vehicle—measured in units of energy required to travel one kilometer—and the total distance traveled over its useful life. Finally, the eventual recycling of batteries should also enter this equation[6]. In the study cited above that defends biofuel-powered hybrids as environmentally superior alternatives to EVs, all the variables seem to be erroneously represented. There is an intrinsic difficulty in trying to hit a moving target[7]. The emissions data in battery manufacturing used in the study, for example, is an arithmetic average of outdated papers published between 2014 and 2020. More recent studies[8,9] report numbers at least 50% lower, due to changes in predominant chemistry and the increasing decarbonization of energy matrices in producing countries[10]. The same phenomenon occurs with vehicle efficiency, which today reaches values 40% higher than those chosen in the study in question. Added to this, the useful life of the vehicles was set at 160,000 kilometers, based on the warranty offered by Nissan—a company whose presence in the global EV market is negligible[11]. BYD, the world leader in the sector, offers a warranty of 500,000 kilometers. In essence, the electric vehicle emits less in its manufacturing, recovers initial emissions more quickly, and remains operational for much longer.

From this blend of groupthink and biofuel lobbying emerges another misconception: the belief that cultivating sugarcane is Brazil's most efficient way to harness solar energy. Indeed, Brazilian sugarcane yields

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[5] Considering the average emissions of Brazilian electricity over the past five years and a combined loss of 27% in transmission, distribution, and charging systems, an average EV emits 15 gCO_2e/km, while a combustion vehicle emits 65 gCO_2e/km when using hydrated ethanol and 200 gCO_2e/km when using gasoline C.

[6] A widely cited but inaccurate claim states that only 5% of lithium-ion batteries are recycled. This figure, however, refers to outdated data on portable batteries collected in Europe and Taiwan over a decade ago—not EV batteries. Despite its methodological flaws and irrelevance to electric vehicles, the claim has persisted in academic articles and policy debates, leading many to overlook recycling in EV life-cycle analyses. In practice, EV batteries are recycled with recovery rates exceeding 90% for critical materials such as nickel, cobalt, and lithium.

[7] The study explicitly acknowledges this difficulty: *"It is ultimately expected that economies of scale, technological improvements, decarbonization of production processes, and recycling will significantly reduce the carbon footprint of batteries in the coming decades, decreasing the total emissions associated with the life cycle of BEVs."*

[8] Bieker, Gereon. A Global Comparison of the Life-Cycle Greenhouse Gas Emissions of Combustion Engine and Electric Passenger Cars. International Council on Clean Transportation, 2021

[9] Xu, C., et al. "Future Greenhouse Gas Emissions of Automotive Lithium-Ion Battery Cell Production: A Study of Technological Development and Regional Differences." Resources, Conservation & Recycling, 2022

[10] The largest greenhouse gas emissions in production processes typically depend on energy consumption, creating a natural economic incentive for greater efficiency. The shift from NMC (nickel-manganese-cobalt) to LFP (lithium iron phosphate) batteries illustrates this point. LFP batteries eliminate the need for energy-intensive and emission-heavy metals like cobalt and nickel, and their simpler manufacturing process requires fewer sophisticated purification steps, lowering overall energy use per kWh produced.

[11] Less than 2% market share in the US and a negligible presence in China.

approximately 6,300 liters of ethanol per hectare—nearly 50% more than U.S. corn's average of 4,300 liters. However, this advantage is no reason for patriotic complacency. The 6,300 liters produced can power a flex-fuel vehicle for about 65,000 kilometers—enough for a weekly round trip from São Paulo to Brasília for a year. Yet, if that same hectare were dedicated to solar panels instead, the generated electricity could power the same vehicle for over 8 million kilometers—almost 150 times farther[12]. With this efficiency, our lobbyist could exchange weekly trips to Brasília for daily journeys to Iowa, the American epicenter of biofuel lobbying[13].

It is not surprising that the unbeatable efficiency of the solar energy and electric vehicle duo has become an energy sovereignty strategy in China. In November 2024, EVs already represented 50% of total car sales. The effort to reduce costs through manufacturing efficiency ensures the country a prominent place in global geopolitics in the context of the energy transition, offering more competitive alternatives to reduce emissions in transportation worldwide. Furthermore, the gradual replacement of the existing fleet will reduce demand for gasoline and, therefore, the need to import oil. It eliminates dependence on importing a commodity while creating the opportunity to export a manufactured, high value-added product. When autocracies establish long-term policies, they tend to move toward their objectives with frightening speed, as they are insulated from lobbyists and other distorted incentives common in Western representative democracies.

This letter does not intend to be a manifesto of unequivocal defense of EVs, antagonizing and disapproving of ethanol. Government subsidies to the Brazilian sugar and ethanol sector following the 1970s oil crises created a robust asset for energy sovereignty. We paid an acceptable premium[14] to guarantee access to a refined fuel that reduces our need for imports[15], increases our resilience in moments of stress, and promotes local economic development. It is understandable, therefore, that sectors benefiting from this arrangement advocate for the continuity and expansion of the subsidies they enjoy. It is the nature of the game being played. But this element alone should raise suspicion and encourage some degree of skepticism, since building public policy and allocating capital based on unsound premises can prove excessively costly for society. That said, the economic benefits provided by ethanol may even be sufficient for us to patriotically decide that it makes no sense to open the borders to Chinese electric cars. However, if the cost of these vehicles continues to fall, accompanied by significant efficiency gains, such a decision may harm our already faltering productivity relative to other economies.

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[12] One hectare of land can accommodate roughly 500 kWp of photovoltaic capacity with trackers, enough to generate about 985 MWh annually. An electric car like the BYD Dolphin consumes approximately 12 kWh per 100 km, meaning that one hectare produces sufficient energy to travel over 8 million kilometers. Naturally, the solar power and electric vehicle combination requires a higher investment, including panels, vehicles, and charging infrastructure.

[13] Iowa, being the first state in the presidential primaries and accounting for about 20% of U.S. corn production, holds significant influence over American ethanol incentive policies. Recent studies have highlighted issues in accounting for emission reductions under U.S. biofuel policy due to land-use changes, suggesting that the program's actual emissions impact has, in fact, been negative.

[14] The country's largest ethanol producer has a production cost of $120 per barrel of oil equivalent, a figure that has remained above the historical price of crude oil plus refining spread for most of the past decade. The challenge is to measure the benefit provided by this higher cost: how much is this anti-cyclicality worth during times of stress?

[15] The gasoline we consume in Brazil is a blend of gasoline and anhydrous ethanol. Of the 38 billion liters of gasoline C consumed in Brazil in 2022, approximately 10 billion were anhydrous ethanol and 28 billion were gasoline A, of which about 3 billion liters were imported. Additionally, another 16 billion liters of hydrated ethanol were consumed directly in flex-fuel vehicles. If the ethanol industry did not exist, our need to import gasoline would be almost seven times greater.

To calculate the implicit return of switching to an electric vehicle, the fundamental variable is the distance driven. For ride-sharing drivers, for example, the calculation already works out comfortably[16]. Like many emerging phenomena of complex systems, this key variable follows a power-law distribution—that is, the drivers who drive the most represent a substantial part of the whole. Approximately 1.2 million taxi and Uber drivers in Brazil drive between 50,000 and 90,000 kilometers per year. Although they represent 2% of the fleet, they account for just under 20% of total gasoline consumption. For this group, switching to electric is a rational economic decision, independent of any assessment of environmental impact. On the other side of the spectrum are the well-intentioned individuals driven by the desire to leave a world with less carbon for their descendants, but who only drive a few kilometers on their commute to work—usually aboard an SUV. Despite the peace of mind and a touch of pride, their electric car is not a relevant force in the journey of reducing carbon emissions.

The rise of EVs, together with more efficient hybrids, is driving a future in which an ever-larger share of kilometers will be traveled electrically. In the car rental sector, where we have an important investment for the fund, the concentration of power in the hands of large buyers remains intact[17]. Because a substantial share of rental company profitability is anchored in a structurally oversupplied market—where concentrated demand secures favorable terms—the entry of new manufacturers may even be beneficial. At least while traditional automakers are still breathing. Furthermore, the short-term rental segment should be one of the last to be electrified, given the lower relevance of energy efficiency in the value proposition for the customer. The greater risk may already be beginning to take shape in the near future with the arrival of autonomous cars: in San Francisco, Waymo has grabbed 25% of the market with fewer than a thousand vehicles in operation. In Brazil, however, the combination of a high cost of capital and low income pushes this risk to a more distant future, ensuring the survival of carbon over silicon for a while longer.

On the other hand, in fuel distribution, the revenue base is directly threatened by this more electric future. A significant part of the economic profit comes from the sale of fuel for light vehicles at urban gas stations—the first to be impacted by EVs. The benign equilibrium of the educated oligopoly that we see today, carefully built after the privatization of the last state-owned company in the sector, may be at risk. The market structure is perverse in cycles where volume drops. In a business with substantial fixed costs, an imbalance between supply and demand can significantly depress long-term margins. It is worth remembering that the fair value of a company that grows at the inflation rate for 20 years and then disappears revolves around 7x earnings. As the duration of cash flows is relatively short, changes in the cost of capital have limited impact on present value—protecting the downside and limiting the upside. That said, rare are the cases of companies that simply distribute all the cash they generate and voluntarily cease operations. An investment in the sector, therefore, should incorporate a positive expectation regarding capital allocation, with the hope of somehow transferring competitive advantages to new segments. Could this be a case of fixed-income-like returns with venture capital risk?

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[16] The cost per kilometer for an electric vehicle is one third of that for a gasoline vehicle. If a driver travels 250 km per day, 25 days a month, they will save about R$20,000 in a year. With the price difference between the BYD Dolphin and equivalent combustion vehicles being around R$25,000 to R$30,000, the payback period for the driver is less than 18 months, considering only the difference in fuel costs. [ASSUMPTIONS: Gasoline: 15 km/l @ R$6.20/l = R$0.41/km / EV: 12 kWh/100km @ R$1.15/kWh = R$0.14/km].

[17] The merger with Unidas and the negative cycle disproportionately impacting competitors with weaker balance sheets have left Localiza in a privileged position.

"IN A WORLD THAT'S ALWAYS FALLING APART, THE TRICK IS NOT TO FIX IT — IT'S TO LEARN TO DANCE WITH THE CHAOS."[18]

The insertion of solar energy into the Brazilian matrix occurred, for the most part, through distributed generation, with the consumer assuming the role of partial generator of their own energy. In this new design, the distributors—previously the sole potential suppliers of electricity—began to face unexpected competition. As their revenues are based on a rate of return applied to a regulatory asset base, the direct impacts of DG on this segment of the chain were relatively limited[19]. The more concerning effects are indirect—and they are emerging at a moment of unprecedented instability in the sector.

The development of the Brazilian electrical system has been accumulating entropy over time. We continue to expand an oversupplied system due to regulatory distortions, we fail to provide effective granular price signals, and with each modification, we make the price discovery model even more opaque, all while maintaining the legal obligation to contract inflexible energy. Reducing this degree of disorder would require a coordinated effort of regulatory redesign, adjusting incentives to appropriately direct investments toward the permanent—and so far utopian—desire to improve Brazilian economic productivity.

This complicated sector condition, combined with the drop in prices of solar panels and batteries, provokes important reflections. What happens to electricity distributors in a context of rising tariffs and increasingly competitive off-grid supply alternatives? A simple exercise points to a relevant risk: for residential consumers, it is already economically viable to withdraw from the grid in several distributor areas[20]. It is essentially a relatively straightforward portfolio optimization problem—solar + battery + backup—subject to a minimum reliability threshold. The current DG regulation makes this exercise, for now, purely theoretical, since the consumer only needs to install solar panels and can use the interconnected system as a virtual battery without paying an extra cent for the storage service. That said, the economic viability of leaving the grid is an important warning for those who insist on fattening the CDE[21] without considering the medium- and long-term consequences. It is a topic we will need to monitor closely in the coming years, since maintaining the economic balance of distributor concession contracts depends on a paying consumer base[22].

In this exercise, we sensitized possible price drops in technologies that follow Wright's Law, such as solar panels and batteries, and reached interesting conclusions: even with falling prices, having a fossil backup will

[18] Terry Pratchett, British writer

[19] Some regulatory adjustments were necessary, such as the adjustment of DG volume for tariff calculation and the treatment of any resulting overcontracting from this movement as involuntary, so as not to impact the distributor's economics.

[20] The cost of a theoretical off-grid system with solar energy, batteries, and a diesel generator is around R$1,100/MWh, a value close to the tariffs charged in RJ, MG, and BA before the public lighting contribution and any applicable tariff flags. The final price of energy is highly sensitive to the cost of capital; with a reduction to more normalized levels, the off-grid system becomes competitive in all states of the country.

[21] With an annual budget of around R$40 billion, the Energy Development Account (CDE) is responsible for financing all incentive policies in the sector.

[22] This risk is not merely theoretical. Pakistan currently faces the consequences of ignoring this dynamic for too long. Rising tariffs, intermittent supply, and disorganized subsidies prompted wealthier consumers to adopt off-grid alternatives, leaving the most vulnerable reliant on a failing grid. The departure of reliable payers worsened the financial position of distribution companies, pushing them into structural losses, technical insolvency, and recurring blackouts. This offers a clear lesson on the dangers of neglecting decentralized solutions amid ineffective regulation and poorly calibrated price signals.

always be more economical. It is challenging to amortize the capital invested in extra batteries and panels for periods of low generation, as infrequent use rarely justifies the cost of capital. A battery dispatched only once a year delivers energy that is 365 times more expensive than one operating on a daily cycle. Therefore, either we tolerate having less energy at certain times, or we cannot avoid installing fossil generators as backup. This conclusion also applies to our grid. We benefit from some portfolio effect due to the geographical distribution of renewable sources, but we cannot escape the need for sufficient dispatchable capacity to handle the instability of uncontrollable resources.

In the Brazilian electrical system, we are already used to living with the variability of the hydrological regime, which manifests in multi-year cycles. We designed the entire operational logic to deal precisely with this phenomenon, although we are not always successful[23]. With the increasing penetration of wind and solar energy, we are confronted with greater volatility in shorter time frames. Wind energy has significant monthly variability, while solar, despite being predictable, fluctuates within hourly intervals. When the stars align, these volatilities complement each other: high generation from one source offsets lower production from the other[24]. But when this complementarity fails, the system must be prepared to supply the total load without disruptions. The increase in volatility seems inevitable. Therefore, maximizing risk-adjusted returns points to companies that thrive in volatile conditions —or in finance jargon, to go "long vol."

We are used to thinking of commodity prices in terms of median values—reference points that divide the frequency distribution in half. However, the marginal cash cost of production sets a floor, while the low elasticity of demand virtually eliminates the ceiling. Cycles of imbalance act as an explosive driver of prices. This asymmetric distribution of outcomes makes the average of realized prices higher than the median. The inevitable increase in volatility further amplifies this difference. This applies both to the price of electricity itself and to the commodities used to produce it.

Although reliability in energy supply remains an absolute priority, the adverse effects of greenhouse gas emissions are a genuine point of concern. In this context, natural gas has gained a prominent role. Composed of one carbon atom and four hydrogen atoms, methane (CH_4) is the hydrocarbon with the highest energy density per unit of mass and, among fossil fuels, the smallest environmental footprint[25]. These characteristics have earned natural gas the nickname “transition fuel.” This prestige, however, took time to consolidate. For years, exploratory campaigns that discovered gas reserves not associated with oil were considered failures. In Brazil, until recently, the gas market did not exist—it was a monopoly spread across various departments within Petrobras. With recent divestments in production, transport, and distribution, we now have a nascent market that is becoming increasingly dynamic and promising.

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[23] Crises such as those of 2001, 2014, and 2021 show that, even with a system designed to deal with drought, from time to time the balance still doesn’t add up.

[24] The seasonal patterns of rainfall and wind are a clear example of this phenomenon—at the beginning of the year, there is little wind and a lot of rain, while in the second half of the year, there is little rain and a lot of wind. On a daily scale, we observe a positive dynamic in the Northeast, with solar energy coming online in the morning and compensating for the decline in wind generation.

[25] The combustion of methane generates energy because it breaks weaker chemical bonds (between carbon and hydrogen in methane, and between oxygen atoms in the air) and forms stronger, more stable bonds in the molecules of carbon dioxide (CO_2) and water (H_2O). Since methane has a high hydrogen-to-carbon ratio, much of the energy released comes from the formation of water—which does not contribute to the greenhouse effect. As a result, methane produces more useful energy and less CO_2 per unit of energy generated than other, more complex fossil fuels.

For several years, discussions related to gas supply, primarily associated with oil, have divided the political class and producers. On one side is Brasília, interested in cheaper gas as a means to boost industrial activity and resume the production of nitrogen fertilizers, a sensitive topic from the standpoint of national sovereignty, given the political and economic importance of the agribusiness sector. On the other side is an operator focused on extracting oil, its main product. For the oil producer, associated gas is nothing more than a technical nuisance capable of compromising production. Without a market capable of absorbing the gas, and lacking the physical infrastructure to drain it, reinjection emerges as the natural option[26]. It is the classic microeconomic dilemma: without supply, demand does not develop, and without demand, making supply viable is economically nonsensical—a coordination impasse.

Eneva solved the challenge of natural gas monetization by integrating its operations, installing thermoelectric plants near producing fields, and converting gas into electricity. Following the success of its exploratory campaigns, the company began to have reserves sufficiently robust to diversify its commercialization strategies. Currently, it explores alternatives with more attractive margins, such as replacing fuel oil in industrial processes and diesel in road freight transport[27]. The acquisition of the Sergipe regasification terminal and its subsequent interconnection with the gas pipeline transport network further expanded the company's scope, enabling it to position itself as a provider of flexibility, both via electricity and directly in molecules. These characteristics are structural advantages that make Eneva the most competitive[28] agent for providing power and flexibility to the Brazilian electrical system. In the proposed framework[29] for contracting these attributes in the country, Eneva not only exposes itself to price volatility but also receives fixed revenue for it. Returning to finance jargon, it is as if the company receives a premium to buy a call.

Eneva's trajectory is an emblematic example of how entrepreneurial initiative can unlock value by organizing stranded supply and creating demand where it previously did not exist. Starting with the monetization of natural gas through electricity generation, the company reinvested resources to expand its reserve base and enable new consumption fronts. This feedback process—where supply enables demand, and demand, in turn, justifies further supply—was driven by economic rationality. Environmental benefits emerged as a bonus.

This same logic of stacking supply and demand inspired the creation of Compass, another important investment of the fund in this sector. At the time, the Cosan group controlled Comgás, Brazil’s largest natural gas distributor, but relied exclusively on Petrobras, then a monopolist, for supply. Recognizing the untapped potential of this stable demand, Cosan developed an integrated LNG regasification project benefiting both

[26] The reinjection of gas into reservoirs is a fundamental technique for maintaining or increasing reservoir pressure, which facilitates the movement of oil toward the production wells. This process, known as secondary recovery, is especially effective in deep reservoirs such as those in the pre-salt layer, where maintaining pressure is crucial to ensure high oil recovery factors.

[27] In China, LNG trucks already account for over 50% of heavy vehicle sales. In Brazil, VirtuGNL is exploring this market, which has significant potential to increase gas demand; a complete replacement of the diesel fleet with LNG would quadruple the country’s total gas demand.

[28] Traditional commercialization through the gas pipeline grid would have generated far more value had the infrastructure been available, making the company's current competitiveness somewhat of a consolation prize.

[29] In Capacity Reserve Auctions, fixed revenues cover infrastructure costs, while variable revenues compensate for supply flexibility. Given low initial dispatch expectations, unit variable costs minimally affect competitiveness. In practice, a period of below-average rainfall would boost dispatch—and company profitability.

consumers and itself, capitalizing on the monopolist's high charges for the molecule and supply flexibility. This new supply source unlocked additional opportunities, simultaneously stimulating fresh demand and alternative supply channels. The result was a virtuous cycle of value creation benefiting both the company and the broader sector.

Furthermore, both companies' regasification terminals expose them to volatility across global energy markets. The expanding global LNG market connects previously isolated energy systems, increasing monetization opportunities for those with access to the molecule.

In traditional financial models for utilities, energy prices were previously treated as static variables when evaluating uncontracted energy. In the current scenario, however, the capability to supply the system during periods of scarcity enhances the competitive advantage of companies with controllable energy sources, justifying a more favorable assessment. Due to historical circumstances,[30]Eletrobras currently holds a significant volume of uncontracted hydroelectric energy and stands to benefit from this emerging dynamic. In this scenario of increasing entropy within the sector, the strategic choice to maintain a relatively conservative capital structure proves prudent and aligned with the company's long-term interests.

Utility companies currently trade at implied internal rates of return that incorporate attractive premiums—particularly given the structurally limited risk of future operational setbacks. In other words, the equity risk premium has rarely been so generous. We also retain valuable optionality: the ability to capture sector-specific capital allocation opportunities—a privilege reserved for companies with robust balance sheets and strong, institutionalized governance that can translate market conditions into returns. This ability to consistently invest above the cost of capital, restricted to structurally well-positioned companies, has generated significant value and provided meaningful incremental returns over the years.

[30] The need for predictable revenues to compensate for the large invested capital makes it virtually impossible to develop a large hydroelectric project without long-term contracted energy. In the case of Eletrobras, the contractual renewal in the past decade took place under a quota system—an unprecedented and highly questionable arrangement established by Dilma Rousseff's Provisional Measure 579. The subsequent design of the company's privatization involved the dilution of the federal government's stake through a capital increase, which raised funds to pay for the concession bonus resulting from the *decotização* (removal of quotas) of this hydroelectric energy.

"I DIDN'T HAVE TIME TO WRITE A SHORT LETTER, SO I WROTE A LONG ONE INSTEAD"[31]

Throughout this trilogy, we explored energy from a historical perspective, emphasizing its essential role in shaping modern society. In light of this analysis, we questioned the foundations of the supposedly ongoing energy transition and presented the framework we use to approach this topic: nothing is sustainable outside the price-geopolitics binomial. We discussed the expected impacts on Brazil within this new global scenario, revealing the conflicts to which we are exposed. We also delved into two specific technologies, questioning and weighing the reasonableness of extrapolating the success of one as a guarantee for the success of the other—a useful provocation against the triumphalist narrative of "Brazil, Green Powerhouse." Subsequently, we applied a mental model previously used to navigate other disruptive cycles to identify risks and opportunities in this new context, highlighting key impacts on our investable universe. Prior to this, we had already explored the ESG theme more broadly in Letter 25, published in 2022, where we emphasized that this agenda was not a novelty for long-term investors. We criticized the fervor arising from the self-confidence of those who position themselves as moral authorities and seek redemption through inadequately considered actions. Since then, the conceptual landscape has changed so abruptly that our reluctance to engage with the theme in a one-dimensional manner has proven prudent.

The energy utopia may be a myth today, but ignoring it entirely is a recipe for substantial risks of total collapse. We have already witnessed this in other major disruptions. The gears may turn slowly, but sooner or later, they do turn.

In the end, the successful investor is not the one who shines momentarily, but rather the one who learns to sleep with one eye on the dream and the other on reality. This is how you pass through time and still wake up alive.

[31] Mark Twain, American writer.