

Paraguay's Power Advantage Is Becoming an Infrastructure Test

What Foreign Investors Should Watch in 2026–2030

Paraguay's abundant hydroelectricity has long been presented as one of the country's strongest competitive advantages. That remains true. But exceptionally rapid growth in domestic electricity demand, major transmission requirements and the emergence of data centres and other energy-intensive industries are changing the investment equation. For foreign investors, the relevant question is no longer simply whether Paraguay has cheap renewable power. It is whether the right amount of power can be delivered, at the right voltage, to the right site, under a predictable tariff structure.

28 September 2026

For decades, Paraguay occupied an unusual position in the global energy economy. A relatively small domestic market sat alongside two enormous binational hydroelectric projects — Itaipú with Brazil and Yacyretá with Argentina — allowing the country to generate far more electricity than its domestic economy could absorb.

That abundance helped create one of Paraguay's clearest structural advantages: access to large-scale renewable electricity without the natural-gas dependency, fossil-fuel imports or carbon intensity affecting many competing jurisdictions.

The basic advantage has not disappeared. But the economic context around it is changing rapidly.

Domestic electricity consumption increased **12.5% in 2025**, reaching 29,419 GWh. Itaipú supplied 25,768 GWh of that amount, or 87.6%, while Yacyretá supplied 10.5% and the Acaray hydroelectric plant 1.9%. Paraguay's peak electricity demand reached a record 5,280 MW in December 2025.

The acceleration continued in 2026. During the first five months of the year, national electricity consumption rose **19.4% year on year**, from 12,217.6 GWh to 14,587.1 GWh. Earlier, on 26 January 2026, the interconnected system had already registered another record peak demand of **5,752 MW**.

These figures matter because Paraguay is gradually moving from an era defined by electricity surplus toward one in which **domestic absorption, grid capacity and new generation planning become central economic issues**.

For investors, this is not a reason to discount Paraguay's energy advantage. It is a reason to understand it more precisely.

From electricity exporter to electricity-intensive economy

Itaipú remains a formidable asset.

The plant generated approximately **72.88 million MWh in 2025**, 8.6% more than in 2024. Itaipú also reported exceptionally high operational availability and record productivity during the year.

But Paraguay is using an increasing proportion of the electricity available to it.

This is exactly what economic development should produce. More factories, air conditioning, logistics facilities, shopping centres, residential construction, digital infrastructure and industrial processes all translate into electricity demand.

The strategic objective therefore changes over time.

When domestic electricity use is relatively low, the problem is how to monetise surplus generation exported or ceded to neighbouring countries. As domestic consumption expands, the more valuable question becomes how to convert that electricity into **higher-value production located inside Paraguay**.

A megawatt used by an export-oriented manufacturer, cold-storage facility, metals processor or digital-services operation can potentially generate employment, exports, taxes, supplier networks and capital investment. Economically, that may be more valuable than simply exporting the underlying electricity.

This is one reason why electricity-intensive investment has moved closer to the centre of Paraguay's industrial policy.

The power advantage is real — but connection capacity matters

Foreign investment presentations frequently describe Paraguay as a country of abundant and inexpensive hydroelectricity. That description is directionally correct, but it can encourage an important misunderstanding.

Having electricity available somewhere in the national system is not the same as having sufficient power available at a particular industrial site.

A large manufacturing plant may require a dedicated medium-, high- or very-high-voltage connection. A data centre may require not only large capacity but extremely high reliability, redundancy and predictable power quality. Industrial expansion can require new transformers, substations or transmission infrastructure.

The economics of a project therefore depend partly on where it is located.

This is increasingly important because Paraguay's distribution and transmission network must develop at roughly the same time as its electricity demand.

ANDE, the national electricity company, invested a record **USD 349.2 million in electrical infrastructure in 2025**. Of this amount, USD 157.1 million went to transmission projects and USD 192.1 million to distribution. Projects included new and upgraded substations, transformer capacity and hundreds of kilometres of protected medium-voltage conductors.

ANDE's longer-term projections illustrate the scale of the challenge. It expects electricity demand to reach approximately **11,009 MW of power and 57,561 GWh of annual energy by 2043**. That would be roughly twice the power demand and annual electricity consumption recorded in the middle of this decade.

The company's Generation Master Plan consequently envisages a broad investment programme involving solar generation, batteries, small hydroelectric facilities and other technologies over the period to 2043.

The practical conclusion for an investor is simple: **electricity due diligence should begin before site selection, not after it.**

Energy due diligence should become part of site due diligence

For an ordinary office, retail facility or small industrial operation, electricity availability may not materially affect the choice of location.

For a large industrial investment, it can be decisive.

A serious feasibility study should therefore establish at least four things before a site is acquired.

First, the investor should determine the **real connection capacity** available at the relevant voltage level.

Second, it should establish whether expansion of the project would require a new substation, transmission line or transformer capacity and, if so, who must finance and construct it.

Third, the investor should model the tariff not merely as a headline price per kilowatt-hour, but according to contracted power, voltage, peak and off-peak consumption, load factor and the relevant ANDE tariff category.

Fourth, electricity reliability should be treated as a separate variable from electricity price.

This distinction matters. Paraguay can possess abundant generation while a particular distribution area still requires reinforcement.

ANDE has been investing heavily to improve the system, but network losses remain significant. Distribution losses fell to **20.03% in 2025**, down from 23.4% in 2023, while total transmission and distribution losses were approximately 24.5%. The direction is encouraging, but the figures show why grid modernisation remains an important part of the investment story.

For projects where even a short interruption creates substantial economic losses, redundancy, backup generation and connection architecture should therefore be included in the capital budget from the outset.

Data centres illustrate the opportunity – and the constraint

The emergence of data centres, artificial-intelligence infrastructure and crypto-related processing provides an especially useful illustration of Paraguay's changing energy economics.

These activities are attracted to jurisdictions capable of offering abundant electricity, and Paraguay naturally appears on that map.

But they can also place exceptional pressure on the grid because their load factors are extremely high.

Paraguay has therefore created a specific **Special Intensive Consumption Group** covering data processing, information-storage services, blockchain activities, crypto-asset mining and data centres. The applicable tariff framework is denominated in US dollars and differs from conventional industrial tariffs. Larger users connecting at 66 kV or 220 kV may also need to construct their own substations and transmission infrastructure.

In May 2026 ANDE was already discussing new provisions for what it calls "**convergent industries**", explicitly including data centres, artificial-intelligence infrastructure and energy-X projects. The authority stated that the framework would address technical tariffs, adjustment mechanisms and the conditions applicable to major energy-consuming projects.

This is strategically significant.

Paraguay does not appear to be pursuing a policy of selling unlimited subsidised electricity to any energy-intensive operator willing to arrive. The emerging approach is closer to economic allocation: electricity-intensive investments are welcome, but tariffs and infrastructure must cover the real cost imposed on the system.

For investors, that is arguably healthier over the long term. A tariff that is artificially cheap but politically unsustainable is less valuable than one that is competitive and predictable for twenty years.

A new renewable-energy framework changes the market

Hydroelectricity will remain the foundation of Paraguay's electricity system, but another important change occurred in 2025–2026.

Law No. 7599/2025 modernised the framework for electricity generated from **non-conventional, non-hydraulic renewable sources**, including solar, wind, biomass, biogas and geothermal energy. The law was operationally regulated by Decree No. 6034 on 19 May 2026.

The reform is more important than the fact that Paraguay can now build additional solar plants.

It introduces a broader role for **self-generation, cogeneration and distributed generation**, allowing residential, commercial and industrial users to produce electricity and inject surpluses into the interconnected system subject to technical and regulatory requirements.

For an industrial investor, this creates possibilities that did not previously exist on the same scale.

A factory with substantial daytime electricity demand may be able to combine grid electricity with on-site solar generation. Agribusiness operations may have access to biomass residues. Large industrial parks may eventually design integrated generation and storage systems.

The significance is not that solar will replace Itaipú. It will not.

The significance is that Paraguay is beginning to move from a highly concentrated hydroelectric model toward a more diversified system in which investors can participate directly in generation.

That can reduce pressure on the grid while creating a new category of energy investment in its own right.

Itaipú after 2026: the strategic variable investors should follow

There is another issue that deserves close attention: the future financial rules governing Itaipú.

The current electricity-service cost agreed between Paraguay and Brazil for the 2024–2026 period is **USD 19.28 per kW-month**. This is the Itaipú Cost of Electricity Service, not an industrial retail tariff, but it is an important component of the broader economics governing the binational plant and Paraguay's electricity system.

The more important long-term question concerns **Annex C of the Itaipú Treaty**, which establishes the financial and electricity-service framework of the binational entity.

The debt incurred to construct Itaipú has now been repaid, fundamentally altering the economic environment in which the original Annex C rules were designed. Paraguay and Brazil have consequently been negotiating a revised framework.

In March 2026, the foreign ministers of both countries reported substantive progress but confirmed that important technical issues remained unresolved. The Paraguayan government emphasised that it was seeking a long-term framework rather than simply negotiating the tariff for 2027 or 2028.

The outcome matters far beyond Itaipú itself.

It can affect the cost structure of electricity, Paraguay's income from energy ceded to Brazil, the resources available for infrastructure and, ultimately, the economic incentive to consume more electricity domestically.

Investors do not need to speculate on the political negotiations. But projects with twenty- or thirty-year horizons should recognise that **Paraguay's electricity economics after 2026 are entering a new institutional phase.**

Which sectors are best positioned?

The most obvious beneficiaries are industries where electricity represents a significant share of production costs.

These can include cold-chain and refrigerated logistics, food processing, fertiliser production, metals, electro-intensive manufacturing, certain chemical processes, data centres and, over time, industries linked to hydrogen or synthetic fuels.

But there is a broader implication.

Low-carbon electricity can increasingly become a **trade advantage**, not merely a cost advantage.

As companies in Europe and other developed markets face tighter carbon-accounting requirements, supply-chain reporting and decarbonisation targets, locating production in a power system dominated by renewable hydroelectric generation can improve the emissions profile of exported goods.

Paraguay therefore has the potential to compete not only on electricity price but on the **carbon intensity of industrial production.**

This will not benefit every business equally. Transport costs, logistics, labour skills, financing and supplier availability remain relevant. A cheap megawatt cannot compensate for an inefficient overall business model.

But for the right industries, Paraguay's combination of renewable power, relatively low taxation, Mercosur access and improving logistics can become unusually compelling.

What investors should not assume

Three assumptions should be avoided.

The first is that Paraguay has unlimited excess power indefinitely. Demand growth is too rapid for that assumption to remain prudent.

The second is that every industrial location enjoys the same electricity conditions. Transmission capacity, voltage and local network infrastructure matter greatly.

The third is that today's energy economics will remain unchanged for decades. The post-2026 Itaipú framework, renewable-energy regulation and new tariff structures for intensive users are all reshaping the market.

The opportunity therefore belongs less to investors who simply hear that "electricity is cheap" and more to those who integrate energy strategy into the design of their project.

Conclusion: from surplus electricity to productive electricity

Paraguay's hydroelectric endowment remains one of the country's strongest economic assets.

But the nature of that advantage is changing.

The old model was based largely on producing electricity that the domestic economy could not fully consume. The emerging model is about **using more of that electricity inside Paraguay to support industrialisation, digital infrastructure and higher-value economic activity.**

The numbers already show the transition. Electricity demand grew 12.5% in 2025 and almost 20% year on year during the first five months of 2026. ANDE is investing record amounts in transmission and distribution. New legislation has opened the door to non-hydraulic renewables and self-generation. New tariff frameworks are being developed for data centres and other intensive users. And Paraguay and Brazil are negotiating the institutional future of Itaipú.

For foreign investors, the conclusion should not be that Paraguay's electricity advantage is disappearing.

It is becoming **more valuable, more complex and more dependent on planning**.

The decisive question for the next generation of industrial investment will therefore not be whether Paraguay has energy.

It will be whether investors can secure the right power infrastructure, at the right location and under a structure capable of supporting their business for the next twenty years.

Sources

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5. **Presidency / ANDE** — Decree No. 6034 of 19 May 2026 regulating Law No. 7599/2025 and establishing the operational framework for self-generation, cogeneration and distributed generation.
6. **ANDE** — Special tariff and supply rules for data processing, data centres and other energy-intensive users.

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