Data Centers: Evaluating Opportunities and Challenges for Key Markets in Latin America

Introduction

On August 21 in Santiago, Chile, the Institute of the Americas, in partnership with WEC Chile, Universidad Adolfo Ibáñez, OLADE, and InvestChile, convened a high-level forum titled *"Data Centers & Energy: Reliability and Mapping of Supply and Demand."*

The event brought together key stakeholders and industry experts for in-depth discussions on critical issues such as investment models, regulatory frameworks, energy supply and efficiency, and the implementation and operational capacity of data centers. Prominent voices emphasized the need for streamlined and transparent regulation to enable faster infrastructure development.

Throughout the sessions, a strong sense of urgency emerged as participants underscored the unique opportunity facing Chile and the Andean region to become global leaders in sustainable digital infrastructure. The convergence of abundant renewable energy resources, rising global demand for data services, and growing regional technical capabilities presents a significant opportunity to transform energy, data, and innovation into key economic drivers. The forum highlighted not only the technical and policy challenges ahead, but also the strategic potential for the region to shape the future of digital and energy integration. One panelist went as far as to say that the opportunity for Chile could prove to be "the new copper" —a reference to the country's longstanding and important economic activity derived from that natural resource.

# Data Centers – Global Outlook

The growth of data centers and energy consumption have been closely linked. In 2023, global data centers collectively consumed 7.4 GW of energy, representing a 55% increase from 4.9 GW the previous year. Global data centers contribute up to 4% of global energy consumption and 1% of global greenhouse gas emissions.

There has been a clear growth in global demand for data centers, driven by cloud computing, big data, artificial intelligence (AI), the Internet of Things (IoT), and streaming services. Furthermore, data centers consume significant amounts of energy, primarily due to the need to power servers and the cooling systems of large server farms. This fact leads directly to the debate about how to manage this rapid growth in the most sustainable way, without compromising the affordability and

reliability of energy supply. Many of the major technology companies at the center of the digital economy are seeking to reduce their carbon footprint, and several have set specific corporate commitments to decarbonization and net-zero emissions deadlines.

Estimated Global Electricity Demand from Data Centers (GW)
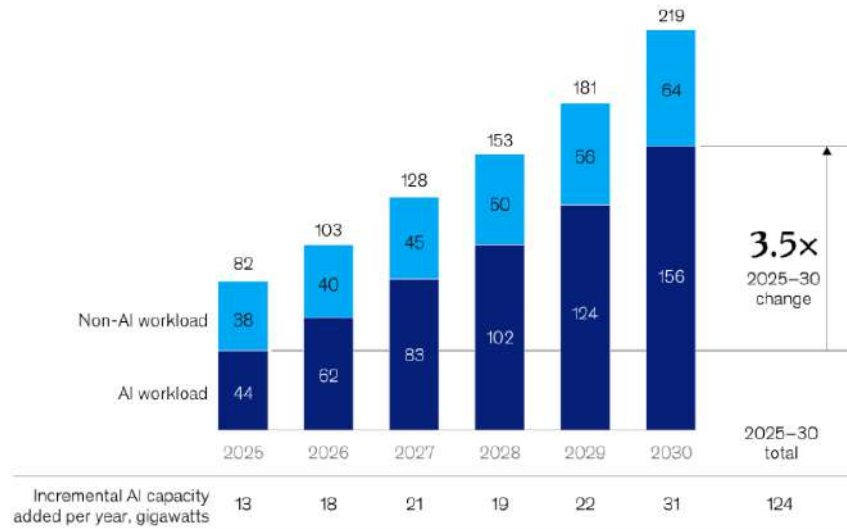
Note: Figures may not sum to totals, because of rounding.
Source: McKinsey Data Center Demand Model; Gartner reports; IDC reports; Nvidia capital markets reports

McKinsey & Company

It is estimated that by 2030, the demand for installed capacity to supply data centers for both AI and other computing services worldwide will almost triple, and for AI centers, it will be 3.5 times the demand in 2025.
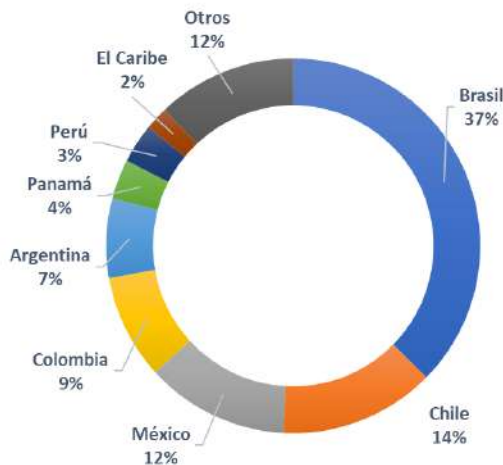
The implications are clear for key markets in Latin America. Brazil is currently the largest data center market in the region, while Chile, Colombia, and Mexico are also considered important expansion destinations.

"By 2032, demand from data centers in Chile could reach 2,360 MW — nearly eight times today's levels. Reliability and planning will be decisive if we are to meet that demand without compromising the grid."
— Juan Carlos Olmedo, President, Coordinador Eléctrico Nacional (CEN), Chile

Distribution of Data Centers in Latin America and the Caribbean

Overall, these markets offer significant renewable energy potential and energy supply that could facilitate and support data center expansion with sustainable solutions, but there are other aspects that must be considered. For example, infrastructure challenges, concerns about water use and overall environmental sustainability, as well as legal and regulatory issues.

Fuente: https://ipsnoticias.net/2025/04/los-centros-de-datos-son-otro-desafio-para-america-latina/

Discussions in Santiago, came at a pivotal moment for Latin America's digital and energy landscape. As regional demand for computing and storage accelerates, data centers have become both a symbol of opportunity and a flashpoint of concern. The sessions underscored that the success of this sector hinges on achieving abundant, reliable, affordable, and resilient energy while balancing

environmental impacts, regulatory frameworks, and social acceptance.

Strategic Imperatives

The dialogue highlighted the growing intersection of Latin America's digital infrastructure expansion and the urgent need to align with clean, reliable energy systems. Speakers underscored that data centers are simultaneously an engine of economic growth and a new source of pressure on fragile electricity grids and water resources. But at the same time, they should not be viewed as overly mythical and instead as another economic segment, such as mining, that energy companies, investors and policymakers have managed for decades.

Chile was repeatedly presented as a logical if not natural hub for sustainable data infrastructure, given its renewable energy resources, robust connectivity, and pro-investment environment. Yet, concerns over transmission bottlenecks, regulatory delays, and water use in cooling emerged as recurring challenges. Regionally, participants emphasized that Latin America's competitive advantage lies in its renewable resource base — but this must be harnessed with clearer rules, cross-border cooperation, and innovative financing models.

Four critical themes emerged. First, grid reliability and efficiency must evolve in tandem with data center expansion, requiring new standards, storage integration, and trust-building with communities. Second, investment models are shifting rapidly toward larger, more complex projects, highlighting the urgency of regulatory stability, affordable land, and transparent permitting. Third, regional collaboration is essential to position Latin America as both a hub for digital services and a leader in renewable-powered infrastructure. Fourth, relatively inexpensive energy costs—in particular Chile's renewable energy sector offering 50 USD/MWh compared to more than 100 USD/MWh in the United States—position the region well for increased investment in this space.

Reliability and Grid Integration

Data centers represent an opportunity for electricity systems with their potential to enhance resilience, drive storage deployment, and enable greater digital efficiency. Both Chilean and Peruvian system operators emphasized that reliability and planning are critical to building out sufficient transmission investments, flexible generation, and robust operational protocols. Advanced technologies in battery storage and grid management solutions can help absorb the high demand from data centers.

There was consensus that Latin America can adopt cutting-edge reliability solutions from the outset, rather than retrofitting later. The debate focused on environmental impacts such as land use, water consumption, and greenhouse gas emissions, alongside the broader challenge of who ultimately bears the cost of reliability—producers, consumers, or beneficiaries.

Speakers agreed that storage is indispensable, best pursued through systemic and public models that serve the grid beyond individual facilities. Chile's system operator stressed the need for regulatory readiness, including updating planning methodologies to account for the constant 24/7 load profile of digital infrastructure. Multiple presenters pointed to the importance of efficiency metrics for data centers in national grid planning.

Investment Models and Market Dynamics

Industry representatives outlined the rapid evolution of data center investment. What began as small colocation projects has scaled into 100-hectare-plus developments requiring unprecedented capital. Chile's regulatory stability, strong connectivity, and infrastructure are competitive advantages, yet barriers remain: latency, expensive land transactions, and complex permitting. Forecasts suggest the combined energy and data sector could reach $5 trillion globally by 2030, with Latin America positioned to capture $50–100 billion.

The rapid evolution of new technologies, financing, and private-public trust remain critical risks, while global players such as Google and Amazon test new outsourced project structures. Data centers require long-term certainty in electricity supply, land use approvals, and permitting to unlock project financing. A cross-cutting challenge emerged that highlighted the importance of clear environmental regulations and permitting decisions as data centers require specialized sites with proximity to transmission networks, access to cooling water, and reliable urban infrastructure. Increasingly, these demands have also made community engagement not only a significant challenge but an essential requirement.

Permitting delays present one of the biggest barriers to financing. Fast-track approvals for "green" data centers in the region should be accelerated. Harmonizing the sometimes-fragmented regulatory frameworks across the region will help simplify grid codes, energy contracting rules, and permitting frameworks. While projects are already linking solar and wind with hyperscale clients throughout the region, financing will continue to depend heavily on multilateral banks and climate funds supporting early-stage projects.

Demand, Regulation, and Social Perceptions

From the demand side, Chile stands out as a regional contender thanks to submarine cable access and clean energy potential, though energy costs remain a challenge compared to Brazil and Mexico. But as noted previously, community engagement is crucial as misinformation continues to cloud public perception, underscoring the need for outreach on data centers' environmental performance. Panelists noted that within five years installed capacity could double to 600 MW, with hyperscale demand driving growth. Yet regulatory bottlenecks, slow permitting, and restrictive AI legislation threaten competitiveness unless reforms accelerate.

Chile's rapid growth in data centers is built on operational efficiency, competitive pricing, and renewable energy sourcing. Tension around land use and community acceptance in metropolitan areas has accompanied this growth. A focus on community outreach and communication is needed to explain what data centers are and how they impact our lives as well as how software optimization can cut cooling requirements and server energy waste, improving both efficiency and sustainability. Projects must not only have access to reliable grid connections and stable water resources but also be aligned with community and environmental standards.

Supply-Side and Sustainability Challenges

Public officials emphasized that technological change is outpacing regulation, calling for faster, more coherent permitting and oversight frameworks. With data center capacity expected to double by 2030, Chile must guarantee reliable and sustainable energy while embedding environmental safeguards. Recent regulatory advances were noted, including a 2021 framework for data center operations. Positioning Chile as a "green digital leader" was highlighted as a strategic vision, combining digital infrastructure growth with environmental sustainability.

Data centers are pushing renewable developers to rethink contracting structures and develop hybrid solar–wind projects to provide a more balanced load profile. Many Latin American markets lack clear mechanisms for bilateral contracting, limiting the ability of renewable developers to serve high-demand clients like hyperscalers.

"Data centers are not just a technological trend; they are one of the five megatrends shaping the energy transition. The key is ensuring that digital growth is aligned with sustainability and with people at the center."
— Trinidad Castro, Executive Director, World Energy Council Chile

While the region's explosive growth in data centers is reliant on flexible power purchase agreements often benefiting from the support of green tariffs accounting for decreased carbon emissions, the Santiago metropolitan area is exploring gas-to-power and flexible generation options to complement renewable supply to provide firm, dispatchable capacity. On water use, Peru's system operator underscored that with drought cycles intensifying, water use for cooling systems is facing increased scrutiny. Sustainable cooling solutions need to be further developed such as seawater use, direct air cooling, and recycled water systems to reduce conflicts with local communities. Efficiency improvements on the demand side are not enough if infrastructure and water challenges are not addressed holistically. Integrated planning between municipalities, utilities, and developers must ensure that siting decisions consider long-term environmental sustainability.

"By 2035, data centers could consume as much as 5% of the region's electricity. That's both a challenge and an opportunity — if we channel that demand into renewables, we turn a risk into a driver of decarbonization."
— Fitzgerald Cantero Piali, Director of Studies, Projects & Information, OLADE

Conclusion

Discussions throughout the day revealed both enthusiasm and urgency: data centers can transform Latin America into a digital and renewable powerhouse, but only if regulatory clarity, infrastructure investment, and social acceptance keep pace. Success depends on coordinated public-private action, rapid development of storage and transmission capacity, and outreach to build community trust. The stakes are clear: the region has a window of opportunity to leverage its renewable energy advantage and real estate potential to secure a leading role in the global digital economy.

The dialogue's participants emphasized how Chile's National Data Center Plan (2024) must be implemented in tandem with permitting reforms, clear regulatory frameworks, and sustainability standards. Chile has a unique opportunity to become a regional hub for green digital infrastructure, if grid reliability, renewable procurement, and water sustainability are addressed comprehensively.

Key Recommendations

- **Develop Regional Roadmaps**: Align digital infrastructure planning with national decarbonization goals and grid expansion strategies across Chile, Peru, and Colombia.

- **Streamline Permitting & Regulation**: Accelerate approvals for renewable-powered data centers while enforcing stricter standards on water use and efficiency.

- **Innovative Procurement Models**: Scale power purchase agreements (PPAs), green tariffs, and energy storage solutions to match 24/7 data demand.

- **Prioritize Transmission & Reliability**: Invest in grid infrastructure and cross-border interconnection to reduce bottlenecks and ensure resilience.

- **Community Engagement and Education**: To enhance public trust and support for data center development, create a proactive public engagement and education strategy to include transparent communication about environmental impacts, energy use, and local benefits, as well as community forums and partnerships with educational institutions to raise awareness about the role of data centers in the digital economy.

- **Public-Private Collaboration**: Leverage the convening role of institutions like the Institute of the Americas, World Energy Council and academic institutions to broker partnerships between governments, utilities, and hyperscale operators.

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The Energy & Sustainability program has played a crucial thought-leadership role in shaping policy discourse and informing policymakers and investors on the most important trends in the energy sector. We focus on matters related to energy development, investment, natural resource use, and energy transformation in the Americas.

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