

NEWS

STATISTICAL DATA

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HYDROPOWER: KEY TO FLEXIBILITY AND ENERGY Security in Latin America and the Caribbean



Latin America and the Caribbean, a region blessed with vast hydroelectric potential, faces the challenge of leading the transition toward cleaner, more sustainable, and resilient power systems. In this context, hydropower stands out as an essential pillar to ensure the flexibility and stability required in a rapidly evolving energy matrix one increasingly shaped by intermittent renewable sources such as solar and wind.

The ability of hydropower plants to act as system regulators storing energy and quickly responding to fluctuations in generation and demand is fundamental to guaranteeing the reliability of electricity supply. Moreover, their storage and dispatch capabilities make them the perfect complement for integrating renewable sources, enabling these to reach their full potential without compromising system stability.

The global energy transition requires not only an increase in installed renewable capacity but also the deployment of solutions that ensure long-term stability. Hydropower, with its unique flexibility and sustainability attributes, emerges as the most efficient and mature solution to address these challenges.

It is crucial that governments, international organizations, and private sector actors work together to fully leverage this strategic resource by adopting sustainable and inclusive approaches that overcome social, environmental, and regulatory barriers. The main challenges include the need to modernize an aging hydroelectric fleet and the urgency of implementing policies that recognize and compensate the flexibility services these plants provide.

Latin America and the Caribbean now have a historic opportunity to position themselves as leaders in the global energy transition building a cleaner, safer, and more prosperous energy future for generations to come.

Angela Livinio – OLADE Consultant

TARIFF INCREASE IN THE UNITED STATES POTENTIAL IMPACT ON ENERGY TRADE BETWEEN LATIN AMERICA AND THE CARIBBEAN AND THE U.S.



A study by the Latin American Energy Organization (OLADE) highlights the growth in energy trade between Latin America-Caribbean and the U.S. in recent years.

A 10% increase in U.S. tariffs would have a commercial impact equivalent to 0.08% of its GDP.

The OLADE study reveals that energy exports between Latin America and the Caribbean (LAC) and the United States (U.S.) have experienced unprecedented growth, reaching 146.587 billion dollars in 2023, more than double the 68.031 billion reported in 2020.

Moreover, the analysis indicates that the U.S. maintains a trade surplus in energy with LAC, with exports at least twice as high as its imports from the region.

The trade structure shows that 80% of U.S. exports to LAC consist of oil and oil products, and just under 20% is natural gas, while almost all of LAC's sales to the U.S. are oil.

Of LAC's total exports to the U.S., nearly 10% are energy products. In contrast, 20% of U.S. exports to LAC are energy products.

Among the strategies suggested to address this situation are the diversification of markets, particularly toward Europe and Asia, as well as the strengthening of regional integration projects. The study also emphasizes the need to move towards more sustainable and self-sufficient energy matrices, which would increase the region's resilience to potential external crises.

The OLADE study highlights the importance of establishing preventive and diversification policies that safeguard the energy and economic interests of Latin America and the Caribbean in light of changes in U.S. trade policies.

To review the full document, please visit: <u>https://www.olade.org/publicaciones/dto-2025-010-comercio-de-energia-america-latina-caribe-y-estados-unidos-efectos-alza-aranceles-ee-uu/</u>



ADELAT, OLADE, AND IDB LEAD A KNOWLEDGE-SHARING SPACE ON ELECTRICITY LOSSES IN LAC

The Latin American Association of Electric Power Distributors (ADELAT), the Latin American Energy Organization (OLADE), and the Inter-American Development Bank (IDB) successfully held the webinar "Electricity Distribution Losses in Latin America and the Caribbean: Diagnosis and Best Practices."

The event served as a valuable platform for analysis and exchange on this issue, bringing together key stakeholders from the electricity sector, regulators, and distribution companies. Discussions focused on the causes, impacts, and mitigation strategies of electricity losses, based on the IDB's study "The Economics of Electricity Losses in Latin America and the Caribbean."

The opening remarks were delivered by Fitzgerald Cantero Piali, Director of Studies, Projects, and Information at OLADE, who emphasized the need to approach this challenge holistically: "It is important to understand electricity losses not only from a technical perspective but also from economic and social dimensions." He added, "This space aims to put the issue on the table, share diagnostics and best practices, and build a menu of solutions."

OLADE's Executive Secretary, Andrés Rebolledo, noted that "electricity losses amount to 15% of the annual supply in Latin America and the Caribbean — a figure equivalent to the region's total current wind and solar energy production." He also proposed establishing a "regional goal" as a "political driver" to mobilize regulatory and technical reforms.

Representing ADELAT, Executive President Alessandra Amaral highlighted the importance of regional cooperation. "Losses deprive us of essential resources for the energy transition," she stated, adding: "We need to unite knowledge and best practices to overcome them and secure a sustainable energy future."

The event continued with a special presentation by IDB experts Rigoberto Ariel Yepez-Garcia and Raúl Jiménez Mori. They explained that reducing electricity losses requires a stable political environment to ensure long-term continuity and support; effective communication about the economic, social, and service-quality benefits; aligned incentives to improve efficiency and cost recovery; and strategic planning with the incorporation of modern technologies.

Later, Rodrigo Palma, professor at the SEDA Center – University of Chile, moderated the panel "Experiences in Reducing and Controlling Electricity Losses," featuring:

- Giovanni Salazar and Jaime Mercar Chonay from the Inspection, Losses, and Metering Department of EEGSA EPM Guatemala.
- Manuel Antonio Barboza Chacón, Loss Management Coordinator at ICE Electricidad (Costa Rica).
- Germán Noez, Market Discipline Manager at Edenor (Argentina).
- Aldo Pessanha, Chairman of ADELAT and Director of Generation and Strategy at Enel Brazil.
- Ariel Ramírez from the Central American Institute of Public Administration.

The EEGSA – EPM Guatemala team presented their "Energizados" project, which uses artificial intelligence to predict electricity fraud. Key benefits included: comprehensive customer analysis, optimized inspection processes, automated fraud evaluation, automatic reporting, streamlined decision-making, equipment fault detection, and model scalability.

Barboza Chacón reviewed ICE Costa Rica's loss reduction efforts: "In 2024, our company had 8.05% losses, representing around 64 million dollars." He noted that "many actors are involved along the value chain," and emphasized ongoing work through technology upgrades and migration to more efficient meters.

Noez highlighted Edenor's initiative launched in 2019 to install self-managed meters, now used by approximately 246,000 customers. He stressed that this effort led to a "progressive reduction in energy losses" and helped "build loyalty among previously inactive or informal customers."

Finally, Aldo Pessanha outlined Enel Brazil's strategies to combat electricity theft in Rio de Janeiro. Actions implemented in 2024 included field inspections, network cleanup projects in high-recurrence areas, regularization of illegal connections, the BT Zero project, customer shielding with smart metering, and integrated management of critical areas, coordinated with the police and supported by initiatives to promote responsible energy consumption.

Electricity losses remain one of the main challenges for the region, impacting efficiency, sustainability, and service quality. Through inter-institutional collaboration, Latin America and the Caribbean can move toward a more resilient power system committed to a sustainable energy future.

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OLADE HIGHLIGHTS THE IMPORTANCE OF STRENGTHENING ENERGY INTEGRATION IN LAC IN WASHINGTON



Mijal Brady, Chief of Staff of the Latin American Energy Organization (OLADE), participated in the 8th Annual Latin America Energy Conference, organized by the Inter-American Dialogue in Washington, D.C., where she analyzed the evolution of the energy landscape in the region within the context of global geopolitical shifts.

During her intervention, Brady emphasized that regional cooperation, diversification of suppliers, and strengthening of domestic industrial development are essential factors for Latin America and the Caribbean to sustain progress despite the current uncertainties in global trade.

In 2024, 69% of the electricity generated in the region came from renewable sources, with Brazil, Chile, and Costa Rica leading the way. However, Brady pointed out that this growth also presents challenges, such as the curtailment recorded in Chile, which reached 5.9 TWh, and the region's high dependency—95%—on solar panels imported from China.

The OLADE representative stressed that greater energy integration would not only optimize resources but also generate economic and environmental benefits: over USD 23 billion in savings and the reduction of 700 million tons of CO_2 emissions by 2030.

Finally, Brady highlighted successful experiences such as the Central American electricity market and called for increased efforts in other subregions to consolidate an efficient, resilient, and sustainable energy transition.

OLADE AT THE EKOS SUSTAINABILITY SUMMIT 2025



In the context of the Ekos Sustainability Summit 2025, organized by Revista Ekos in Quito, the Executive Secretary of the Latin American Energy Organization (OLADE), Andrés Rebolledo, shared a strategic and forward-looking vision for the region's energy future.

During his presentation, Rebolledo emphasized that green energy represents a unique opportunity to advance sustainable development, attract responsible investment, and strengthen regional equity. He highlighted that in 2024 alone, the region installed 25 GW of new renewable capacity—16 GW from solar energy and 7 GW from wind consolidating Latin America's leadership in clean energy generation worldwide.

"Energy transition is no longer a promise; it is a reality in progress," he affirmed. He pointed out that key sectors such as mobility, heating, industrial production, and air conditioning are being rapidly electrified, forming a critical pillar of the decarbonization process. "If we want more electric mobility, we must first ensure supply—and ensure it is clean," he stressed.

In a challenging economic context—with an average regional growth of 0.9% over the past decade—electricity demand rose by 1.7%, signaling a structural transformation underway. "Electrification is advancing in Latin America and the Caribbean faster than economic growth itself," Rebolledo stated.

He also underscored the diversity of institutional models across the region's energy sector, citing Ecuador's mix of public and private participation as an example of a hybrid model that opens new strategic opportunities for investment and cooperation.

Lastly, he addressed the role of emerging technologies such as offshore wind energy—with significant developments in Colombia and Brazil—and next-generation nuclear energy, which is smaller, safer, and already being explored by countries like Ecuador.

"Energy transformation responds not only to climate commitments but also to a need for competitiveness. Markets are demanding goods and services produced with clean energy. That makes us stronger and more attractive," he concluded.

With this participation, OLADE reaffirms its commitment to advancing energy policies that ensure fair, inclusive, and sustainable development for Latin America and the Caribbean.

OLADE LAUNCHES 2025 ENERGY EXCELLENCE AWARD CALL WITH NEW EDUCATION CATEGORY



iDESTACAR EL LIDERAZGO EN ENERGÍA ES POSIBLE!

Convocatoria abierta al **Premio OLADE** a la Excelencia Energética 2025.

The Latin American Energy Organization (OLADE) has opened the call for the second edition of the OLADE Energy Excellence Award, a regional recognition that highlights the most outstanding projects in the energy sector across Latin America and the Caribbean.

The award seeks to spotlight and honor institutions, communities, organizations, and companies that promote the rational and sustainable use of energy resources in the Organization's Member Countries. In its 2024 edition, held during the IX Energy Week in Asunción, Paraguay, OLADE received 71 applications from across the region and awarded 28 projects of various scales and sectors, both public and private. These projects were recognized for their positive impact on energy efficiency, decarbonization processes, and the use of renewable energy sources.

For 2025, the organization has included a new category focused on education, aiming to recognize initiatives that foster technical training, knowledge transfer, and energy awareness in the region.

The 2025 application categories are:

- Energy Efficiency
- Decarbonization
- Renewable Energy
- Education
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The call is open to all actors in the regional energy community, including public or private organizations, large or small, academic or community-based. Applications will be accepted until July 27, 2025, and must be submitted via email to: premio.excelenciaenergetica@olade.org.

Applying for the OLADE Energy Excellence Award offers a unique opportunity to gain regional recognition, share best practices, and actively contribute to the sustainable development of the energy sector in Latin America and the Caribbean.

Applicants may download the guidelines, forms, and informational material at the following link:

OLADE PARTICIPATES IN NATURGAS 2025, HIGHLIGHTING THE ROLE OF NATURAL GAS AND METHANE IN THE REGIONAL ENERGY TRANSITION



The city of Barranquilla hosted the Naturgas 2025 Congress, organized by the Colombian Natural Gas Association (Naturgas). The event brought together sector leaders, government authorities, investors, and international experts in a key space for dialogue on the present and future of natural gas as an integral component of the energy transition.

Representing the Latin American Energy Organization (OLADE), María Alejandra Garzón Sánchez, Technical Consultant, took part in the Technical Conference on Methane Emissions, where she highlighted the challenges faced by countries in the region when incorporating methane emissions into national inventories for the hydrocarbons sector. "The Biennial Transparency Reports reveal the challenges in incorporating methane emissions into national inventories for the hydrocarbons for the oil and gas sector. Coordinated institutional and sectoral efforts are key to continuous improvement," she stated.

In this context, OLADE announced the upcoming launch of the Community of Practice on Methane (COEMLAC)—an initiative designed to boost the technical knowledge ecosystem and promote effective emission mitigation solutions in Latin America and the Caribbean.

Additionally, Esteban Kiper, OLADE's expert in natural gas, participated in panels on energy investments in the region, emphasizing that the boom in renewables and the expansion of the oil & gas sector have positioned Latin America and the Caribbean as a key player in global energy security.

"The region has diversified its energy matrix and strengthened its strategic role thanks to its vast resource potential. However, the saturation of transmission systems and ongoing social and environmental challenges require new strategies to further expand sustainable investments," he noted.

Kiper also warned that uncertainty surrounding the energy transition is impacting the expansion of gas infrastructure such as pipelines. In contrast, success stories like Vaca Muerta in Argentina and the rapid oil development in Brazil demonstrate that a clear, defined, and consensual strategy is essential to attract sustainable investment.

OLADE's representatives concluded with a call to governments, the private sector, and civil society to collectively build a horizon of trust, based on strong regulatory frameworks, ongoing dialogue, and technical cooperation that will enable natural gas and renewable gases to serve as key vectors for an orderly, fair, and sustainable energy transition across the region.

OLADE REAFFIRMS ITS COMMITMENT TO REGIONAL ENERGY INTEGRATION AT THE IX CELAC SUMMIT



As part of the IX Summit of Heads of State and Government of the Community of Latin American and Caribbean States (CELAC), held on April 8 and 9 in Honduras, the Latin American Energy Organization (OLADE) had an active presence, reaffirming its commitment to regional energy integration as a key pillar for sustainable, sovereign, and equitable development in Latin America and the Caribbean.

During his address at the Summit, OLADE's Executive Secretary, Andrés Rebolledo, stated: "There will be no successful global energy transitions without the contribution of Latin America and the Caribbean. We are, as they say, a solution region." He also emphasized that in 2024, 70% of the region's electricity came from renewable sources, although the full potential of solar, wind, and hydro resources remains largely untapped.

Rebolledo outlined a roadmap to advance effective energy integration, based on:

- Regulatory convergence, to maximize the use of existing infrastructure.
- Overcoming bottlenecks that hinder regional interconnection.
- Coordinated and long-term energy planning, with a forward-looking vision to build a true regional energy market.

He also announced that in 2025, OLADE will convene a Diplomatic Conference to promote bilateral, plurilateral, and multilateral agreements in the energy sector, further strengthening cooperation among the energy systems of member countries.

In parallel, at the 2nd International Forum on Integration and Solidarity, held during the Summit, Guido Maiulini, OLADE's Head of Strategic Advisory, participated in the panel "Strategies for Strengthening and Articulating CELAC's Regional Framework." In his remarks, he highlighted three fundamental pillars for energy integration in the region:

- 1. Regulatory convergence: harmonizing legal and regulatory frameworks to facilitate regional energy exchange.
- 2. New infrastructure: driving investments that connect systems and leverage complementarities.
- 3. Coordinated energy planning: developing shared visions to guide the energy transition and enhance regional resilience.

The IX CELAC Summit, chaired by Honduras as Pro Tempore Presidency, aimed to adopt the Tegucigalpa Declaration, a key document outlining the future direction of regional policy and integration.

At the end of the Summit, Honduras officially handed over the Pro Tempore Presidency to the President of Colombia, Gustavo Petro, marking a new chapter in regional integration efforts.

From OLADE, we reaffirm our commitment to building a fairer, more sustainable, and interconnected energy future for Latin America and the Caribbean.

ELECTRICITY GENERATION IN LATIN AMERICA AND THE CARIBBEAN INCREASED BY 5.5% IN 2024



The region is advancing in its energy transition, reaching 69% renewability, led by hydropower and solar energy.

The Latin American Energy Organization (OLADE) presents its new Electricity Generation Report in Latin America and the Caribbean (LAC), offering a detailed analysis of the behavior of the electrical system in the region. The report includes data on electricity generation, the share of different energy sources, as well as year-on-year, monthly, and seasonal comparisons.

This edition includes not only data for December 2024, but also a comprehensive analysis of electricity generation throughout the entire year.

In 2024, Latin America and the Caribbean recorded a 5.5% increase in electricity generation, driven mainly by the expansion of wind and solar photovoltaic power plants, as well as a greater share of natural gas in the regional electricity mix.

Breakdown of electricity generation by source in 2024:

- Hydropower: 45%
- Natural gas: 25%
- Wind: 12%
- Solar: 7%
- Bioenergy: 4%
- Coal: 2%
- Nuclear: 2%
- Oil derivatives: 2%
- Geothermal: 1%

Thanks to this diversification, the renewability index — which measures the share of electricity generated from renewable sources — reached a remarkable 69%.

Monthly trends show seasonal patterns:

- August 2023: generation peak of 151 TWh
- May 2024: annual peak generation with 159 TWh
- December 2024: 149 TWh, representing a 1.3% year-on-year increase compared to the same month in 2023

In December 2024, hydropower led with 46% of the generation mix, and total renewable generation reached 109 TWh. The report highlights that around ten countries in the region surpassed 75% renewability, while significant reductions in the use of non-renewable sources were observed:

- Oil derivatives: -62%
- Coal: -49%

This progress reaffirms the region's commitment to sustainability and energy security, positioning Latin America and the Caribbean as a global leader in the transition to a cleaner and more resilient electricity system.

Download the report at the following link: <u>https://www.olade.org/publicaciones/reporte-de-generacion-electrica-en-america-latina-y-el-caribe/</u>

ARTIFICIAL INTELLIGENCE WILL CONSUME 5% OF ELECTRICITY IN LATIN AMERICA AND THE CARIBBEAN BY 2035



Artificial intelligence (AI) will account for 5% of total electricity consumption in Latin America and the Caribbean (LAC) by 2035, according to a technical document prepared by the Latin American Energy Organization (OLADE). This figure—equivalent to over 120 terawatt-hours (TWh) annually—shows the significant energy impact that the rapid development of this technology will have on the region.

Currently, there are 455 data processing centers for AI applications in LAC. Based on an average consumption of 50 gigawatt-hours (GWh) per center per year—extrapolated from the 7,000 centers worldwide with a total consumption of 350 TWh—it is estimated that in 2023 these facilities already accounted for 1.6% of the region's electricity consumption.

A 165% increase in the number of data centers worldwide is projected between 2023 and 2030, representing an average annual growth rate of 15%. At this same rate of expansion, the region will face an unprecedented energy demand related to the operation of AI servers, particularly in critical areas such as algorithm training, query execution, and the complex cooling systems required to maintain operations.

OLADE's Executive Secretary, Andrés Rebolledo, stated that "the digital transformation of our productive systems must go hand in hand with responsible and sustainable energy planning, as Al could compete for energy resources with priority sectors such as residential, industrial, or transportation."

With the exponential growth of data and the expansion of generative artificial intelligence, it is important for countries in the region to strengthen their regulatory frameworks, improve the energy efficiency of their data centers, and continue to invest in renewable energy sources to mitigate the environmental impact of technological advancement.

ENERGY PRICES CONTINUE TO RISE IN LATIN AMERICA AND THE CARBBEAN



The Latin American Energy Organization (OLADE) has published its Energy Inflation Indicator for Latin America and the Caribbean (IE-LAC) for the month of February 2025. This report offers a detailed analysis of energy trends in the region, which is crucial to understand the behavior of energy markets and their impact on the economy and sustainability of Latin American and Caribbean countries.

Monthly energy inflation increased 3.3 times, from 0.26% in January 2025 to 0.86% in February of the same year. Despite the 5.3% drop in oil prices compared to January, this decrease has not resulted in lower fuel prices in the region. It should be noted that the price of oil explains approximately 60% of the variation in this index. That is, this month, it is the electricity rates for the industrial and residential sectors that primarily explain the rise in the index, as a result of the reduction of subsidies in several countries in Latin America and the Caribbean.



Source: OLADE, own elaboration based on the information published in the Institutes of Statistics and Censuses and Central Banks (INEC) of the OLADE Member Countries.

In February 2025, annual energy inflation in Latin America and the Caribbean reached 3.16% compared to February 2024. Although it is one of the highest figures in the last four months, it remained below total inflation, which was 4.10%.



Source: OLADE, own elaboration based on the information published in the Institutes of Statistics and Censuses and Central Banks (INEC) of the OLADE Member Countries.

In February 2025, year-on-year energy inflation in OECD countries fell to 3.62%, after having registered 4.0% in January. On the other hand, Latin America and the Caribbean have shown an increase in energy inflation over the last four months, reaching 3.16% in February 2025, although still below the average of OECD countries.



Source: OLADE, own elaboration based on the information published in the Institutes of Statistics and Censuses and Central Banks of the OLADE Member Countries and information published by OECD.

ELECTRICITY LOSSES IN LATIN AMERICA AND THE CAREBEAN

Since electricity generated at power plants must be transported to consumption centers through electric conductors—passing through various devices such as voltage transformers, circuit breakers, capacitors, and more—some energy dissipation is inevitable at each stage. These losses, known as technical losses, are caused primarily by the transformation and transmission processes, including heat dissipation. While they cannot be completely eliminated, optimal design of transmission and distribution systems can significantly reduce them.

However, there is another type of loss related to unregistered consumption, often associated with energy theft, such as illegal connections to the distribution grid or meter tampering. These are referred to as non-technical losses, and they create a gap between the amount of electricity distributed and the amount actually billed to users.

Both types of losses represent economic losses for the entire electricity supply system. However, unlike technical losses—which are unavoidable but reducible—non-technical losses should not exist in an ideal system with full traceability of electricity flow.

An analysis of total electricity losses (technical + non-technical) over the last 23 years in Latin America and the Caribbean reveals that, on average, these losses account for 15.2% of total annual electricity supply, almost double the average loss rate observed in OECD countries. This gap is mainly due to the high levels of non-technical losses recorded in the region. However, loss rates vary widely across LAC countries, as illustrated in the following figure.



Porcentaje promedio de pérdidas eléctricas, en el período 2000-2023

Source: OLADE, own elaboration based on data from the Latin America and Caribbean Energy Information System – sieLAC,<u>https://sielac.olade.org/</u>

In 2023, electricity losses in the Latin America and Caribbean (LAC) region reached 234 TWh, a value roughly equivalent to the total generation from wind and solar power plants that year.

To reduce technical losses, several mechanisms have been implemented across the region. These include the modernization of grid components through the use of high-efficiency materials and equipment, as well as the promotion of distributed generation systems.

In parallel, efforts to reduce or eliminate non-technical losses have involved the enactment of laws penalizing energy theft and the enhancement of monitoring and control systems within distribution companies.

As a result, over the past 14 years, the region has shown a clear downward trend in the total percentage of electricity losses.



Source: OLADE, own elaboration based on data from the Latin America and Caribbean Energy Information System – sieLAC, <u>https://sielac.olade.org/</u>