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TURNING WASTE INTO ENERGY: A STRATEGIC DECISION FOR LATIN AMERICA AND THE CARIBBEAN



EDITORIAL

Latin America and the Caribbean (LAC) face a paradox that presents real opportunities. As the region moves toward renewable energy sources, millions of tons of solid waste from our cities are being sent to landfills every day, posing a significant threat to the environment, public health, and the climate.

What was considered for decades a basic municipal management problem is now being recognized as a strategic opportunity to improve energy security, reduce emissions, and accelerate the transition toward a circular economy. More than 541,000 tons of waste are generated every day, a figure that continues to rise alongside urbanization and changing consumption patterns.

A significant share of this waste ends up in landfills, where methane is produced — a greenhouse gas with

a much higher warming potential than carbon dioxide. Yet this gas, if properly captured and used, can become a crucial local source of energy. In this context, recovering energy from waste, known as Waste-to-Energy, is emerging as a cornerstone of the regional energy transition effort. It does not aim to replace solar, wind, or hydropower, but rather to complement them as a solution that addresses both environmental and energy challenges in a practical way by generating reliable power, reducing emissions, and strengthening electricity systems. In LAC, where waste streams contain a high organic fraction (often over 50%), anaerobic digestion is a highly viable technology.

This technology enables the processing of food waste, sludge, manure, and agro-industrial effluents to produce biogas and biomethane through applications that are less complex and less costly than other thermal treatment options. Adaptable to different scales and environments, it is an essential tool for medium-sized cities and resource-constrained areas, serving as an early enabler for climate mitigation by reducing high methane emissions to the atmosphere. Likewise, direct waste combustion is becoming increasingly relevant, particularly in urban areas under pressure from limited disposal space, due to its ability to significantly reduce waste volumes while providing heat or electricity linked to landfill operations.

In the Caribbean, this opportunity is especially urgent. Many island states face small electricity markets, high dependence on imported fossil fuels, and severe land constraints that make waste disposal a critical territorial challenge.

The concept is not theoretical, nor is its feasibility in our region. Several operational projects are already demonstrating environmental and energy benefits by transforming landfills into sources of power. These experiences show a clear pathway through which waste can shift from being an environmental liability to becoming a strategic energy asset.

In this sense, energy recovery is not merely a technological solution, but a fundamental factor in achieving energy security and climate resilience by relieving pressure on landfills, reducing energy imports, and promoting greater autonomy in national energy systems.

OLACDE HIGHLIGHTS REGIONAL ENERGY LEADERSHIP AT THE LAC 2026 INTERNATIONAL ECONOMIC FORUM



OLACDE participated in the 2026 International Economic Forum of Latin America and the Caribbean, held in Panama, an event that brought together more than 4,000 global experts and featured the participation of Heads of State and Government, ministers, business leaders, representatives of international organizations, and academic leaders. The forum gathered more than 6,000 registered participants from 70 countries to discuss the main challenges and opportunities for regional development. Within this context, OLACDE's Executive Secretary, Andrés Rebolledo Smitmans, took part in the panel "Clean Energy and Energy Transition," where he highlighted that Latin America and the Caribbean is currently the greenest region in the world, with a renewable energy matrix that reached 69% in 2025 and is projected to reach 78% by 2050.

During his remarks, Rebolledo emphasized that the region is advancing through diverse energy transitions, characterized by different paces, technologies, and regulatory requirements. He also underscored the challenges associated with the increasing penetration of variable renewable energy sources, the growing need for energy storage, and the modernization and sophistication of power systems.

He further highlighted the strategic role of regional energy integration, based on complementarities among countries and opportunities for joint planning, as a key factor in enhancing competitiveness and strengthening energy security. "Latin America and the Caribbean is currently the greenest region in the world. Our challenge is to transform this leadership into integration, investment, and flexible regulations that enable diverse and socially legitimate energy transitions," stated OLACDE Executive Secretary.

In the framework of the 2026 International Economic Forum of Latin America and the Caribbean, Andrés Rebolledo Smitmans also carried out an extensive agenda of bilateral meetings aimed at strengthening regional cooperation and promoting sustainable, inclusive, and resilient energy transitions.

During the meeting with Panama's Vice Minister for Multilateral Affairs and Cooperation, Carlos Guevara Mann, views were exchanged on the country's progress in energy transition, regional integration, and multilateral cooperation, highlighting Panama's strategic role as a regional hub and platform for energy integration initiatives.

Likewise, in the meeting with Dalila Gonçalves, Regional Director of UNOPS for Latin America and the Caribbean, opportunities were analyzed to expand technical cooperation in the design and implementation of energy projects aligned with international standards. The dialogue placed special emphasis on the development of resilient infrastructure, efficient resource management, and the strengthening of institutional capacities as key elements to accelerate the energy transition in the region. In discussions with Dr. Muhammad Ibrahim Muhammad Ibrahim, Director General of the Inter-American Institute for Cooperation on Agriculture (IICA), the close link between energy, food security, and rural development was highlighted. In this context, synergies were identified to promote sustainable energy solutions in agricultural territories, fostering productivity, inclusion, and resilience in rural communities.

Finally, OLACDE's Executive Secretary held a meeting with the President of the Latin American and Caribbean Parliament (PARLATINO), Congressman Rolando González Patricio, with the aim of advancing toward a strategic alliance to promote a shared agenda in support of just energy transitions, with a social, territorial, and long-term approach for Latin America and the Caribbean.

OLACDE PARTICIPATES IN THE OFFICIAL PRESENTATION OF EXPO ENERGÍA AND ENERGY SUMMIT ECUADOR 2026



On January 21, 2026, the official presentation of Expo Energía and Energy Summit 2026 took place at the Marriott Hotel in Quito. The event marked the launch of a platform designed to bring together a business expo, a conference forum, and strategic networking opportunities focused on the energy transition and energy efficiency in Ecuador and across Latin America and the Caribbean.

The event gathered representatives from international organizations, the diplomatic corps, the public sector, private companies, the financial sector, and leaders from the energy industry. Their participation highlighted the strong interest in and support for a specialized fair aimed at connecting technology providers, investment, knowledge, and decision-making within a single space. The presentation offered a preview of the scope and objectives of an event that seeks to make a tangible contribution to the development of the energy sector.

The session of keynote remarks featured Andrés Rebolledo, Executive Secretary of the Latin American and Caribbean Energy Organization (OLACDE), who provided a regional perspective on the structural challenges of the energy transition in Latin America and the Caribbean. During his remarks, he emphasized the importance of platforms that facilitate dialogue among public policy, investment, and technological development.

Rebolledo noted that while electrification is a fundamental pillar of the energy transition, it currently represents around 20% of total energy demand. This underscores the need to accelerate decarbonization in the remaining 80% through complementary and diversified solutions. He also highlighted the sustained progress of renewable energy in the region: over the past decade, Latin America and the Caribbean have increased the share of clean electricity generation from 58% to nearly 70%, driven in particular by the growth of solar and wind power.

He further pointed out that several countries in the region already achieve renewable generation levels exceeding 80% at certain hours of the day, reflecting regional leadership in transforming electricity systems and consolidating an increasingly clean energy mix.

Initiatives such as Expo Energía and Energy Summit 2026 strengthen regional dialogue, promote energy diversification, and support sustainable solutions that contribute to the economic and technological development of countries. At OLACDE, we support these types of platforms as key opportunities to bring stakeholders together, share experiences, and accelerate the implementation of concrete actions toward a just, secure, and sustainable energy transition in Latin America and the Caribbean.

OLACDE PROMOTES TECHNICAL DIALOGUE ON SMART GRIDS AND NEW ENERGY VECTORS TO ACCELERATE THE REGIONAL ENERGY TRANSITION



The Latin American and Caribbean Energy Organization (OLACDE) held the webinar “Smart Grids and New Energy Vectors for the Energy Transition,” a high-level technical forum aimed at analyzing the challenges faced by the region’s energy systems in a context marked by the growing penetration of renewable energy, the expansion of power electronics, and the need to ensure stability, security, and resilience in modern power grids.

The event was designed to provide an integrated perspective on the structural transformation of electricity systems in Latin America and the Caribbean, addressing both operational challenges and the opportunities associated with the incorporation of new energy vectors.

During the opening session, Gloria Alvarenga, Director of Integration, Access, and Energy Security at OLACDE, emphasized that the energy transition must be understood as a profound process that redefines how power systems are planned, operated, and protected. “The energy transition requires comprehensive and collaborative solutions to build more resilient, sustainable, and inclusive systems.”

For his part, OLACDE Executive Secretary Andrés Rebolledo noted that the energy systems of Latin America and the Caribbean are undergoing an accelerated transformation, driven by technological advances, decarbonization agendas, and the emergence of diversified energy solutions. “Latin America and the Caribbean are moving toward a multi-energy scenario where electrification, decarbonization, and innovation must progress together.”

Rebolledo highlighted that although the region has one of the highest shares of renewable energy in electricity generation worldwide, this segment represents only part of total energy demand. He therefore stressed the need to accelerate decarbonization in other sectors through the promotion of biofuels, biomass, and new green molecules.

In the technical segment, Dr. Alejandro Garcés addressed the challenges associated with operating power systems dominated by renewable sources and power electronics. He explained that the increasing integration of solar generation, energy storage, and hydrogen is transforming the power inverter into a central component of 21st-century electricity systems. “Basic research is not a luxury, but a necessity to ensure the stability of modern power systems.”

The specialist highlighted phenomena such as reduced inertia, increased sensitivity to disturbances, and new challenges in protection and control, noting that research is essential to ensure stable and secure operation in grids with high renewable penetration.

Meanwhile, Clara Ortiz presented a comprehensive overview of the potential of biomass and agro-industrial residues in Latin America and the Caribbean, underscoring their strategic role in the production of biofuels and synthetic fuels. She explained how byproducts from coffee, oil palm, and sugarcane can be converted into useful energy through processes such as fermentation, gasification, and advanced synthesis routes. “Biomass and synthetic fuels offer enormous potential to strengthen energy security and move toward a low-carbon economy.”

Ortiz emphasized that these energy vectors help diversify the energy mix, reduce dependence on fossil fuels, and promote circular economy models based on local resources. She also stressed the importance of integrating biofuels, green hydrogen, and polygeneration schemes into modern grids to enhance the resilience of energy systems.

The workshop also addressed priority action lines for the region, including the development of inverter-dominated smart grids, the deployment of grid-forming inverters to enhance stability, the promotion of agro-industrial biomass as an energy vector, the strengthening of technological sovereignty in power electronics, and the updating of grid codes to meet new operational requirements.

Through this webinar, OLACDE reaffirms its role as a regional technical platform for knowledge exchange, specialized training, and the promotion of innovative solutions that will enable Latin America and the Caribbean to advance toward more secure, resilient, and sustainable energy systems.

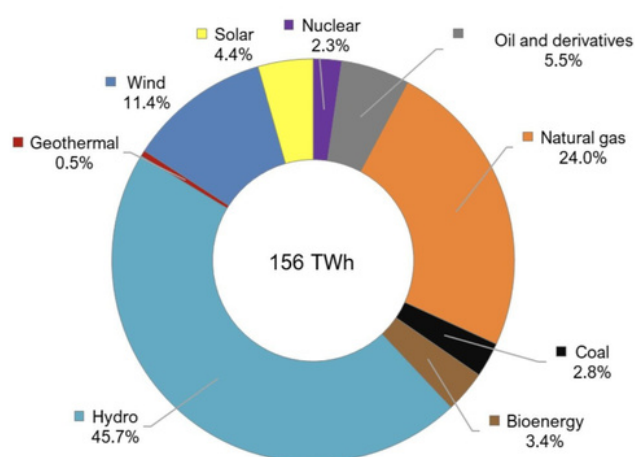
LATIN AMERICA AND THE CARIBBEAN REACH 65% RENEWABLE ELECTRICITY



The Latin American and Caribbean Energy Organization (OLACDE), in its Monthly Electricity Generation Report, reported that in September 2025 electricity generation in the region reached 156 TWh, representing a year-on-year increase of 3.3%. Hydropower remained the main source of generation, accounting for 45.7% of the total, driven by improved hydrological conditions in several countries across the region.

The report highlights that the Renewable Index reached 65%, recovering compared to the previous month, due to a higher share of clean energy sources and a reduction in natural gas-based generation, whose share declined to 24%. Solar energy recorded a monthly growth of 5%, associated with the commissioning of new photovoltaic installations, while generation from coal and other fossil fuels continued to decline.

Figure 1. Electricity generation by source in LAC, September 2025 ¹ (%)



At the national level, 11 of OLACDE's 27 Member States exceeded the regional average for renewability, led by Paraguay and Uruguay (100%), Costa Rica (98%), Venezuela (92%), Ecuador (90%), Brazil (89%), Colombia (86%), El Salvador (79%), Belize (77%), Panama (74%), and Chile (70%). These results confirm the region's progress toward a cleaner, more resilient, and sustainable electricity matrix, with renewable energy as a central pillar of energy development.

OLACDE HIGHLIGHTS THE IMPORTANCE OF REGIONAL COOPERATION AND A JUST ENERGY TRANSITION AT THE 16TH IRENA ASSEMBLY



Gloria Alvarenga, Director of Integration, Access and Energy Security of the Latin American and Caribbean Energy Organization (OLACDE), participated in the 16th Assembly of the International Renewable Energy Agency (IRENA), held in Abu Dhabi. The event brought together more than 1,500 global leaders and decision-makers to define actions aligned with the UAE Consensus, the 2030 Agenda, and the Paris Agreement.

During the meeting, Alvarenga took part in the panels “Pathways for a Renewable Future across Latin America and the Caribbean: Regional Energy Transition Outlook for South America” and “High-Level Consultation towards the SDG 7 Review at the HLPF 2026: Tripling Renewables in Support of the 2030 Agenda and Beyond.” She emphasized that Latin America and the Caribbean have one of the cleanest electricity matrices in the world, yet still face structural challenges related to universal energy access, climate vulnerability, and financing constraints.

In her remarks, she highlighted the need to strengthen regional energy integration to diversify sources and improve system reliability, promote energy efficiency as a key tool to reduce emissions and costs, and ensure a just and inclusive transition that places people at the center and leaves no one behind. She also stressed the importance of regional cooperation, technological innovation—including green hydrogen and energy storage—and access to financing for sustainable projects.

Within the framework of the Assembly, chaired by OLACDE member country the Dominican Republic, it was highlighted that the region reached nearly 70% renewable electricity generation in 2025, positioning it among the cleanest in the world. In this context, Alvarenga underscored the importance of strengthening political dialogue, multilateral cooperation, and consensus-building to accelerate the global energy transition.

OLACDE also contributed the regional perspective in the panels “Towards the Review of SDG 7 at the HLPF 2026” and “Building the Foundations for Gender Data in Energy: Why, How and What Next?”, where it was emphasized that without gender statistics it is not possible to design truly inclusive energy policies. In this regard, initiatives such as the Latin American and Caribbean Network of Women in Energy (RedLACME), technical training programs, and actions aimed at reducing energy poverty were highlighted.

With an emphasis on regional cooperation, the use of robust data, and women’s leadership, OLACDE reaffirms its commitment to a sustainable, just, and equitable energy transition that contributes to the economic and social development of Latin America and the Caribbean.

OLACDE PARTICIPATES IN CONGRESO FUTURO 2026 IN CHILE



The Executive Secretary of the Latin American and Caribbean Energy Organization (OLACDE), Andrés Rebolledo, took part in the opening of Congreso Futuro 2026, Latin America's leading platform for science outreach and citizen dialogue, held in Chile. Created in 2011, this forum promotes the democratization of knowledge and interdisciplinary reflection on present and future challenges, with the support of the Senate of Chile, the Chamber of Deputies, and the Fundación Encuentros del Futuro.

Under the theme "Humanity, where are we headed?", this edition highlighted the strategic role of energy in sustainable development, innovation, energy security, and a just transition in Latin America and the Caribbean, fostering a plural conversation about the future of societies.

In this context, Andrés Rebolledo participated in the session "Ideas that Paved the Way," where he noted that Latin America and the Caribbean are undergoing the most profound energy transformation since the Industrial Revolution, driven by public policies and corporate decisions aimed at decarbonization. He emphasized that the region has strategic resources and one of the cleanest electricity matrices in the world, with nearly 70% renewable generation, positioning it as a key player in the global energy transition.

During his remarks, the Executive Secretary of OLACDE stressed that the region's energy future lies in harnessing the potential of renewable energies and critical minerals, accelerating electrification and energy efficiency, and promoting the development of innovative technological solutions—such as green hydrogen and synthetic fuels—along with greater regional electricity integration.

His message reaffirmed OLACDE's commitment to a just, sustainable, and competitive energy transition that contributes to economic development, strengthens regional cooperation, and advances the decarbonization of the power sector, industry, transport, and households. The future of Latin America and the Caribbean, he underscored, requires joint efforts to build truly sustainable development.

OLACDE AND USACH CONCLUDE THE FIRST INTERNATIONAL DIPLOMA IN ELECTROMOBILITY



The Latin American and Caribbean Energy Organization (OLACDE), together with the Department of Electrical Engineering (DIE) of the University of Santiago de Chile (Usach), concluded the first International Diploma in Electromobility, a pioneering initiative aimed at strengthening regional capacities in a key area of the energy transition.

Delivered in a virtual format, the program brought together more than 30 graduates from 15 countries across Latin America and the Caribbean, who took part in a training process focused on analyzing the main challenges, trends, and future outlook of electromobility in the region.

The closing session featured three keynote presentations. The first was delivered by Elaine Santos, founder of the Lithium Observatory at the University of São Paulo, who addressed the strategic role of critical minerals—such as lithium and cobalt—in the development of electromobility and its associated value chains.

The second presentation was delivered by Silvia Rojas, Executive Director of the Costa Rican Electric Mobility Association (ASOMOVE), who presented an overview of the current state of electric mobility in Latin America, with particular emphasis on the experience and progress of Costa Rica.

The third presentation was delivered by Paola Tapia, Director of the Metropolitan Public Transport Authority (DTPM) of Chile, who shared insights into Santiago's public transport ecosystem, highlighting advances in the electrification of urban transport.

For her part, the Director of Integration, Access, and Energy Security at OLACDE highlighted: "High-level academic training is undoubtedly a catalyst for the transformation of our region, and this vision of educational excellence translates into high-impact learning experiences such as this international diploma in electromobility."

Finally, Andrés Rebolledo, Executive Secretary of OLACDE, emphasized the importance of this program as a space for collaboration between academia, the public sector, and the private sector, strengthening capacity building to advance electromobility. He also underlined that this effort contributes to the decarbonization of transport and the construction of a more sustainable and inclusive energy future.