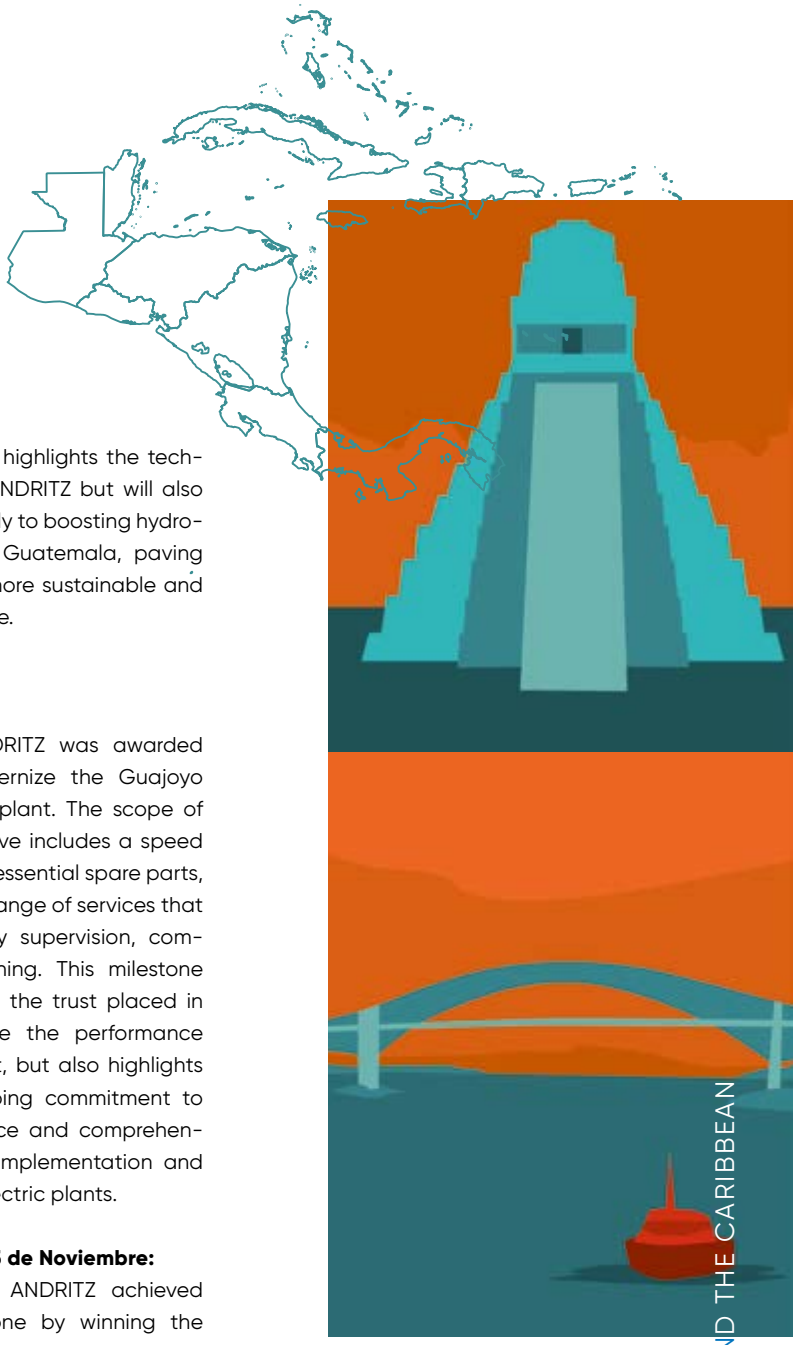
COMMITMENT TO DIVERSIFYING ENERGY

COUNTRY REPORT — CENTRAL AMERICA AND THE CARIBBEAN



Central America and the Caribbean – In the continuous search for new sustainable energy sources, Central America and the Caribbean region has become a hub of substantial advances in renewable energy penetration supported by hydropower. This focus on renewable energy has been crucial in meeting global commitments to reduce carbon emissions and address the effects of climate change.

With significant installed capacity and a growing commitment to clean energy production, countries in this region have been primarily exploring and developing large-scale hydroelectric rehabilitation projects. Across Central America and the Caribbean, strategies to diversify energy sources and reduce dependence on fossil fuels have been driving forward plans to strengthen hydroelectric power plants.

ANDRITZ, a global company with a long history in hydroelectric plant engineering and design, has played a fundamental role in the success of these projects. Innovative solutions and cutting-edge technology have catalyzed the rehabilitation, modernization, and upgrading of high-performance hydroelectric plants in Central America and the Caribbean.

GUATEMALA

Achiguate:

In August 2023, ANDRITZ achieved a significant milestone by securing the contract for the Achiguate hydroelectric project, consolidating its position at the forefront of hydroelectric energy in Guatemala.

The project includes the supply of two 3.7 MW horizontal shaft Francis units, including the electric generator, as well as the provision of control and monitoring systems. The scope of supply encompasses a complete range of components from control panels to SCADA systems and transformers, ensuring a comprehensively efficient plant. This project not only highlights the technical excellence of ANDRITZ but will also contribute significantly to boosting hydroelectric capacity in Guatemala, paving the way towards a more sustainable and energy-efficient future.

EL SALVADOR

Guajoyo:

In March 2023, ANDRITZ was awarded a contract to modernize the Guajoyo hydroelectric power plant. The scope of supply for this initiative includes a speed governor, a batch of essential spare parts, and comprehensive range of services that encompass assembly supervision, commissioning, and training. This milestone not only underscores the trust placed in ANDRITZ to enhance the performance of the Guajoyo plant, but also highlights the company's ongoing commitment to operational excellence and comprehensive support in the implementation and operation of hydroelectric plants.

Cerrón Grande and 5 de Noviembre:

In September 2021, ANDRITZ achieved a significant milestone by winning the project contracts for the Salvadoran hydroelectric power plants Cerron Grande and 5 de Noviembre. This agreement includes the supply of two speed regulators for the Cerrón Grande hydroelectric power plant and two for the 5 de Noviembre plant, along with a batch of essential spare parts. Additionally, assembly supervision and commissioning services, as well as training, are included.

15 de Septiembre:

In April 2023, ANDRITZ achieved a significant milestone by securing the contract for the major maintenance of Unit II in the 15 de Septiembre hydroelectric power plant. This ambitious project encompasses a wide scope of supply, ranging from the renovation of runner blade bushings to the implementation of an aeration system →

All figures concern 2022;
Sources: TheWorldBank, IMF, IHA, Hydropower & Dams World Atlas 2023

→ for the turbines, including specialized supervision services and comprehensive electrical testing. Among the highlights are tasks like the comprehensive repair of generator shafts and stators, the supply of specialized tools, and the implementation of crucial systems such as the cooling and lubrication of bearings. This achievement not only underscores the technical expertise of ANDRITZ but also its steadfast commitment to efficiency and reliability in the management and maintenance of critical hydroelectric infrastructures.

HONDURAS

Francisco Morazán (El Cajón):

The modernization of the excitation systems at the Francisco Morazán hydroelectric power plant (El Cajón) was a notable success. After winning the tender in October 2019, ANDRITZ achieved a milestone by progressively commissioning the units: Unit 2 in January 2021, Unit 1 in October 2021, Unit 3 in December 2021, and finally, Unit 4 in December 2022. The project increased the reliability of the plant's units, which have a total installed capacity of 300 MW.

From the supply of excitation systems to the implementation of the advanced HIPASE-E system, ANDRITZ' comprehensive contribution has not only provided Empresa Nacional de Energia Electrica (ENEE) with more modern and efficient energy equipment but has also strengthened connectivity with existing systems. This underscores the ANDRITZ commitment to excellent and sustainable energy solutions for the development of energy infrastructure in Honduras.

COSTA RICA

La Garita:

ANDRITZ, in collaboration with the Costa Rican Institute of Electricity (ICE), is advancing the comprehensive modernization of the La Garita plant in Costa Rica. After winning the tender in June 2023, the focus is on replacing key power plant systems. With two units of 20 MW each and a strategic location one hour from San José, in the canton of Alajuela, the plant benefits from cutting-edge technologies supplied by ANDRITZ. These include the control and SCADA system, protection system,

and speed governor, with notable innovations such as HIPASE-T and HIPASE-S. The project is scheduled for delivery in June 2024, promising significant benefits for the plant's reliability and consolidating ANDRITZ' position as a leader in sustainable energy solutions in the region.

PANAMA

Estí:

Located in the province of Chiriquí, this plant experienced an operational interruption in September 2022 due to an unusual rise in the Estí River caused by heavy rains. Faced with this challenge, ANDRITZ Mexico was contacted to conduct inspections and assess potential damage to the equipment. In a collaborative effort, four specialized engineers from ANDRITZ Mexico carried out these detailed inspections.

Presenting reports and an activity schedule to the plant owner, ANDRITZ proposed ambitious timelines for the rehabilitation of the plant with a commitment to have the first unit operational by March 2023 and the second by June 2023.

ANDRITZ successfully delivered on its promise, completing the work in accordance with the schedule while reaffirming →

Control, protection, and regulation system at the 5 de Noviembre hydropower plant, El Salvador

Estí hydropower plant, Panama

Installation of turbine runner at the 15 de Septiembre hydropower plant, El Salvador

→ its commitment to quality and efficiency in the restoration of critical hydroelectric infrastructure in emergency situations.

The prompt response of ANDRITZ ensured a contract for rehabilitation of several additional elements of equipment and various systems at the power plant. These contracts highlight the efficiency and professionalism of ANDRITZ in critical situations, as well as a fundamental alignment with the plant owner's objectives.

THE CARIBBEAN

In the Caribbean, this island region has recognized the need to reduce its dependency on fossil fuels, mitigate the impacts of climate change, and ensure a reliable energy supply for its inhabitants. As a result, many nations have embarked on an exciting journey to strengthen existing hydroelectric power plants. This is an integral part of their strategy to diversify their energy matrix and mitigate any potential adverse effects of a too rapid penetration of intermittent generation sources.

The modernization and upgrading of hydroelectric power plants, as well as the execution of feasibility studies for pumped hydro storage projects, have gained considerable momentum in the Caribbean. With these projects, a new era of renewable energy is envisaged, reducing the region's carbon footprint and enhancing its energy security.

Maggotty, Jamaica:
In June 2016, ANDRITZ achieved a significant breakthrough by winning a contract for a project at the Maggotty hydroelectric power plant. The scope of supply included a comprehensive system that comprised controls, speed governor, excitation system, mounting materials, medium-voltage switchgear, AC/DC low voltage switchboards, auxiliary services transformer, battery bank, and charger.

Unit hall at Maggotty hydropower plant, Jamaica

Powerhouse and substation of La Garita hydropower plant, Costa Rica

Additionally, ANDRITZ provided essential services such as assembly supervision, commissioning, and training.

Upper White River, Jamaica:
In February 2022, ANDRITZ took on a key challenge after winning a contract for the comprehensive modernization of the Upper White River hydroelectric power plant. This ambitious project encompasses an extensive scope of supply, including the rehabilitation of the turbine and generator, implementation of a new control system, speed governor, excitation system, and protection relays.

Additionally, essential elements such as AC/DC low-voltage switchboards, gate supply, assembly supervision, commissioning, and training are also included.

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