COUNTRY ASSESSMENT REPORT PANAMA

Version:V1

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Contents

1.1 Country Assessment Report

Country Name	Panama
Introduction	Panama is a Central American country bordered by Costa Rica to the west and Colombia to the east. It has a population of just over 4 million people and a nominal GDP of around USD 86 billion. The economy has shown steady growth in recent years, supported by services linked to the Panama Canal, logistics, and financial activities. (World Bank 2024) Panama's electricity sector relies on a diversified mix of renewable and thermal generation. Hydropower remains the largest renewable source, complemented by wind, solar, and biomass. In recent years, the share of renewables in electricity generation has generally ranged around 60%, depending on hydrological conditions. The country has expanded wind and solar capacity to improve supply stability and reduce dependence on imported fuels, while continuing to develop policies that support renewable energy integration and grid reliability.(IEA 2023)

1.2 Electrical Generation and Demand

Generation	**Technology**	**Volume (GWh)**
	Hydropower	6147 GWh
	Natural Gas	2790 GWh
	Oil	1913 GWh
	Wind	886 GWh
	Solar PV	871 GWh
	Coal	457 GWh
	Biofuels	43 GWh
	Total	13107 GWh
Demand	**Sector**	**Demand** (TJ)
	Commercial/Service/Public Sector	22733 TJ
	Residential	13170 TJ
	Industrial	3440 TJ
	Transport	297 TJ
	Other	27 TJ
	Total	5799 TJ – (IEA, 2023)

1.3 Electrical Interconnection and Import/Export

Connected country	**Capacity** (MW)	**Annual import from country** (GWh)	**Annual export to country** (GWh)
Mercado regional -	Part of SIEPAC regional grid (300 MW nominal shared capacity)	126 GWh (IEA, 2023)	269 GWh (IEA, 2023)
		-	-
		-	-
		-	-
		-	-
Additional information	Overall, Panama exported around 269 GWh and imported 126 GWh of electricity to individual countries in 2023 (The Global Economy). Panama is linked to its Central American neighbours through the Sistema de Interconexión Eléctrica de los Países de América Central (SIEPAC), a high-voltage regional transmission network allowing cross-border electricity trade and coordinated		

	dispatch among Panama, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. The nominal transfer capacity for SIEPAC contracts is approximately 300 MW across the region, though the actual trade flows vary depending on hydrological and operational conditions. Export volumes tend to be higher in rainy seasons when hydropower output is strong, and imports can rise during dry periods when domestic generation is lower (ICEX, 2025). A proposed approximately 400 MW interconnection between Panama and Colombia is planned to connect Panama's electricity grid with Colombia's system, creating future opportunities for cross-border power trade with South America once the project becomes operational (Canal Energético, 2025).This project is expected to be operational by 2029.

1.4 Market Structure

Panama's electricity sector operates under a partially liberalised market model, characterised by competitive generation and regulated transmission and distribution activities. The framework is designed to promote long-term investment, support renewable energy expansion, and ensure system reliability.

Electricity generation in Panama is largely undertaken by private sector companies, with more than 40 firms active across hydropower, solar photovoltaic (PV), wind and thermal technologies. In recent years, solar and wind developers have expanded their presence through long-term contracted projects, contributing to the diversification of the generation mix (CLIMATESCOPE, 2022).

The national high-voltage transmission grid is owned and operated by Empresa de Transmisión Eléctrica S.A. (ETESA), a state-owned company responsible for transmission planning, development, operation and maintenance. System coordination and economic dispatch are carried out by the Centro Nacional de Despacho (CND), which functions within ETESA and manages real-time operations of the National Interconnected System (SIN), including wholesale market transactions (ETESA, 2026).

Electricity distribution is carried out by licensed distribution utilities operating under regulated concession areas. Tariffs and regulatory oversight are administered by the Autoridad Nacional de los Servicios Públicos (ASEP). Large industrial and commercial customers above regulatory thresholds may contract directly with generators, while smaller consumers remain on regulated tariffs under distribution companies (World Bank Document, 2023).

Panama operates a wholesale electricity market structured around long-term Power Purchase Agreements (PPAs), competitive energy and capacity auctions, and bilateral contracts between generators and eligible large customers. Generators participate in the market under licenses or concessions and typically secure revenue through long-term supply agreements awarded either via competitive public tenders or direct negotiations. The state-owned transmission company, ETESA, administers procurement processes on behalf of distribution companies, ensuring adequate long-term supply through structured and competitive bidding mechanisms. The market functions under established Commercial and Purchasing Rules that regulate capacity and energy auctions, technology-specific renewable tenders, and long-term contracting arrangements. In line with national energy policy objectives, Panama has also announced renewable energy tender schedules extending through 2028 to further expand clean generation capacity and diversify the energy mix (CLIMATESCOPE, 2022 and Enerdata, 2025).

Panama participates in the Central American Regional Electricity Market (MER) via the Sistema de Interconexión Eléctrica de los Países de América Central (SIEPAC), which interconnects Panama with Costa Rica, Nicaragua, Honduras, El Salvador, and Guatemala. This regional framework facilitates cross-border

electricity exchanges and coordinated system dispatch among member countries. However, it does not operate as a fully centralised spot market with a single uniform clearing price; instead, it supports bilateral and regionally coordinated transactions alongside national market structures (IDB, 2024).

1.5 Responsible Government Department

The following entities are primarily responsible for the electricity market in Panama.

- The National Secretariat of Energy (**SNE**) is responsible for proposing and coordinating national energy policy. Its role focuses on ensuring the rational, efficient, and sustainable use of energy resources. SNE leads strategic planning and has recently established a roadmap for large-scale renewable energy auctions starting in 2026. SNE developed the Panama Energy Information System (SIE), an open data platform designed to improve emissions tracking and provide transparent data on generation and consumption.
- The National Public Services Authority (**ASEP**) is the autonomous and independent regulator of the power sector. It issues concessions and licenses for generation and distribution, establishes tariff methodologies, and ensures compliance with sector rules. The ASEP recently increased the annual maximum energy consumption limits for self-consumption from renewable sources to 5% of total annual GWh and 16% of maximum MW demand. It also approves bidding documents for energy tenders organized by ETESA.
- The **ETESA** is the state-owned transmission company which owns and operates the national transmission line and includes the National Dispatch Centre (CND). Under SNE's direction, ETESA organizes public tenders for long-term energy supply. For example, it is currently overseeing a 2026 tender specifically for solar projects offering 20-year Power Purchase Agreements (PPAs).
- The Ministry of Environment (**MiAmbiente**) handles environmental policy and international climate commitments and coordinates Panama's Nationally Determined Contributions (NDCs). The updated NDC 3.0 aims to eliminate coal-fired generation by 2026 and reach 20% non-conventional renewable energy consumption.

1.6 Existing/Planned Legislation

There is currently no national mandate requiring companies to use EACs - I-RECs remains a voluntary instrument.

- In Panama, the National Energy Plan 2015–2050 serves as the primary roadmap for renewable deployment, targeting 70% renewable energy in the national mix by 2050. It establishes the long-term vision for a lower-carbon economy.
- Law 6 of 1997 (Modified by Law 43 of 2012) broadly regulates the electricity market and empowers ASEP.
- The Law 37 of 2013 broadens the incentive framework for solar energy, providing tax exemptions and import duty reliefs.
- Executive Decree No. 100 (2021) establishes a national carbon market and, though it primarily focuses on carbon credits, may signal a move toward structured environmental certificate trading.
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1.7 Environmental and Renewable Electricity Legislation

As referenced above

1.8 Existing/Planned Certificate or Support Systems

No formal scheme in place in Panama

1.9 Extent of Engagement with Government

This report has been prepared by GCC, the current Issuer, which has not engaged with the national government regarding certification or the I REC system.

1.10 Expected Response from Government

N/A

1.11 Proposed Restrictions

GCC will continue to conduct standard checks.

1.12 Any Other Relevant Information

N/a

1.13 Author

Organization Name		Evident, GCC	
Signature 			
Name GCC			
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