

## European Solar and Energy Storage Solutions

# Panama energy storage and distribution



## Overview

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What is Panama's energy supply?

This page is part of Global Energy Monitor 's Latin America Energy Portal. Panama currently relies on imported oil for the majority of its total energy supply. In the electrical sector, hydro energy also plays a key role, accounting for 43.9% of installed capacity and 67.2% of total generation as of 2020.

What is Panama's power system like in 2017?

In 2017, Panama's power system had very large installed hydropower capacity (54% of total capacity) and substantial VRE capacity (45.3%). The generation breakdown was 64% renewable energy (36% run-of-river hydro, 18% reservoir hydro, 8% wind, 2% solar photovoltaics (PV)) and 36% thermal generation (29% oil and 7% coal).

Who is responsible for energy distribution in Panama?

Three distributors are responsible for energy distribution in Panama: ENSA, Edemet, and Edechi. Electricity is distributed via Panama's nationally interconnected system (SIN). Electricity prices are impacted by weather patterns because of Panama's use of hydropower.

How much power does Panama have?

Panama's installed electrical capacity has grown steadily over the last decade. As of 2020, the country had 4116 MW of installed capacity, relying on a mix of fossil fuels (44.2%), hydro power (43.9%), wind (6.6%) and solar (5.2%).

What is Panama's Plan Energético Nacional?

The PEN (Plan Energético Nacional) 2015-2050 aims to drastically increase the use of renewable energy in Panama to 70% of the country's energy mix. Panama aims to be carbon neutral by 2050, partially by emphasizing forest restoration to absorb CO2 emissions.

Who regulates the electricity sector in Panama?

The ASEP (Autoridad Nacional de los Servicios Públicos) is responsible for regulation of the electricity sector in Panama. The ASEP oversees all aspects of Panama's electrical sector. Panama does not have a national oil company. Naturgy is the leading energy distributor in Panama.

## Panama energy storage and distribution

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### Designing a Comprehensive and Flexible Architecture to Improve Energy ...

Designing a Comprehensive and Flexible Architecture to Improve Energy Efficiency and Decision-Making in Managing Energy Consumption and Production in Panama May 2023 Applied Sciences 13(9):5707

### Panama: Energy System Overview

GOAL: to promote an understanding, on a global scale, of the dynamics of change in energy systems, quantify emissions and their impacts, and accelerate the transition to carbon-neutral, environmentally benign energy systems while providing affordable energy to all.



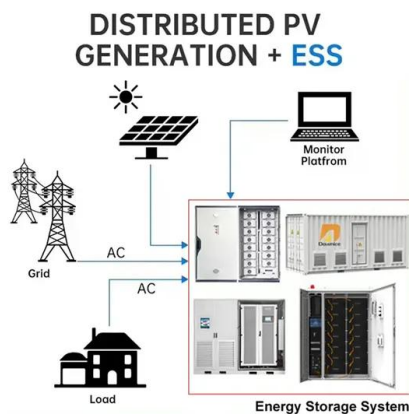
### Panama Energy Storage Industry Planning

A Comparative Analysis of Energy Storage Management in ... This paper presents a decentralized optimization approach using the Alternating Direction Method of Multipliers (ADMM), specifically tailored to integrate energy storage within Panama's power grid. The ADMM facilitates distributed problem solving, whi

### Sharing Energy Storage Between Transmission and

## Distribution

This paper addresses the problem of how best to coordinate, or "stack," energy storage services in systems that lack centralized markets. Specifically, its focus is on how to coordinate transmission-level congestion relief with local, distribution-level objectives. We describe and demonstrate a unified communication and optimization framework for performing ...



## Panama New storage and distribution regulations of medical ...

Recently the National Directorate of Medical Devices of the Ministry of Health of the Republic of Panama, adopted Resolution No. 007 of May 10, 2021, through which guidelines are adopted for the storage and distribution of medical devices and related products regulated by Law 90 of December 26, 2017. One of the most relevant introductions [...]

## 1 AES Panama

-> 18 Generation Units / 4 Distribution Companies -> 2 LNG Storage & Regassification Terminals  
 AES Market Shares Country Share (%)  
 (1) DR 20% El Salvador 71% Panama 37% Puerto Rico 11% Mexico (Self-Supply) 12% 35% 13% 13% 39%  
 Renewables Coal Oil, Petcoke, Diesel Gas 34% 3% 29% 21% 13%  
 Mexico El Salvador Panama Dom. Rep. Puerto Rico Installed



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## Our solutions , AES Panama

Energy storage. Efficiency. Fuel conversion. Our people. Our global workforce. Contractors & suppliers. When you view energy as a strategic asset, that's when you'll make the greatest impact to your business goals and toward a sustainable future. Resilient transmission & distribution infrastructure and digital solutions to enable



## Panama

Energy Policies Panama is a Central American country with an ever-expanding electrical grid. The current installed capacity of around 3386 MW as of 2017 with the majority of this capacity coming from hydroelectric dams [].The current energy policies in place are working to help set a plan for long-term energy development and to reach these goals by 2050 [].

## Panama

Panama's National Energy Plan 2015-2050 outlines long-term strategy for the country's energy sector development, including renewables. The Plan established that 15% of Panama's generation capacity will come from renewables by 2030 and 50% by 2050.



## Energy profile: Panama

Naturgy is the leading energy distributor in Panama. Terpel and EPAPetrol are leading oil and gas companies in Panama. Energy sector employment data. During 2020, less than 20% of Panamanians worked in the industry sector, which includes energy-related employment.



### 1 AES Panama

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## Panama Energy Storage Systems Market (2024-2030)

3.5 Panama Energy Storage Systems Market Revenues & Volume Share, By Technology, 2020 & 2030F. 4 Panama Energy Storage Systems Market Dynamics. 4.1 Impact Analysis. 4.2 Market Drivers. 4.3 Market Restraints. 5 Panama Energy Storage Systems Market Trends. 6



Panama Energy Storage Systems Market Segmentations. 6.1 Panama Energy Storage Systems

## 1 AES Panama

AES Panama AES Colon Offtaker DistCos C& Is DistCos. Term 2030 2029 2028 Capacity (MW) 350 27 350. Annual Energy (GWh) 2,093 798 1,946. Avg. Energy Price (\$/MWh) 105 85 115. -> AES Panama: Consolidated revenues broken with . 79% . derived from contracts and . 15% . from C& Is. -> AES Panama: Energy PPAs are . USD-denominated, with energy prices



## Navigant on energy storage as 'non-wires' alternative for utilities and

One of the 'value of energy storage' questions that was being asked a lot two or three years ago was around the use of batteries and decentralised system architecture instead of traditional "poles and wires" grid networks. However, advancements in this area have been slow to materialise and Navigant Research's recent 'Energy Storage for Transmission and ...

## Panama: Energy Country Profile

Panama: Many of us want an overview of how much energy our country consumes, where it comes from, and if we're making progress on

decarbonizing our energy mix. This page provides the data for your chosen country across all of the key metrics on this topic.



## Panama initiates renewable energy tender -- the first of its kind ...

Panama's National Secretariat of Energy (SNE) has issued a resolution directing the Electric Transmission Company SA (ETESA) to organize a tender for long term energy supply. The initiative aims to ensure reliable electricity, lower prices, and create green jobs. The tender encompasses 500 MW of power, with a 20-year contract signed with electricity distribution ...

## PANAMA POWER SYSTEM FLEXIBILITY ASSESSMENT

» Low energy storage capacity » Weak interconnection » Simulation of different VRE penetration scenarios according to national plans » Assessment of the optimal generation capacity mix (including storage) » Consideration of VRE share increase in long-term planning (mostly solar PV)



## ENERGY PROFILE Panama

developing areas. Energy self-sufficiency has been defined as total primary energy production divided by total primary energy supply. Energy trade includes all commodities in Chapter 27 of

the Harmonised System (HS). Capacity utilisation is calculated as annual generation divided by year-end capacity x 8,760h/year. Avoided



## Energy and Power in Panama

The energy and power in Panama currently relies on imported oil for most of its total energy supply. As of 2020, the country had 4116 MW of installed capacity, relying on a mix of fossil fuels (44.2%), hydro power (43.9%), wind (6.6%) and solar (5.2%).



## Energy profile: Panama

Panama currently relies on imported oil for the majority of its total energy supply. In the electrical sector, hydro energy also plays a key role, accounting for 43.9% of installed capacity and 67.2% of total generation as of 2020. Other renewable sources such as wind and solar supply a small but growing percentage of the country's electrical needs.

## Panama Energy Sector Outlook: Economic Development, Energy ...

Assessing how auctions and procurement for additional energy supplies and capacity to enhance energy security will be managed is essential. Ongoing debate and discussion about the country's longstanding legal and regulatory

framework are also crucial for the sector in ...



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