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Electric Reliability and Resiliency in Puerto Rico

Power outages have heightened congressional interest in Puerto Rico's electric power infrastructure, which was damaged by hurricanes Irma and Maria in 2017, earthquakes in 2020, and hurricane Fiona in 2022. Power outages continue to occur frequently, with multiple partial and island-wide blackouts in 2025. In response to reliability and resiliency concerns, the Secretary of Energy issued two emergency orders on May 16, 2025, pursuant to Section 202(c) of the Federal Power Act. Subsequently, on May 21, 2025, the Department of Energy (DOE) announced a redirection of $365 million in funding that had been awarded for distributed energy solar and battery energy storage to be used "to support technologies that improve system flexibility and response, power flow and control, component strength, supply security, and safety."

Issues of congressional interest may include oversight of actions by DOE and other federal agencies, the status of federal funding for energy projects and the performance of the electric system, among other considerations.

Federal Funding for the Electric System

Congress has provided funding for Puerto Rico's electric power infrastructure through a variety of channels since the 2017 hurricanes, although comprehensive and authoritative data on the status of awards is difficult to collect. According to the Puerto Rico Electric Power Authority (PREPA), as of June 2023, the Federal Emergency Management Agency (FEMA), the Department of Housing and Urban Development (HUD), and other agencies "awarded over $15 billion of federal funding in total." Available data as of May 2025 reported by Puerto Rico's Central Office for Recovery, Reconstruction and Resiliency (COR3) indicates that federal funding since the 2017 hurricanes includes FEMA Public Assistance (approximately $13.6 billion obligated, including approximately $2.5 billion for emergency protective measures), FEMA Hazard Mitigation Assistance (approximately $1 billion authorized), HUD Community Development Block Grant (CDBG)-Disaster Recovery (DR): Electric Grid (approximately $1.9 billion), other HUD CDBG-DR funds (approximately $0.4 billion), and HUD CDBG-Mitigation funds (approximately $0.5 billion) for the Community Energy and Water Resilience Installations Program and other energy-related programs. Other funding includes the Puerto Rico Energy Resilience Fund ($1.0 billion) administered by the Department of Energy (DOE). From 2023 to 2025, DOE issued a partial loan guarantee to Sunnova Energy Corporation (reportedly canceled in May 2025); a loan guarantee to Clean Flexible Energy LLC, for Project Marahu; and a loan guarantee to subsidiaries of Convergent Energy and Power Inc., for projects that include renewable and battery storage development in Puerto Rico. Other authorized federal programs that could provide financial assistance for energy projects in Puerto Rico include the Environmental Protection Agency's Solar for All program and several U.S. Department of Agriculture Rural Development programs.

Some funding has been allocated to grantees, but the majority of obligated funds remain undisbursed. For example, of the more than $10 billion obligated by FEMA for permanent work under Public Assistance, approximately $2 billion has been disbursed as of May 2025. Of the $1.9 billion obligated by HUD's CDBG-DR for the electric grid, less than 1% had been disbursed as of July 2024.

Overview of Puerto Rico's Electric Power System

Puerto Rico's electric power system is isolated from other electric grids and is reliant on fossil fuel-fired power plants. PREPA is a public utility owned by the Commonwealth of Puerto Rico and is the largest supplier of electricity in Puerto Rico, with approximately 1.5 million customers. PREPA's generators have a combined installed capacity of nearly 5 gigawatts (GW). Together with independent power producers, Puerto Rico's electric power system has a generation capacity of approximately 6.3 GW; however, the available capacity is often less than the installed capacity. As of December 2024, distributed rooftop solar provides an additional 1.0 GW, for a total system nameplate capacity of 7.3 GW. Puerto Rico's total generation capacity, including distributed sources, is provided by a mix of sources fueled by petroleum (42%), natural gas (33%), coal (7%), and renewables (19%) (rounded to the nearest percent).

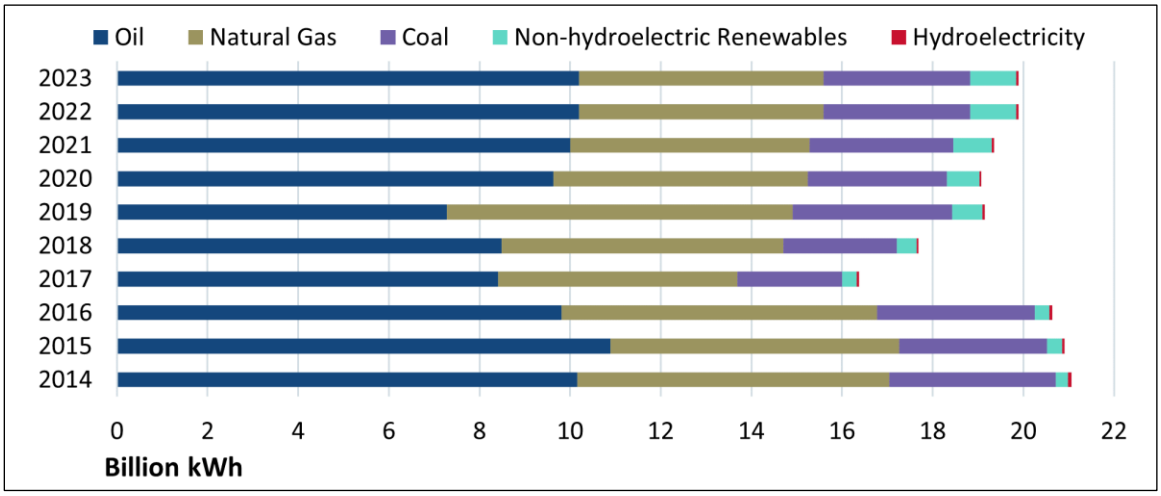
Before the hurricanes in September 2017, annual electricity generation totaled approximately 21 billion kilowatt-hours (kWh) (see **Figure 1**). After a decrease in electricity generation in 2017 as a result of long-term power outages from damage caused by the hurricanes, annual electricity generation increased from 17.5 billion kWh in 2018 to 19.9 billion kWh in 2023 (with a shift in generation source in 2020 due to earthquake damage). Over the same time period, the amount and share of electricity generation from utility-scale non-hydroelectric renewables also increased.

Privatization and Energy Diversification Efforts

Since the 2017 hurricanes, the government of Puerto Rico has embarked on initiatives to improve the reliability (the ability of an energy facility or system to avoid power disruptions) and resiliency (the ability of an energy facility or system to recover quickly from damage) of the electric power system and its governance. These initiatives include taking steps toward privatizing aspects of the electric power system and diversifying the energy sources used for Puerto Rico's electric power generation.

Figure 1. Puerto Rico Electricity Generation, by Source

Figure is interactive in HTML report version.



Source: CRS, using data from U.S. Energy Information Administration, International Energy Statistics, generated January 21, 2025.

Notes: kWh = kilowatt-hours. Generation data consist of both utility and non-utility sources from electricity and combined heat and power plants, reported as net generation. Fossil fuels include coal, petroleum, and natural gas. Non-hydroelectric renewables include solar, wind, and landfill gas.

Since 2014, several Puerto Rico laws have focused on the electric power sector. Act 57-2014 reformed PREPA's governance and oversight. Act 120-2018 aimed to end PREPA's monopoly over power generation, transmission, and distribution, and it provided for unsold assets to be operated by private companies. Act 258-2018 allowed for the formation of electric and energy cooperatives. Act 17-2019 set renewable energy targets, including a goal of 100% of power from renewable sources by 2050 (with interim goals for 2025 and 2040) and ending the use of coal for power generation by 2028. The law also prioritized enabling consumers to generate their own electricity and send excess energy to other grid users (known as net metering). Act 1-2025 removed interim goals for renewable energy and extended the use of coal through 2032.

Pursuant to these laws, PREPA entered into agreements with private companies to manage some aspects of the electric power system. LUMA began operating and managing the transmission and distribution system on June 1, 2021. On June 1, 2023, LUMA stated that service interruption frequency had been reduced by approximately 35% and interruption duration by approximately 25% since 2021. Genera began operating and managing PREPA's non-hydropower generation assets on July 1, 2023. PREPA continues to operate its hydroelectric power plants.

In 2024, Puerto Rico enacted legislation amending electricity net metering program requirements and directed the Puerto Rico Energy Bureau (PREB) to begin a study to evaluate the impact of net metering and energy distribution no sooner than 2030. PREB is responsible for regulating, monitoring, and enforcing Puerto Rico's energy policy. Net metering—widely viewed as a policy that favors small-scale solar projects—can be controversial because utilities may shift the costs of grid services from program participants to non-net metering customers in an effort to recover costs associated with providing electricity.

Other Considerations

In early 2024, DOE and others determined that Puerto Rico could transition to 100% renewable energy by 2050, but the rate at which energy projects in Puerto Rico can be designed, constructed, and completed depends on a number of factors. These include approvals from PREB and the Financial Oversight and Management Board (FOMB), which was established under the Puerto Rico Oversight, Management, and Economic Stability Act (PROMESA; P.L. 114-187) to lead efforts to restructure Puerto Rico's public debts (including PREPA). FOMB has a responsibility in certifying fiscal plans for PREPA, among other activities. In 2024, FOMB filed a lawsuit challenging the amended net metering law. Efforts to negotiate a deal to address PREPA's debt continue.

Considerations may include how and at what rate federal funding has been implemented in Puerto Rico—some procedures rely on fixed-cost estimates, potentially limiting the number or types of projects implemented, given recent price inflation. Another consideration is whether actions by the Trump Administration—such as declaring a national energy emergency, implementing policies under Executive Order 14154, "Unleashing American Energy," or considering an application for a Presidential Permit for transmission connection between Puerto Rico and the Dominican Republic—may introduce changes or flexibilities in approving and completing projects. In addition to conducting oversight, Congress could consider whether to alter permitting requirements or processes for energy infrastructure projects—in Puerto Rico and elsewhere. H.R. 2714 (119th Congress) would establish a task force to identify solutions and coordinate with relevant groups to address Puerto Rico's electricity issues.

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