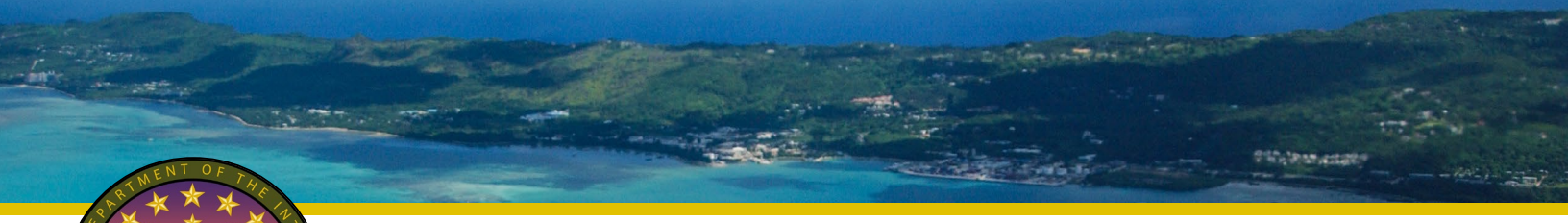


Commonwealth of the Northern Mariana Islands:

Developing a Resilient Power System

The Commonwealth of the Northern Mariana Islands (CNMI) is a chain of 14 islands located in the western Pacific ocean, roughly 6,000 miles west of the U.S. mainland and 2,000 miles east of China. The economy in CNMI is highly dependent on tourism. CNMI relies on imported petroleum products for both electricity generation and transportation and is consequently sensitive to fluctuations in market prices for fuel. CNMI's aging electricity infrastructure and vulnerability to natural disasters present major challenges and emphasize the territory's need for a more resilient power system.

Overview

Land area:
183.5 square miles[1]

Population:
51,000 people[2]

Median household income *(U.S. dollars, 2019)*:
$31,362

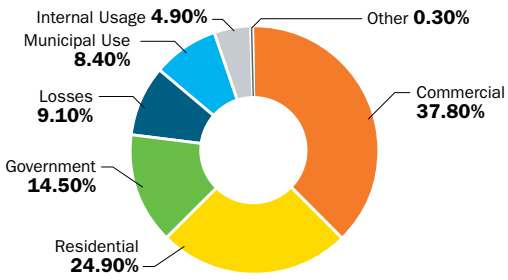
Fuel consumption for power generation *(2023)*:
20,273,221 gallons[5]

Location

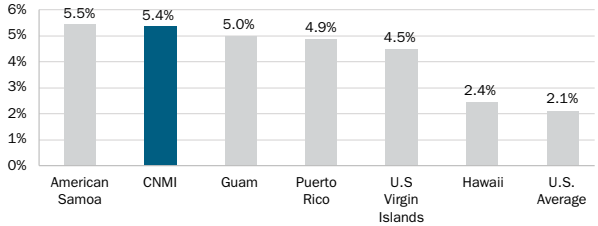
Power Sector

Grid design capacity *(2023)*:	**120 megawatts (MW)[3]**
Available capacity *(2023)*:	**70 MW[5]**
Renewable energy installed capacity *(2023)*:	**5 MW solar power or 11.1% of end-user electricity consumption[3]**
Peak demand *(2023)*:	**41.5 MW[5]**
Total residential electricity sales *(2019)*:	**76,795 megawatt-hours (MWh)[3]**
Transmission and distribution losses *(2023)*:	**9.1%[3]**
Average electricity rates *(2024)*[4]:	**$0.339/kilowatt-hour (kWh) (residential) $0.355/kWh (commercial) $0.365/kWh (government)**
Transmission and distribution assets *(on the 3 largest islands, 2024)*:	**16,086 power poles, 5.6 miles of transmission lines (Saipan only), and 319 miles of distribution lines[5]**

Total Electricity Consumption (by end use)



Approximate Baseline Home Electricity Burdens for U.S. Territories *(2019)*



[1] Commonwealth of the Northern Mariana Islands (CNMI). Coral Reef Information System. NOAA. Accessed July 2, 2024.
[2] https://www.cia.gov/the-world-factbook/countries/northern-mariana-islands/#people-and-society
[3] https://www.nrel.gov/docs/fy24osti/88855.pdf.
[4] https://www.cucgov.org/rates-and-tariffs/. Rates do not include monthly customer surcharges, currently $7–$10 per account.
[5] Personal communication with Kevin O. Watson, July 21, 2024.

Targets

100% of all energy to come from renewable sources by 2045

Transportation Sector

Transportation data is not available because the CNMI Bureau of Motor Vehicles (BMV) lost all its historical data in an information technology systems crash. BMV started collecting some transportation data manually in 2023. However, there is not yet a complete year of data to report.

Policies, Programs, and Incentives

- In 2024, the Governor committed CNMI to obtaining 100% of its energy needs from renewable resources by 2045.
- Commonwealth Utilities Corporation established a Renewable Energy Division to secure 50% of CNMI's electricity from renewables by 2030.
- The Energy Conservation Act (Public Law [PL] 15-23, amended by PL 15-87) incentivizes energy-saving measures and enables private power production using renewable resources.
- Net-metering allowed – System size limited to 100 kW. PL 18-75 encourages net metering for health- and education-based installations, and PL 23-02 gives priority interconnection access to renewable energy systems on schools.

Challenges

- Frequent storms and super typhoons (150+ mph winds)
- Energy affordability and burden
- Aging generation assets and plant retirements
- Utility solvency affects energy capital improvement programs
- Technical challenges of integrating variable renewable energy generation onto a small grid
- Lack of technical expertise to perform energy related work among companies in the region
- Geopolitics and location make CNMI vulnerable to fuel supply disruptions
- Long lead times for delivery of specialized equipment
- Absence of higher education opportunities for specialized professions

Opportunities

- Feasibility studies for a 20-MW solar plus storage system on Saipan are nearing completion, with land secured
- Ample federal funding is available for utility grid upgrades, resilience, and utility-scale renewables (e.g., DOE grid modernization formula grant)
- Conducting a pilot project to install automated switches on the Saipan distribution system
- Planned power pole replacements on Tinian and Rota (design phase completed)
- Planned underground power distribution to the Saipan hospital complex for security and resilience (design phase completed)
- Planned 1.2 MW solar plus storage system for the new CUC corporate offices.

For Additional Information

- Commonwealth Utilities Corporation (public electric utility provider): **https://www.cucgov.org/**
- Northern Marianas Commonwealth Legislature: **https://cnmileg.net/**
- CNMI Energy Division, Department of Public Works: **https://cnmienergy.gov.mp/**

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