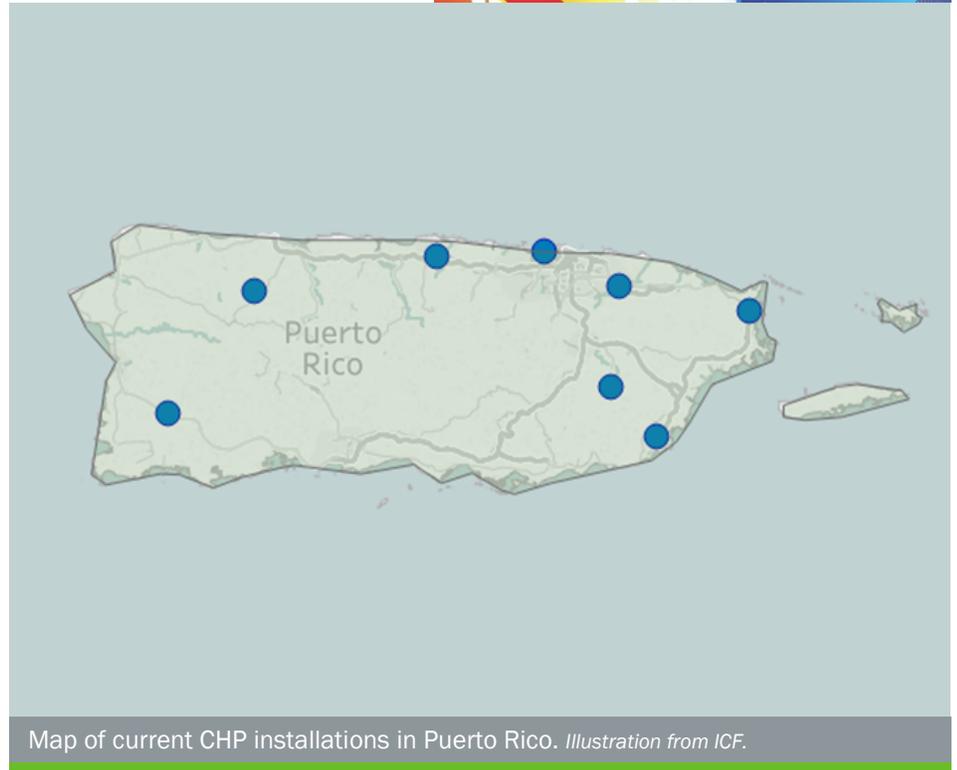




Combined heat and power (CHP) – also referred to as cogeneration – is an efficient and clean approach to generating on-site electric power and useful thermal energy from a single fuel source. The information in this document provides a general overview of the state of CHP in Puerto Rico, with data on current installations, technical potential, and economics for CHP.



Puerto Rico: Installed CHP

U.S. DOE Combined Heat and Power Installation Database

The DOE CHP Installation Database is a data collection effort sponsored by the U.S. Department of Energy. The database contains a comprehensive listing of combined heat and power installations throughout the country, including those in Puerto Rico, and can be accessed by visiting energy.gov/chp-installs.

CHP Project Profiles

The Southeast CHP TAP has compiled information on certain illustrative CHP projects in Puerto Rico. You can access these by visiting the Department of Energy’s CHP Project Profiles Database at energy.gov/chp-projects.

Southeast CHP Technical Assistance Partnership

For assistance with questions about specific CHP opportunities in Puerto Rico, please consult with the Southeast CHP TAP by visiting sechtap.org or contacting the CHP TAP director.

Puerto Rico Existing CHP

Sector	Sites	Capacity (MW)
Industrial	5	11
Commercial/Institutional	3	2
Other	1	0.03
Total	9	12

Southeast CHP TAP Director

Isaac Panzarella, P.E.

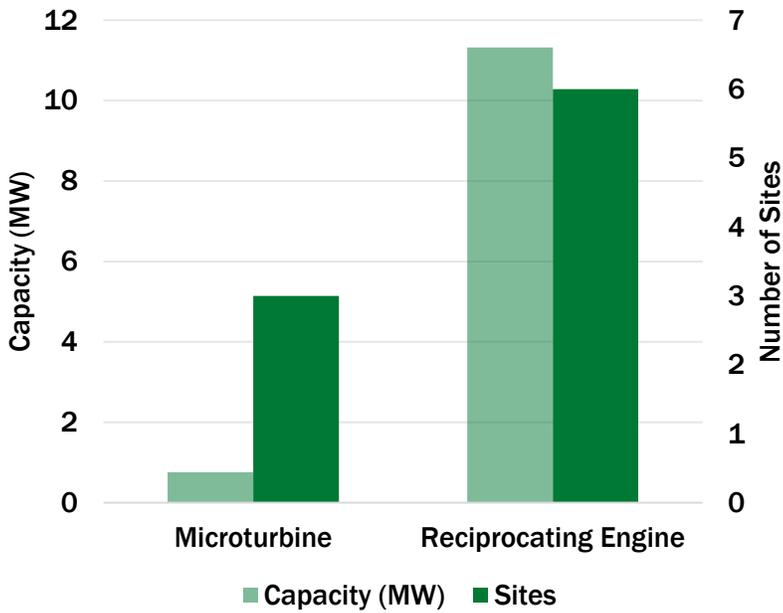
- North Carolina State University
- ipanzarella@ncsu.edu
- 919-515-0354

SOUTHEAST

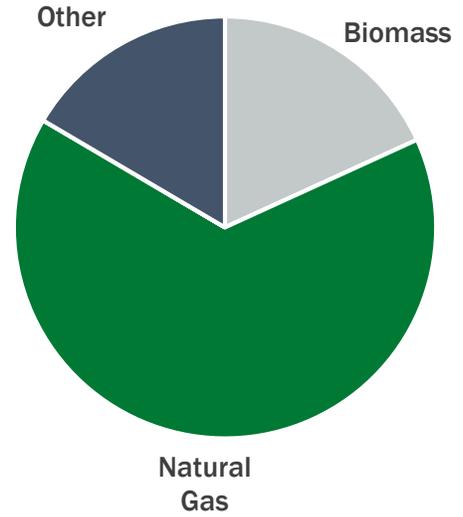


**CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS**

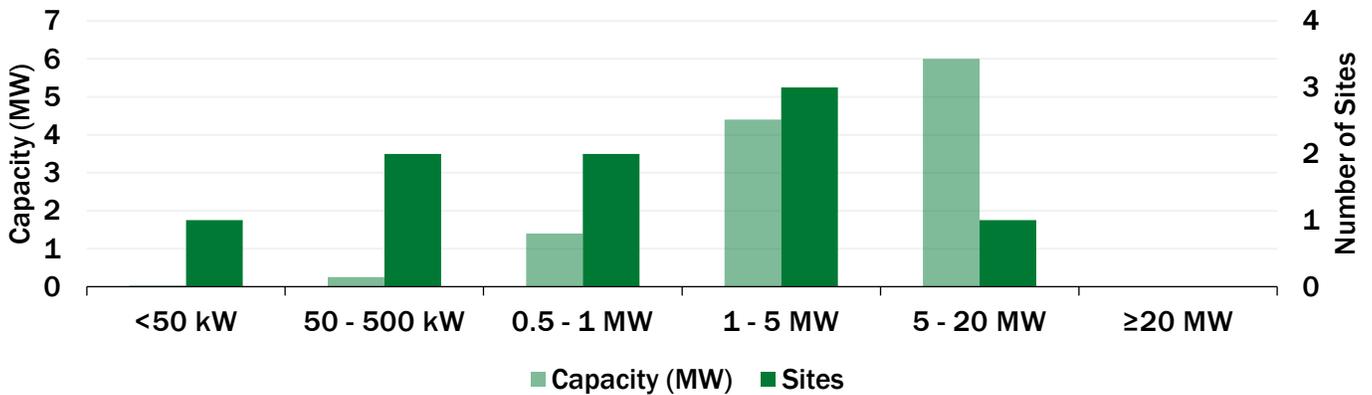
Puerto Rico CHP by Technology



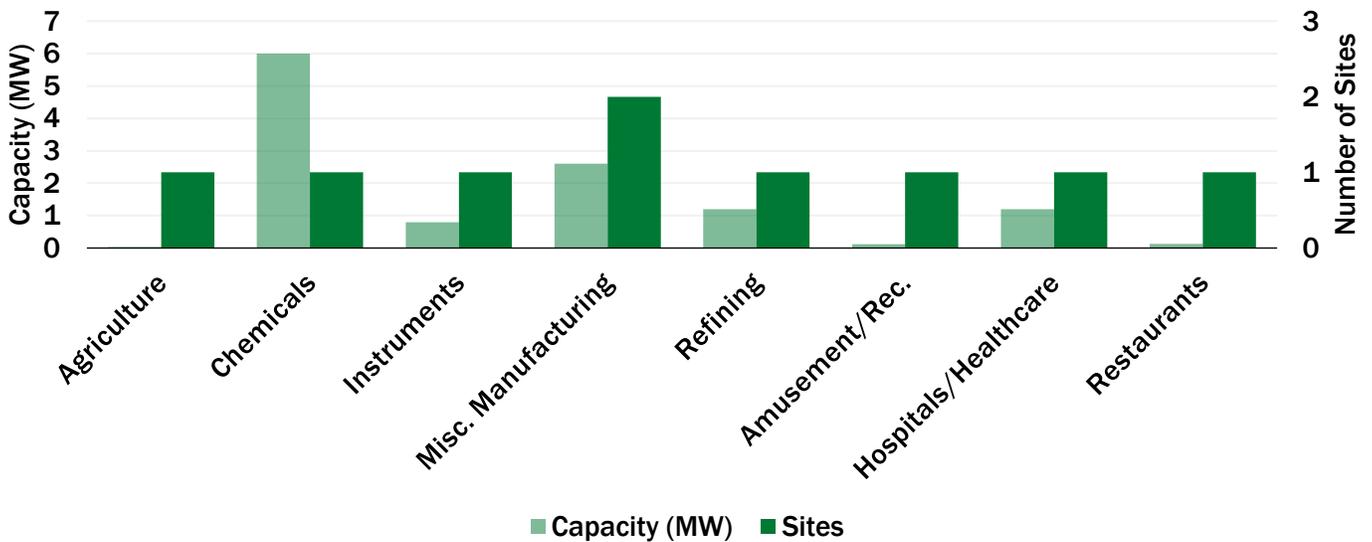
Puerto Rico CHP Capacity (MW) by Fuel



Puerto Rico CHP by Size Range



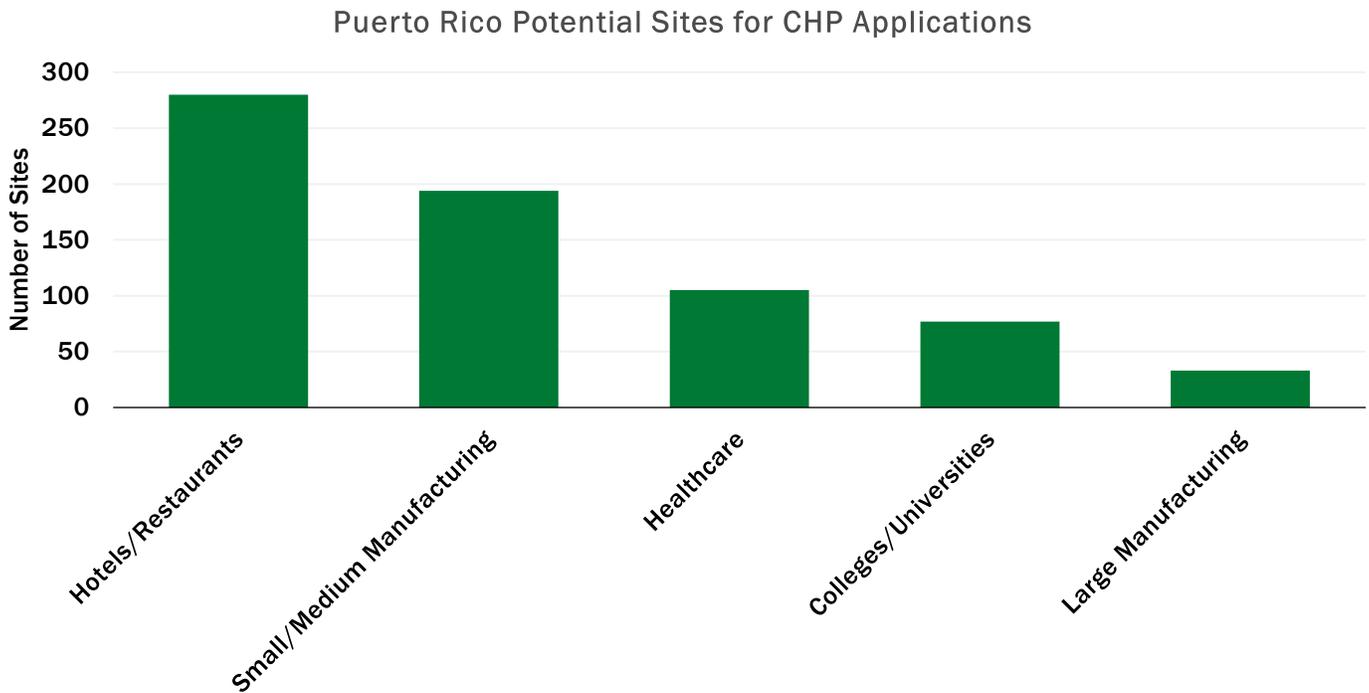
Puerto Rico CHP by Application



Puerto Rico: Technical Potential for New CHP Installations

Combined heat and power can be utilized in a variety of industrial facilities and commercial buildings with coincident power and thermal loads. The technical potential for CHP is an estimation of market size constrained only by technological limits — the ability of CHP technologies to fit customer energy needs.

The “Combined Heat and Power (CHP) Technical Potential in the United States” market analysis report provides data on the technical potential in industrial facilities and commercial buildings for “topping cycle” CHP, waste heat to power (WHP) CHP, and district energy CHP in the U.S. This report can be accessed at energy.gov/chp-potential (Puerto Rico is not included in this report).



Department of Energy CHP Accelerators

Packaged CHP Accelerator

Standardized packaged CHP systems can reduce risk for both CHP users and suppliers by reducing design errors, limiting uncertainty about performance, shortening project development time, and reducing overall costs. Accelerator partners will validate the installation, performance, and economic and resiliency benefits of packaged CHP systems, evaluate the integration of new technologies and packaged CHP, and identify R&D challenges. For more information, visit <https://betterbuildingsinitiative.energy.gov/accelerators/packaged-chp>

CHP for Resiliency Accelerator

The U.S. DOE collaborated with cities, states, utilities, and other stakeholders who are actively pursuing CHP as a consideration in resiliency planning for critical infrastructure in their jurisdictions. This included defining resiliency, identifying critical infrastructure, and assessing CHP opportunities. This process was documented in the DG for Resilience Planning Guide and the CHP for Resilience Screening Tool. For more information, visit <https://betterbuildingsinitiative.energy.gov/accelerators/combinated-heat-and-power-resiliency>

Puerto Rico: CHP Economics

The most important indicators for CHP economics are electricity and fuel prices. For most potential CHP installations, electricity rates and fuel prices for host facilities will fall within the range of average commercial and industrial prices. Lower energy prices may be possible for large CHP applications.

Puerto Rico Fuels

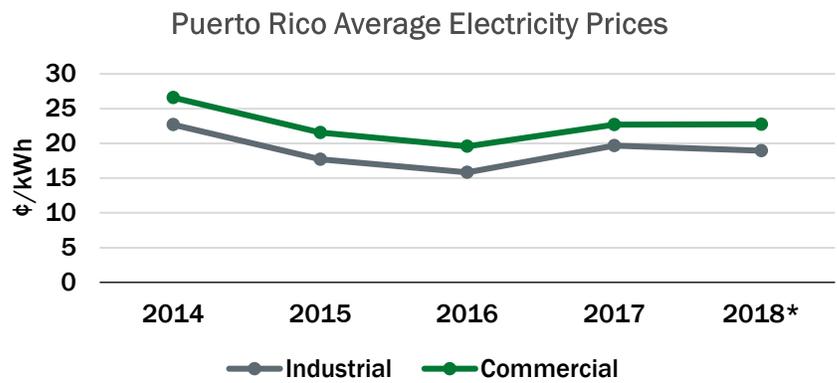
Puerto Rico has access to renewable fuel resources, including various biomass sources, but imports fossil fuels to meet most of its energy demand. Puerto Rico is largely powered by oil - nearly half of all electricity production - but uses an increasing amount of natural gas, importing 55 billion cu. ft. of natural gas in 2014. The territory also imported 1,963 thousand short tons of coal in 2014.

Puerto Rico Electricity Prices

Electricity rates can vary greatly by utility and facility size range. The rates below from EIA represent general averages; individual facility rates may vary.

Puerto Rico Average Electricity Prices (¢/kWh) - 2017

Sector	PR Price	U.S. Price
Industrial	15.83	6.88
Commercial	19.57	10.66



*Preliminary data

Puerto Rico Municipal Electricity Consumption (thousands of MWh)



Source: PREPA