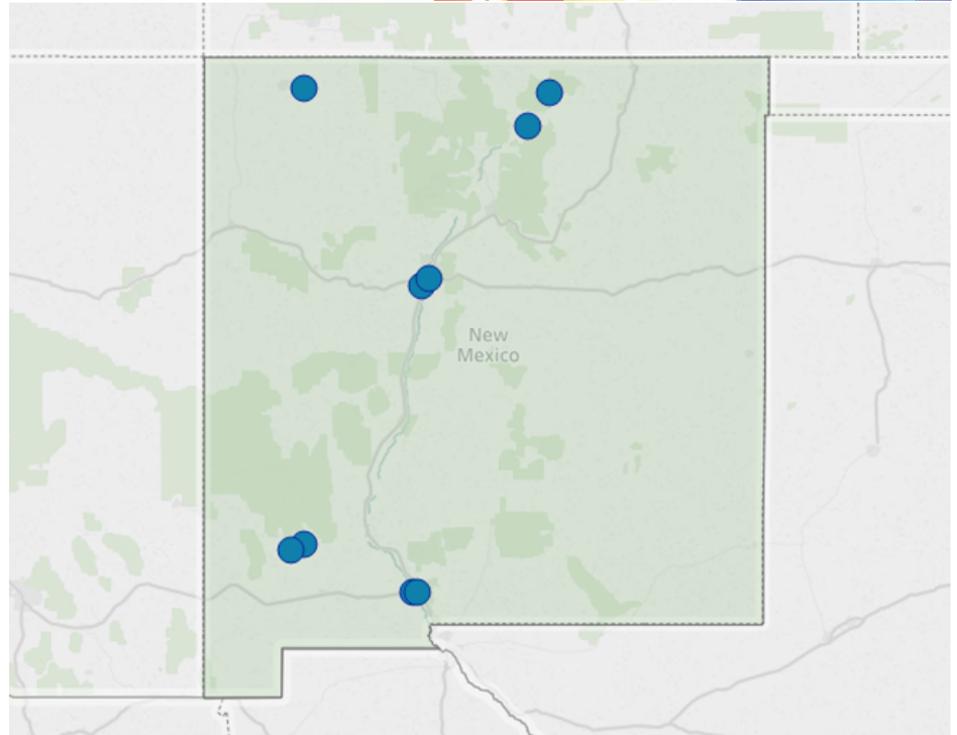


The State of CHP: New Mexico



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 New Mexico, with data on current installations, technical potential, and economics for CHP.



Map of current CHP installations in New Mexico. Illustration from ICF.

New Mexico: 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 New Mexico, and can be accessed by visiting energy.gov/chp-installs.

CHP Project Profiles

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

Southcentral CHP Technical Assistance Partnership

For assistance with questions about specific CHP opportunities in New Mexico, please consult with the Southcentral CHP TAP by visiting sechtap.org or contacting the CHP TAP director.

New Mexico Existing CHP

| Sector | Sites | Capacity (MW) |
|--------------------------|----------|---------------|
| Industrial | 0 | 0 |
| Commercial/Institutional | 5 | 27 |
| Other | 4 | 61 |
| Total | 9 | 87 |

Southcentral CHP TAP Director

Gavin Dillingham, Ph.D.

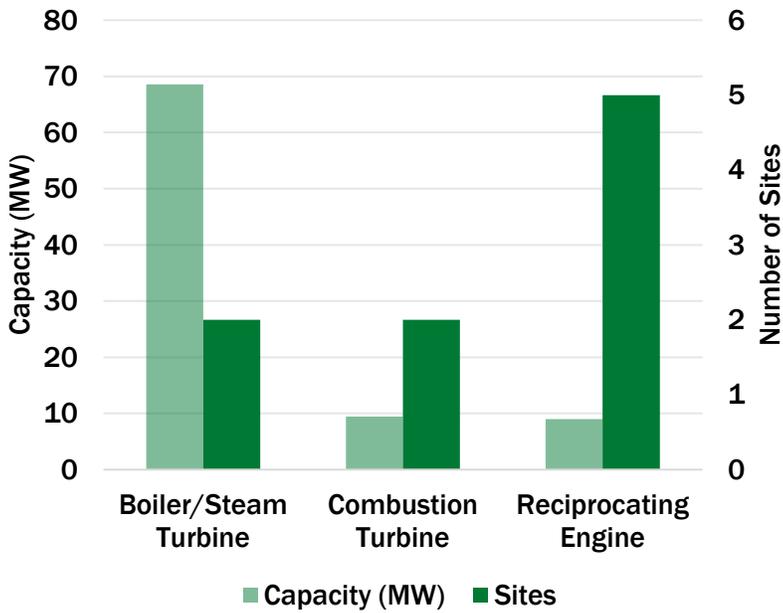
- HARC
- gdillingham@harcresearch.org
- 281-216-7147

SOUTHCENTRAL

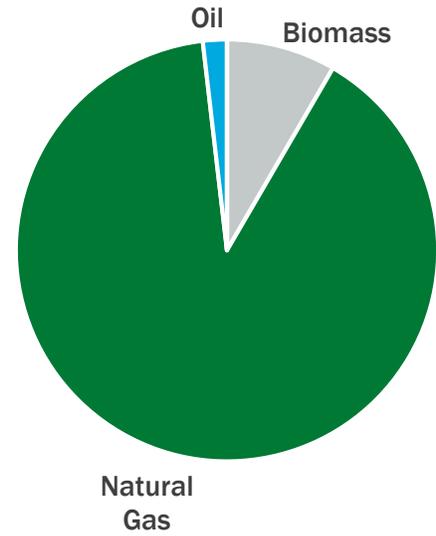


CHP
TECHNICAL ASSISTANCE
PARTNERSHIPS

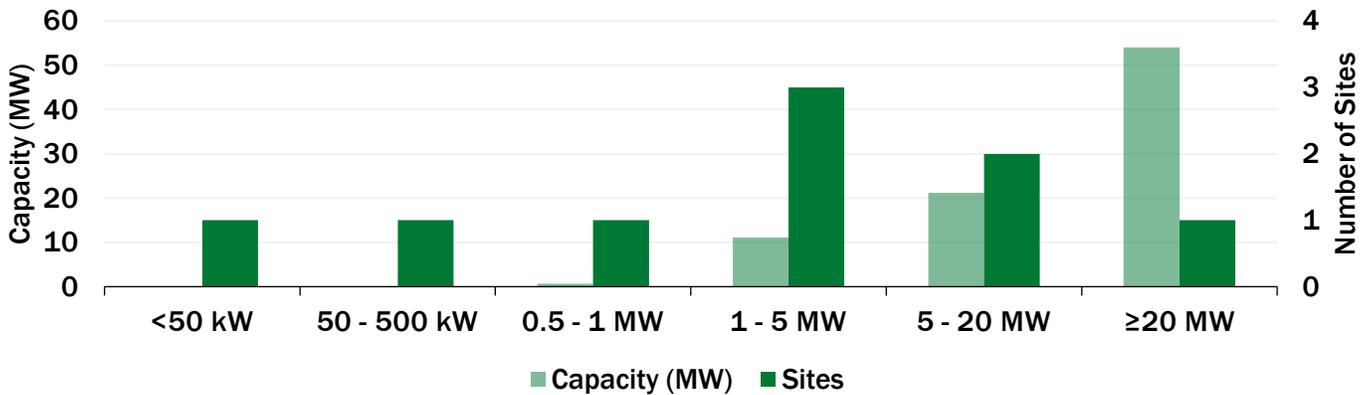
New Mexico CHP by Technology



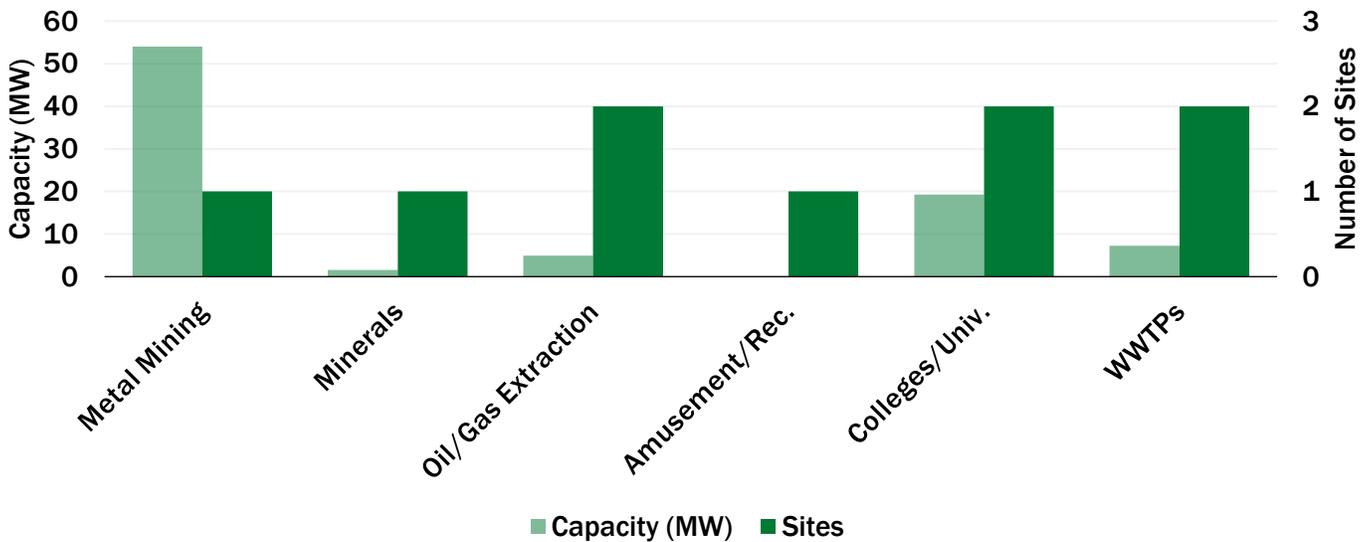
New Mexico CHP Capacity (MW) by Fuel



New Mexico CHP by Size Range



New Mexico CHP by Application



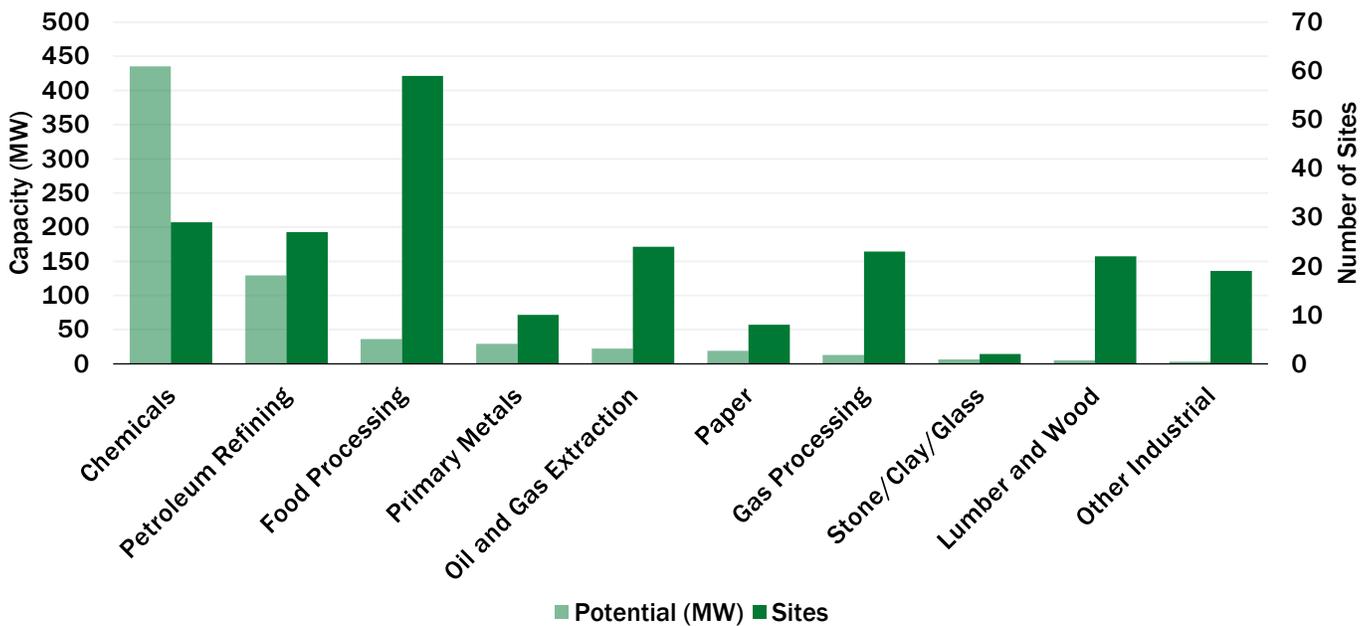
New Mexico: Technical Potential for New CHP Installations

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.

New Mexico CHP Technical Potential

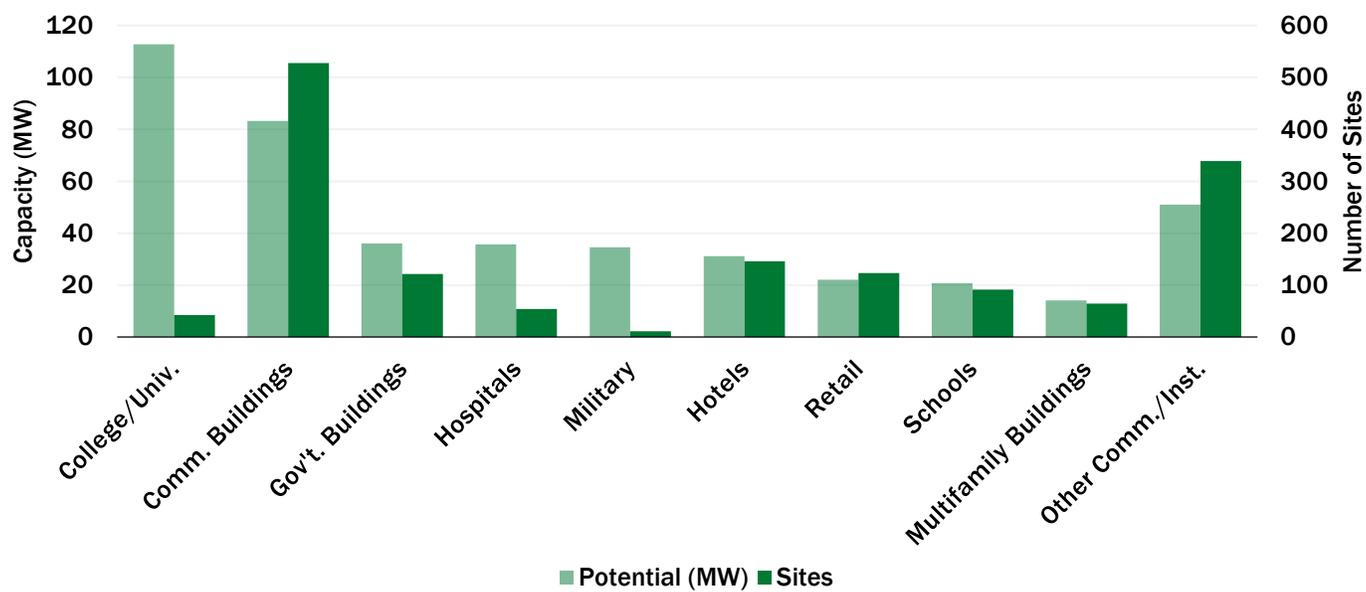
| Sector | Potential Sites | Potential MW |
|--------------------------|-----------------|--------------|
| Industrial | 223 | 699 |
| Commercial/Institutional | 1,519 | 441 |
| Total | 1,742 | 1,140 |

New Mexico Technical Potential (MW) for Industrial CHP Applications



| Application | 50-500 kW | | 0.5 - 1 MW | | 1 - 5 MW | | 5 - 20 MW | | >20 MW | | Total | |
|--------------------|------------|-----------|------------|-----------|-----------|------------|-----------|-----------|----------|------------|-------------|------------|
| | Sites | MW | Sites | MW | Sites | MW | Sites | MW | Sites | MW | Total Sites | Total MW |
| Chemicals | 14 | 2 | 6 | 5 | 5 | 10 | 1 | 5 | 3 | 413 | 29 | 435 |
| Petroleum Refining | 0 | 0 | 4 | 3 | 19 | 50 | 3 | 35 | 1 | 42 | 27 | 129 |
| Food Processing | 46 | 8 | 5 | 3 | 7 | 17 | 1 | 8 | 0 | 0 | 59 | 36 |
| Primary Metals | 7 | 2 | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 26 | 10 | 29 |
| Oil/Gas Extraction | 14 | 4 | 5 | 3 | 4 | 9 | 1 | 6 | 0 | 0 | 24 | 22 |
| Other Industrial | 58 | 11 | 7 | 5 | 8 | 20 | 1 | 11 | 0 | 0 | 74 | 47 |
| Total | 139 | 27 | 29 | 21 | 43 | 106 | 7 | 65 | 5 | 481 | 223 | 699 |

New Mexico Technical Potential (MW) for Commercial/Institutional CHP Applications



| Application | 50-500 kW | | 0.5 - 1 MW | | 1 - 5 MW | | 5 - 20 MW | | >20 MW | | Total | |
|----------------------|--------------|------------|------------|-----------|-----------|------------|-----------|-----------|----------|-----------|--------------|------------|
| | Sites | MW | Sites | MW | Sites | MW | Sites | MW | Sites | MW | Total Sites | Total MW |
| College/Univ. | 18 | 4 | 3 | 2 | 14 | 40 | 6 | 43 | 1 | 24 | 42 | 113 |
| Commercial Buildings | 382 | 19 | 117 | 47 | 29 | 17 | 0 | 0 | 0 | 0 | 528 | 83 |
| Government Buildings | 105 | 14 | 10 | 7 | 5 | 8 | 1 | 7 | 0 | 0 | 121 | 36 |
| Hospitals | 30 | 7 | 14 | 9 | 10 | 20 | 0 | 0 | 0 | 0 | 54 | 36 |
| Military | 4 | 1 | 1 | 1 | 3 | 8 | 3 | 25 | 0 | 0 | 11 | 35 |
| Other Comm./Inst. | 701 | 90 | 49 | 29 | 13 | 20 | 0 | 0 | 0 | 0 | 763 | 139 |
| Total | 1,240 | 135 | 194 | 95 | 74 | 112 | 10 | 75 | 1 | 24 | 1,519 | 441 |

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/combined-heat-and-power-resiliency>

New Mexico: CHP Economics

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

New Mexico Natural Gas Prices

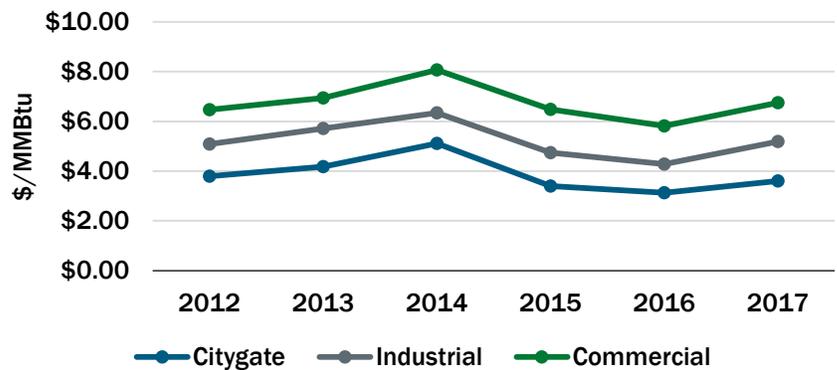
The EIA industrial natural gas price is a full tariff rate, and most large consumers are purchasing gas commodities from marketers at a lower rate.

New Mexico Average Gas Prices (\$/MMBtu) - 2017

| Sector | NM Price | U.S. Price |
|------------|----------|------------|
| Citygate* | 3.60 | 4.26 |
| Industrial | 5.19 | 4.20 |
| Commercial | 6.75 | 8.08 |

*Citygate is a point or measuring station at which a distributing gas utility receives gas from a NG pipeline company or transmission system.

New Mexico Average Natural Gas Prices



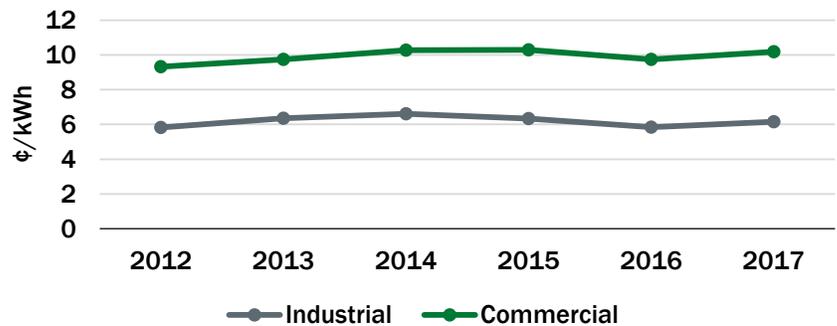
New Mexico Electricity Prices

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

New Mexico Average Electricity Prices (¢/kWh) - 2017

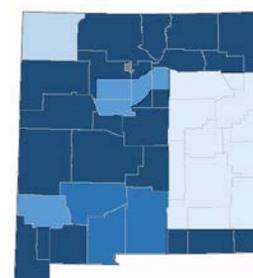
| Sector | NM Price | U.S. Price |
|------------|----------|------------|
| Industrial | 6.15 | 6.88 |
| Commercial | 10.19 | 10.66 |

New Mexico Average Electricity Prices



New Mexico Average Delivered Electricity Prices by Utility

| Utility | Industrial Price (¢/kWh) | Commercial Price (¢/kWh) | Average Price (¢/kWh) |
|------------------------------|--------------------------|--------------------------|-----------------------|
| State cooperatives – average | 10.07 | 13.47 | 11.77 |
| El Paso Electric | 8.57 | 10.61 | 9.59 |
| Xcel Energy | 5.69 | 10.73 | 8.21 |
| City of Farmington | 6.19 | 9.50 | 7.85 |
| SWEPCO | 4.93 | 8.22 | 6.58 |



- SWEPCO
- City of Farmington
- Xcel Energy
- El Paso Electric
- State cooperatives