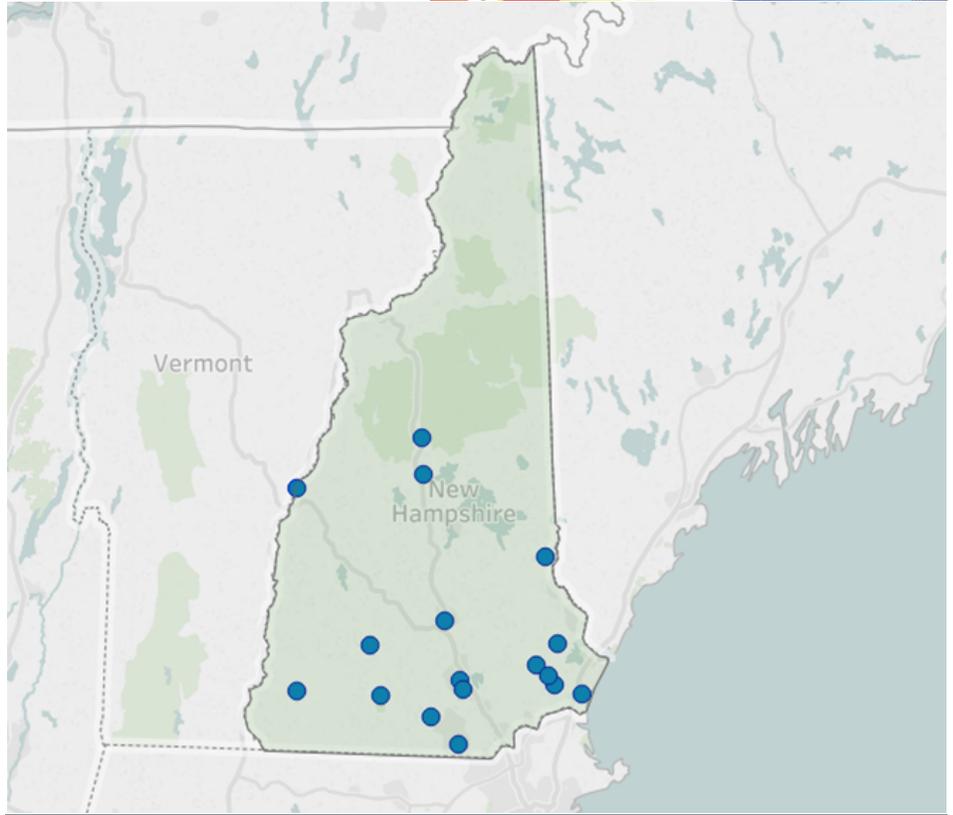


## The State of CHP: New Hampshire



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



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

### New Hampshire: 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 Hampshire, and can be accessed by visiting [energy.gov/chp-installs](http://energy.gov/chp-installs).

#### CHP Project Profiles

The New England CHP TAP has compiled information on certain illustrative CHP projects in New Hampshire. You can access these by visiting the Department of Energy’s CHP Project Profiles Database at [energy.gov/chp-projects](http://energy.gov/chp-projects).

#### New England CHP Technical Assistance Partnership

For assistance with questions about specific CHP opportunities in New Hampshire, please consult with the New England CHP TAP by visiting [nechtap.org](http://nechtap.org) or contacting the CHP TAP director.

#### New Hampshire Existing CHP

Sector	Sites	Capacity (MW)
Industrial	4	18
Commercial/Institutional	14	25
Other	0	0
<b>Total</b>	<b>18</b>	<b>43</b>

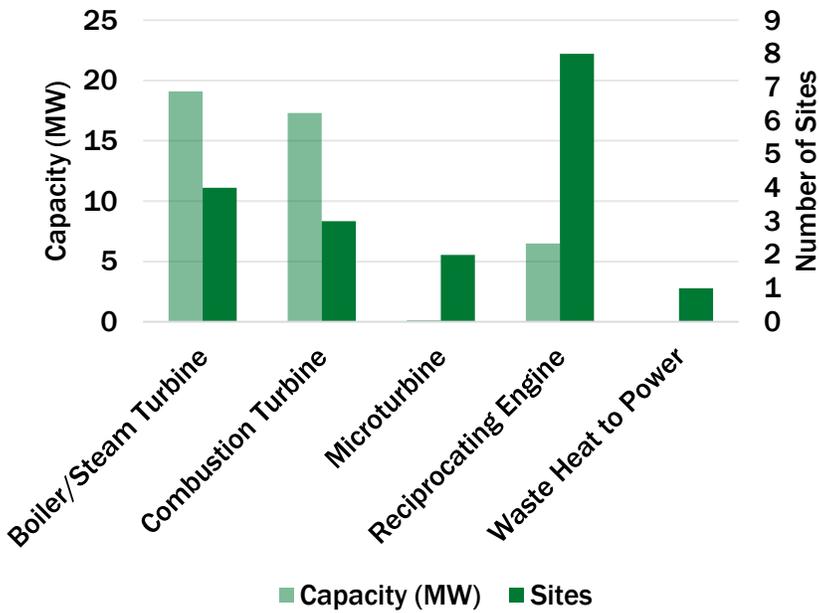
#### New England CHP TAP Director

David Dvorak, Ph.D., P.E.

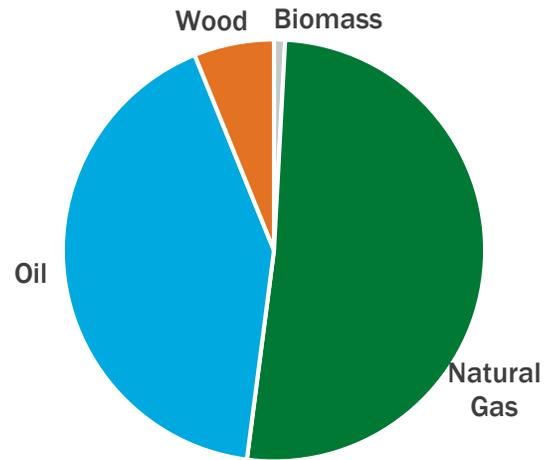
- University of New Hampshire
- [dvorak@NewHampshire.edu](mailto:dvorak@NewHampshire.edu)
- 207-581-2338



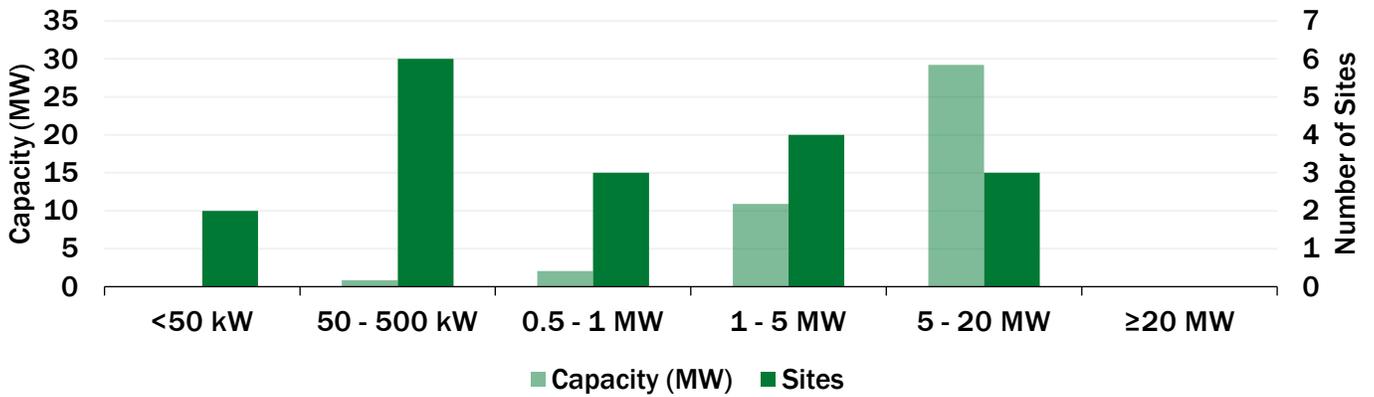
New Hampshire CHP by Technology



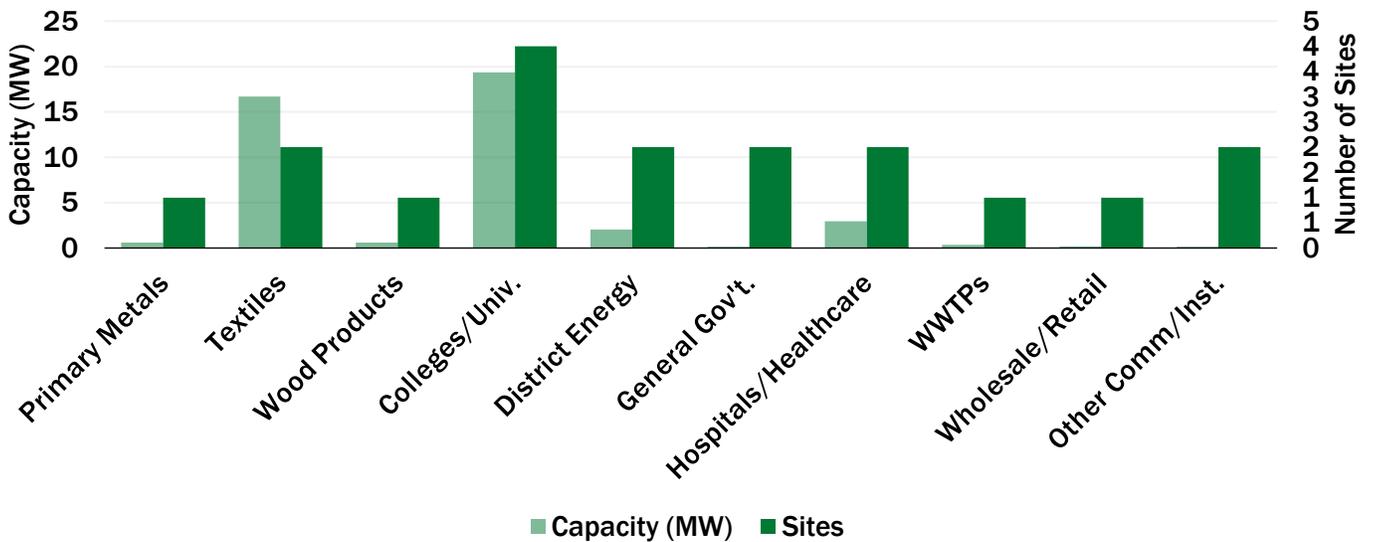
New Hampshire CHP Capacity (MW) by Fuel



New Hampshire CHP by Size Range



New Hampshire CHP by Application



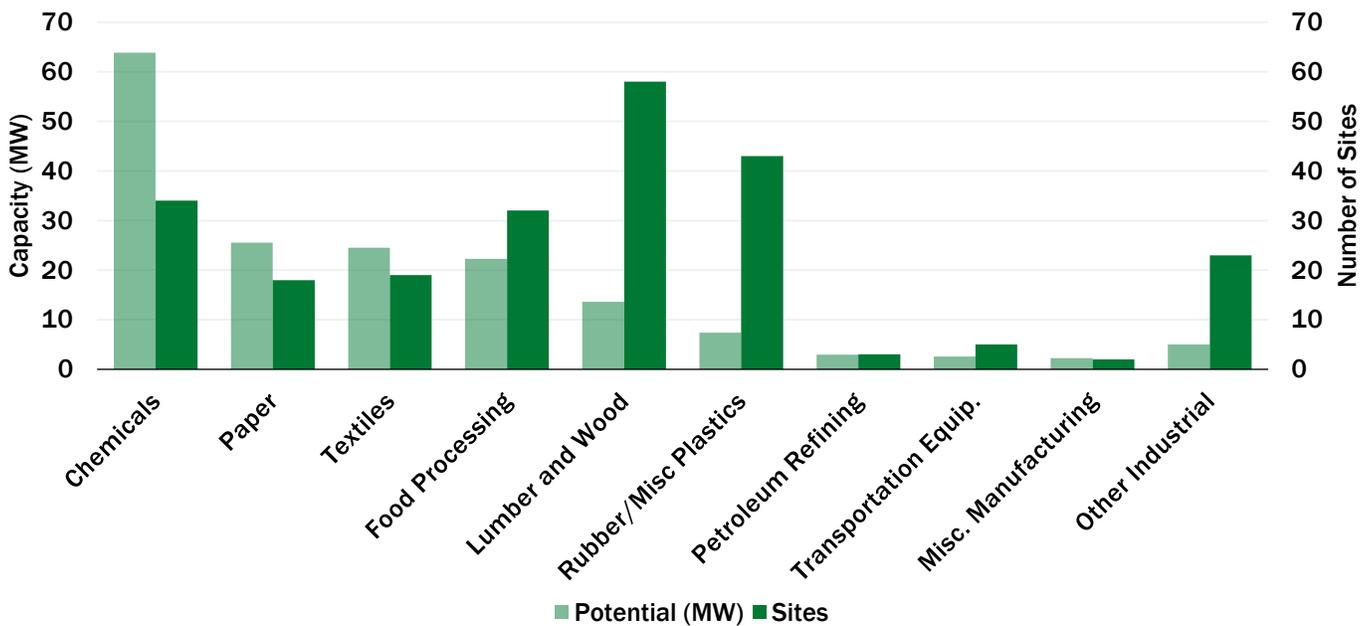
## New Hampshire: Technical Potential for New CHP Installations

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](http://energy.gov/chp-potential).

## New Hampshire CHP Technical Potential

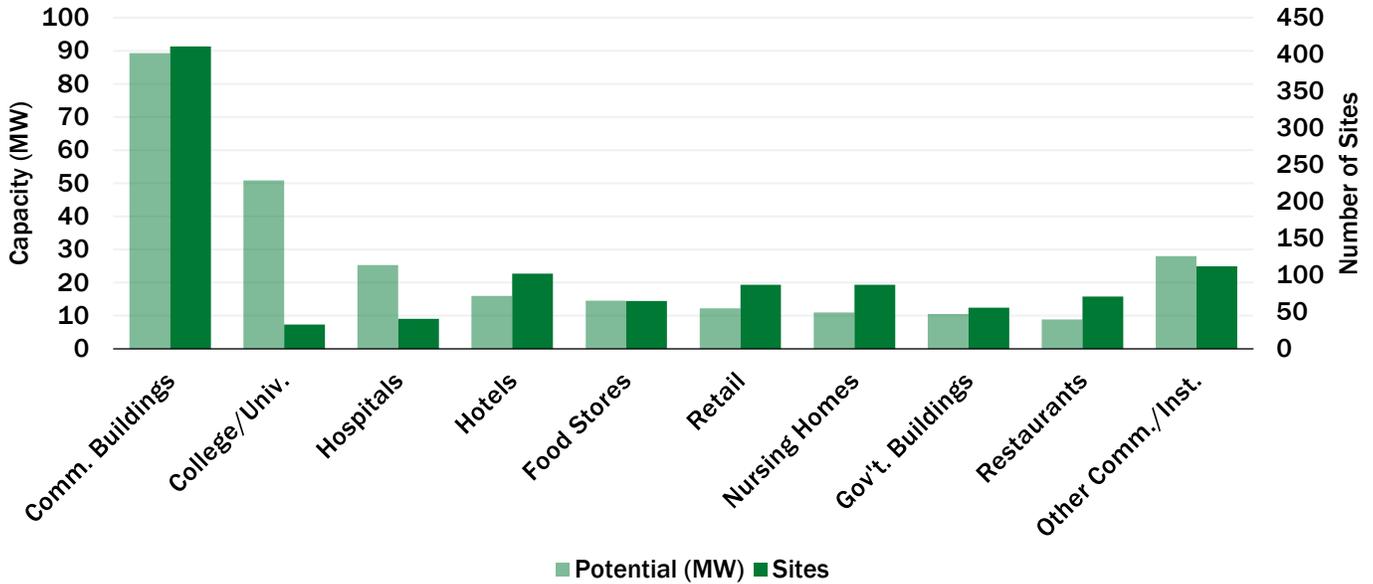
Sector	Potential Sites	Potential MW
Industrial	237	170
Commercial/Institutional	1,126	277
<b>Total</b>	<b>1,363</b>	<b>447</b>

New Hampshire 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	22	3	7	5	3	7	1	8	1	40	34	64
Paper	9	2	1	1	7	17	1	5	0	0	18	26
Textiles	13	3	1	1	3	7	2	13	0	0	19	24
Food Processing	24	5	5	4	2	5	1	8	0	0	32	22
Lumber and Wood	51	8	6	4	1	1	0	0	0	0	58	14
Other Industrial	64	9	7	4	5	7	0	0	0	0	76	21
<b>Total</b>	<b>183</b>	<b>31</b>	<b>27</b>	<b>20</b>	<b>21</b>	<b>45</b>	<b>5</b>	<b>35</b>	<b>1</b>	<b>40</b>	<b>237</b>	<b>170</b>

## New Hampshire 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
Commercial Buildings	243	12	122	49	49	29	0	0	0	0	414	90
College/Univ.	10	2	6	4	7	12	1	12	1	26	25	56
Hospitals	15	3	8	5	8	12	0	0	0	0	31	21
Hotels	96	12	5	3	1	3	0	0	0	0	102	18
Food Stores	69	17	1	1	0	0	0	0	0	0	70	17
Other Comm./Inst.	453	51	26	16	6	8	0	0	0	0	484	75
<b>Total</b>	<b>886</b>	<b>97</b>	<b>168</b>	<b>77</b>	<b>71</b>	<b>64</b>	<b>1</b>	<b>12</b>	<b>1</b>	<b>26</b>	<b>1,126</b>	<b>277</b>

### 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 Hampshire: 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 Hampshire Natural Gas Prices

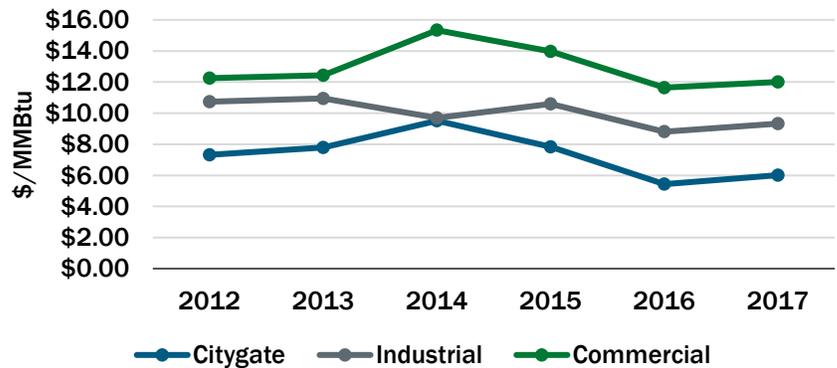
The EIA industrial natural gas price is a full tariff rate, and most large consumers are purchasing gas commodities from marketers at a lower rate.

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

Sector	NH Price	U.S. Price
Citygate*	6.01	4.26
Industrial	9.32	4.20
Commercial	12.00	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 Hampshire Average Natural Gas Prices



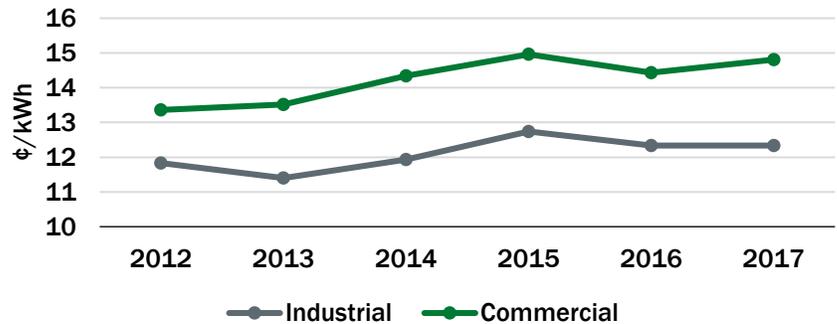
### New Hampshire Electricity Prices

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 Hampshire Average Electricity Prices (¢/kWh) - 2017

Sector	NH Price	U.S. Price
Industrial	12.34	6.88
Commercial	14.81	10.66

#### New Hampshire Average Electricity Prices



#### New Hampshire Average Delivered Electricity Prices by Utility

Utility	Industrial Price (¢/kWh)	Commercial Price (¢/kWh)	Average Price (¢/kWh)
Eversource	34.97	21.59	28.28
New Hampshire Elec Coop Inc	13.52	18.48	16.00
Unitil Energy Systems	12.76	16.89	14.83
Liberty Utilities	14.76	13.46	14.11
Town of Wolfeboro	13.35	14.69	14.02



- Wolfeboro / Liberty Utilities
- Unitil
- New Hampshire Elec Coop
- Eversource
- No utility information