

# MoSEP Stakeholder Meeting

Southwest Region -- September 28, 2021

## Combined Heat & Power: A Key Part of Missouri's Energy Future

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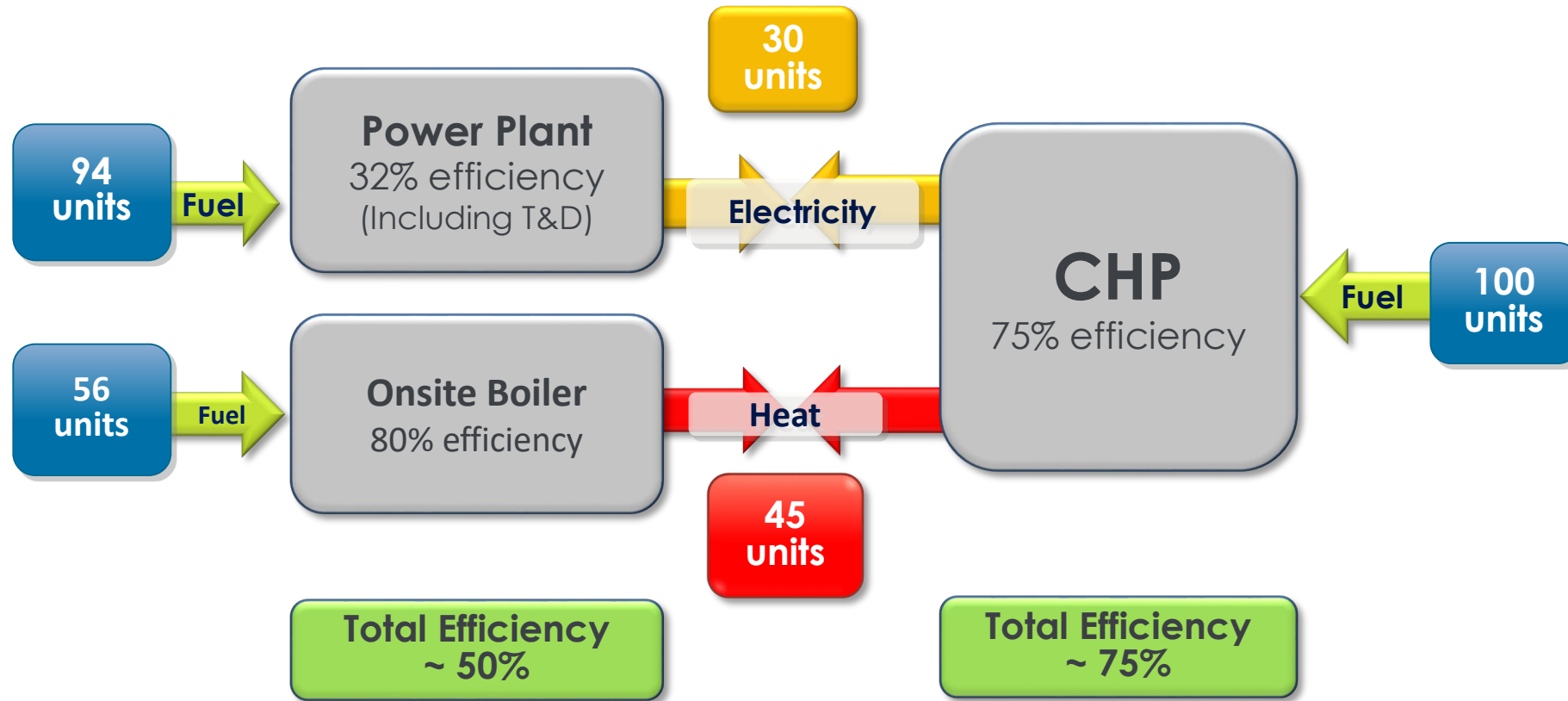
CHP Technical Assistance Partnerships  
CENTRAL

# CHP directly supports the Core Values of MoSEP planning process

1. Assure secure, **reliable and resilient** energy infrastructure and supplies.
2. Enhance Missouri's **competitive** position in business retention, expansion and attraction through affordable rates and **renewable** energy options.
3. Develop **diverse** in-state energy resources.
- 4. Create opportunities for energy-related **technological innovation** and workforce development.**
- 5. Ensure affordability and **equity** in access to energy resources, services and programs.**
6. Promote the **efficient and environmentally sound** use of energy.

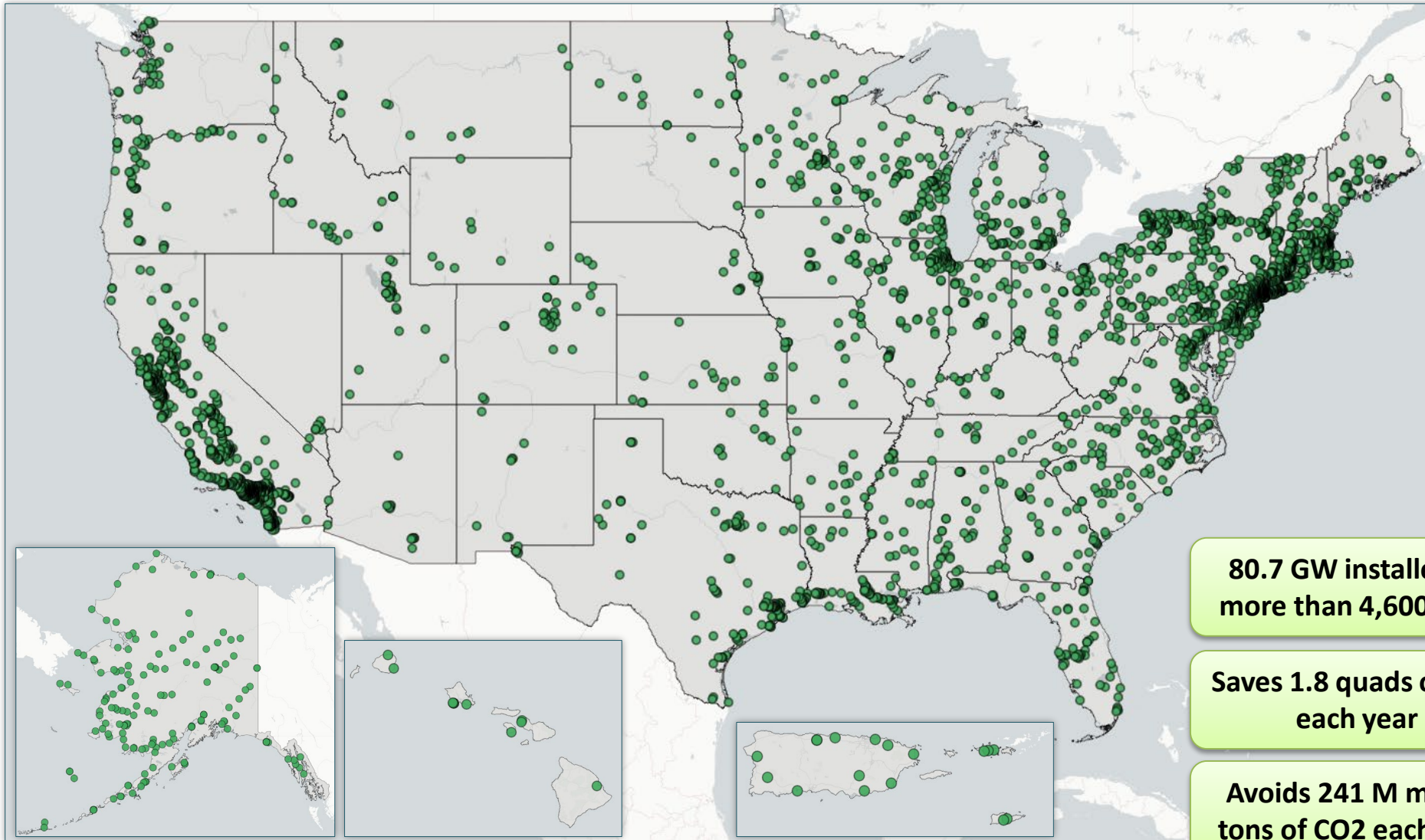
[Summary and Action Report](#)

# What is Combined Heat & Power (CHP)



On site/in state, NG/Biogas, renew-enabler, resilient communities

# CHP Is Used Nationwide



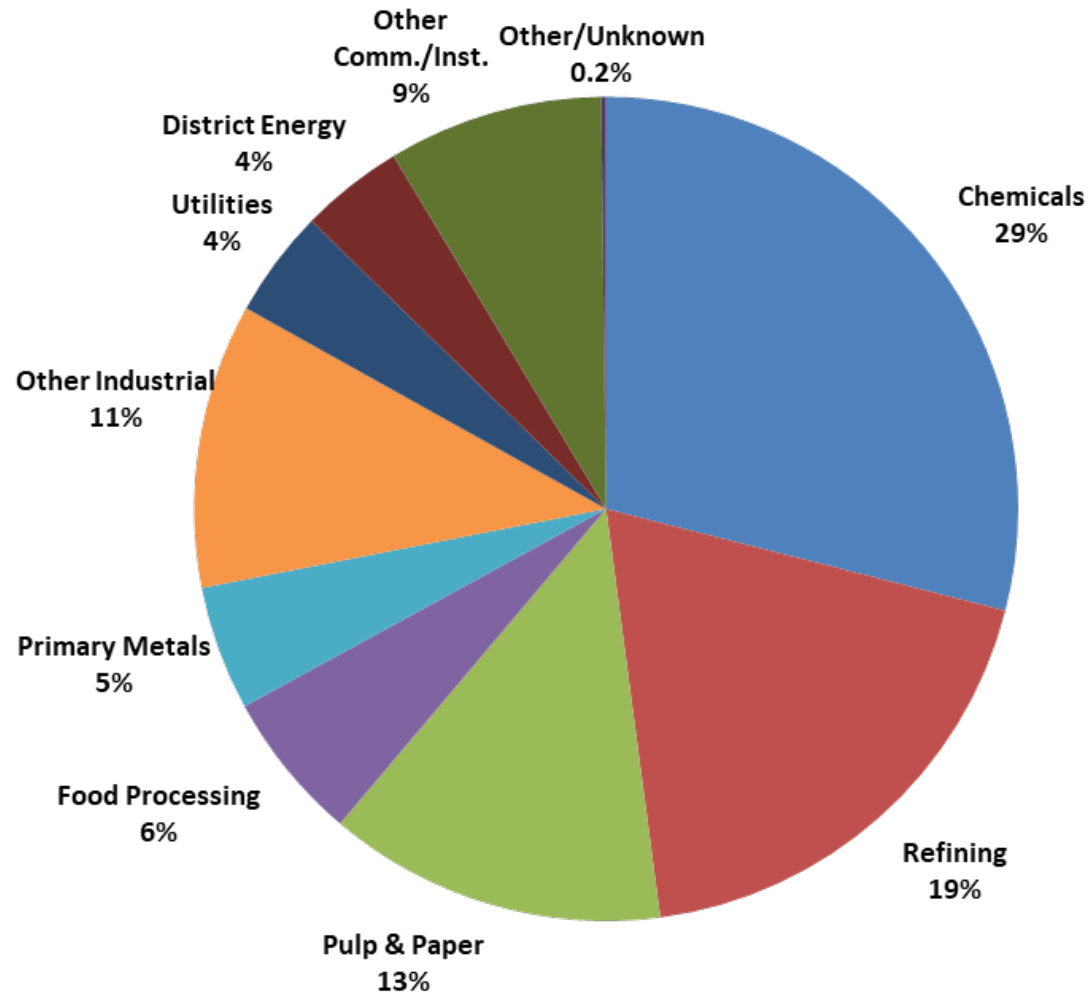
**80.7 GW installed at more than 4,600 sites**

**Saves 1.8 quads of fuel each year**

**Avoids 241 M metric tons of CO2 each year**

Source: DOE CHP Installation Database (U.S. installations as of Dec. 31, 2019)

# CHP Today in the United States



## Existing CHP Capacity

- **80.7 GW** of installed CHP at more than 4,600 industrial and commercial facilities
- 7% of U.S. Electric Generating Capacity; 13% of Industrial
- Avoids more than **1.7 quadrillion Btus** of fuel consumption annually
- Avoids **232 million metric tons of CO<sub>2</sub>** compared to separate production

Source: DOE CHP Installation Database (U.S. installations as of December 31, 2019)

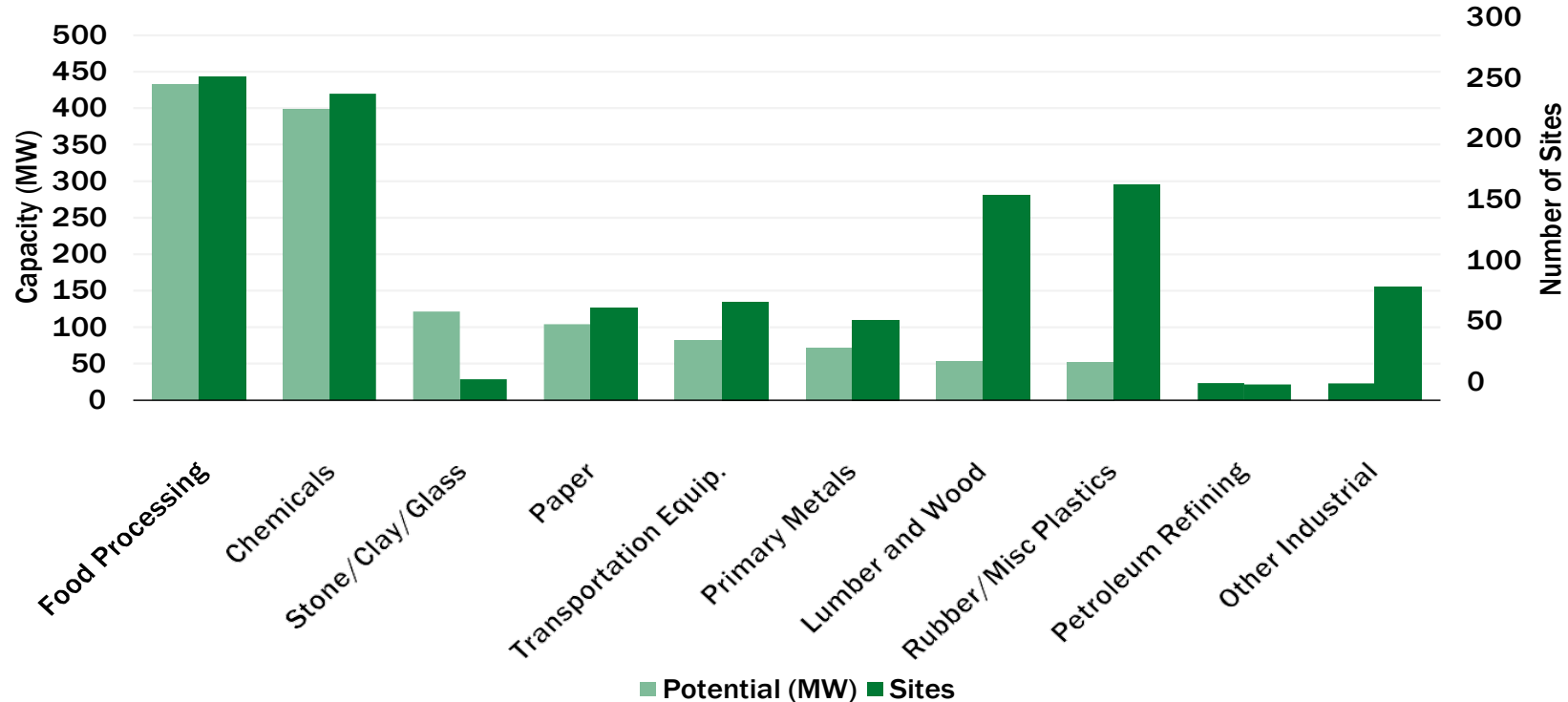
## Missouri: Technical Potential for New CHP Installations

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. Read the report [here](#).

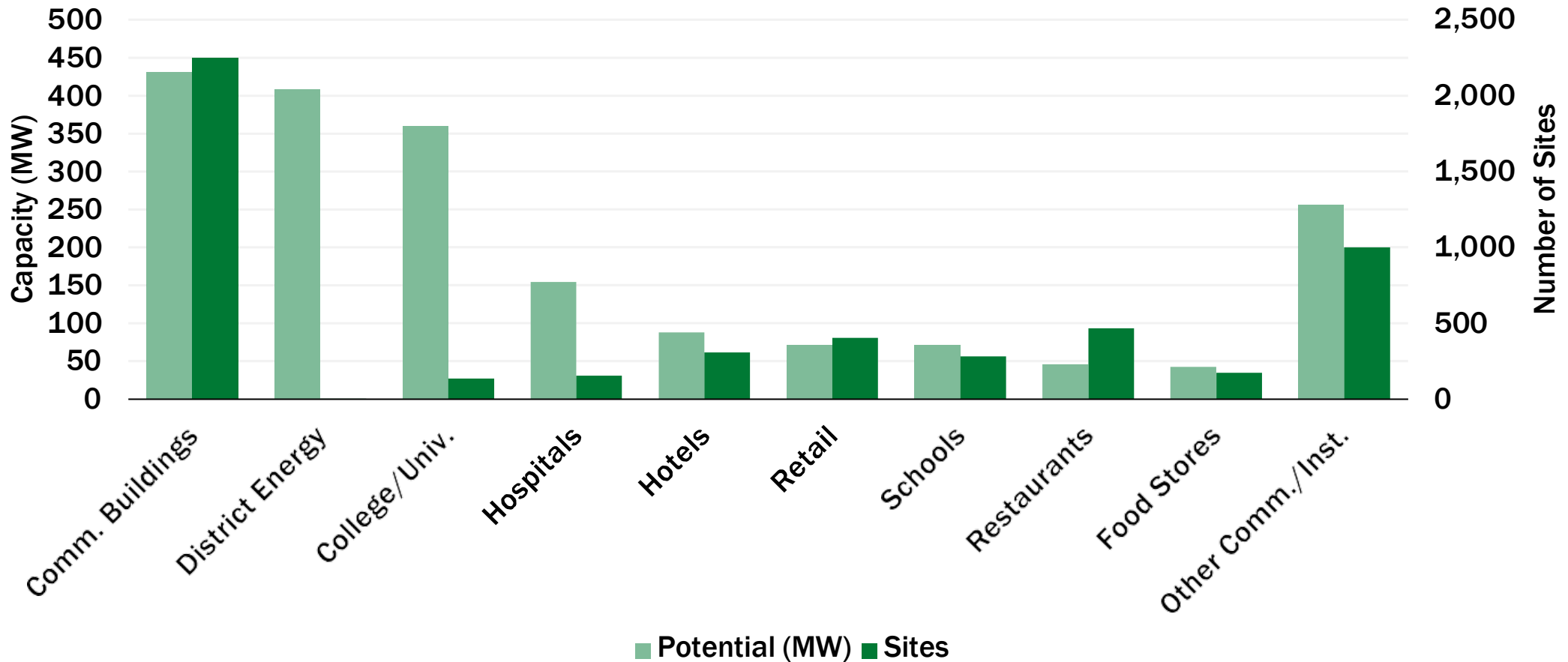
### Missouri CHP Technical Potential

Sector	Potential Sites	Potential MW
Industrial	1,209	1,361
Commercial/Institutional	5,175	1,929
<b>Total</b>	<b>6,384</b>	<b>3,290</b>

Missouri Technical Potential (MW) for Industrial CHP Applications



## Missouri Technical Potential (MW) for Commercial/Institutional CHP Applications



<https://betterbuildingsolutioncenter.energy.gov/sites/default/files/files/tools/Missouri.pdf>

# Thoughts on Energy Equity (justice, vulnerability, fuel poverty)

- Requires state policy/regulatory leadership
- Occurs (or not) at community level
- Distributed energy
- Clean energy
- Efficient energy
- Housing stock (state EE standards?)
- Long term/ongoing investments in community





# All CHP Benefits applicable to Equity

- CHP is 25 – 35% overall more energy efficient than separate generation of electricity and heating/cooling
- NG-fueled CHP reduces pollutant emissions by 50% compared to coal-fueled electric generation
- CHP technology is highly reliable (85-99% available)
- CHP provides resiliency as a DER and can serve as the heart of microgrid
- CHP enables renewable energy growth by serving as baseload
- CHP technology is fueled by biogas NOW

# CHP directly supports the Core Values of MoSEP planning process

4. Create opportunities for energy-related **technological innovation** and workforce development.

5. Ensure affordability and **equity** in access to energy resources, services and programs.



Thank you