



# Combined Heat & Power (CHP): Opportunities in Virginia

Executive Order 57 Work Group Meeting

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October 31, 2016



The Alliance for Industrial Efficiency promotes state and federal policies to support U.S. manufacturing competitiveness through enhanced industrial efficiency. Our diverse coalition of businesses, labor groups, and non-profits work to improve energy efficiency in America's industrial sector.

# Agenda

- CHP offers tremendous benefits to manufacturers, the public & utilities
- Significant potential remains
- Many barriers deter deployment – but well-designed policies can overcome them



# How CHP Fits Into Scope of EO-57 Work Group

In preparing their recommendations, the Secretary and the Work Group shall consider the following:

(1) the establishment of regulations for the reduction of carbon pollution from existing electric power generation facilities pursuant to existing authority under Virginia Code § 10.1- 1300 et seq.;

(2) the carbon reduction requirements for existing electric power generation facilities established under § 111(d) of the federal Clean Air Act;

(3) the interaction between electric utilities and regional markets, including PJM Interconnection;

(4) the impact any reduction requirements place on the reliability of the electric system;

(5) the impact any reduction of carbon pollution may have on electric rates and electric bills;

(6) the impact of reducing carbon pollution on low income and vulnerable communities;

(7) the cost effectiveness of pollution reduction technologies that may be deployed;

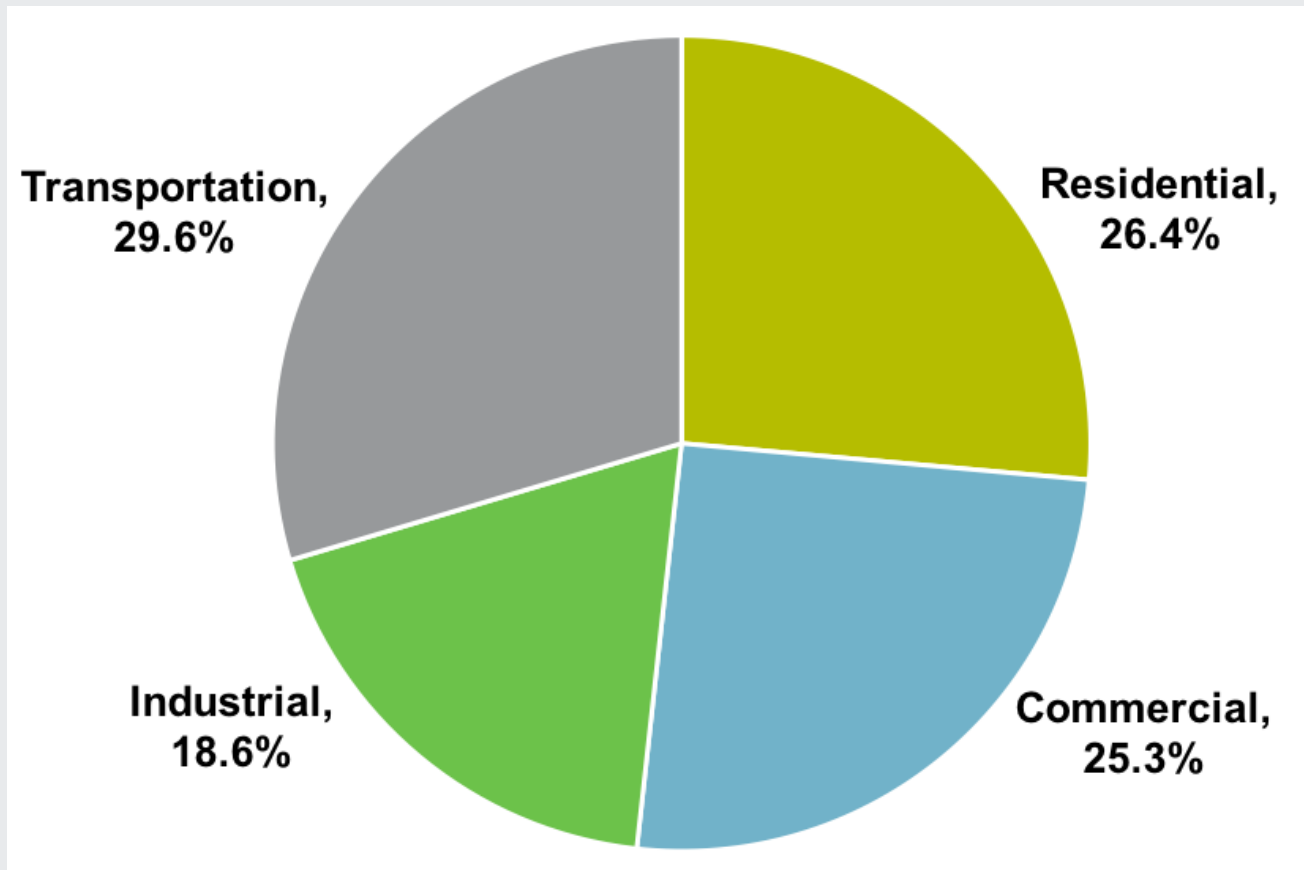
(8) the economic development opportunities associated with deployment of new carbon reduction technologies;

(9) the implementation and administration of carbon reduction regulations; and

(10) flexibility in achieving the goals of any carbon reduction regulation.



# Virginia Energy Use by Sector



Source: EIA 2016

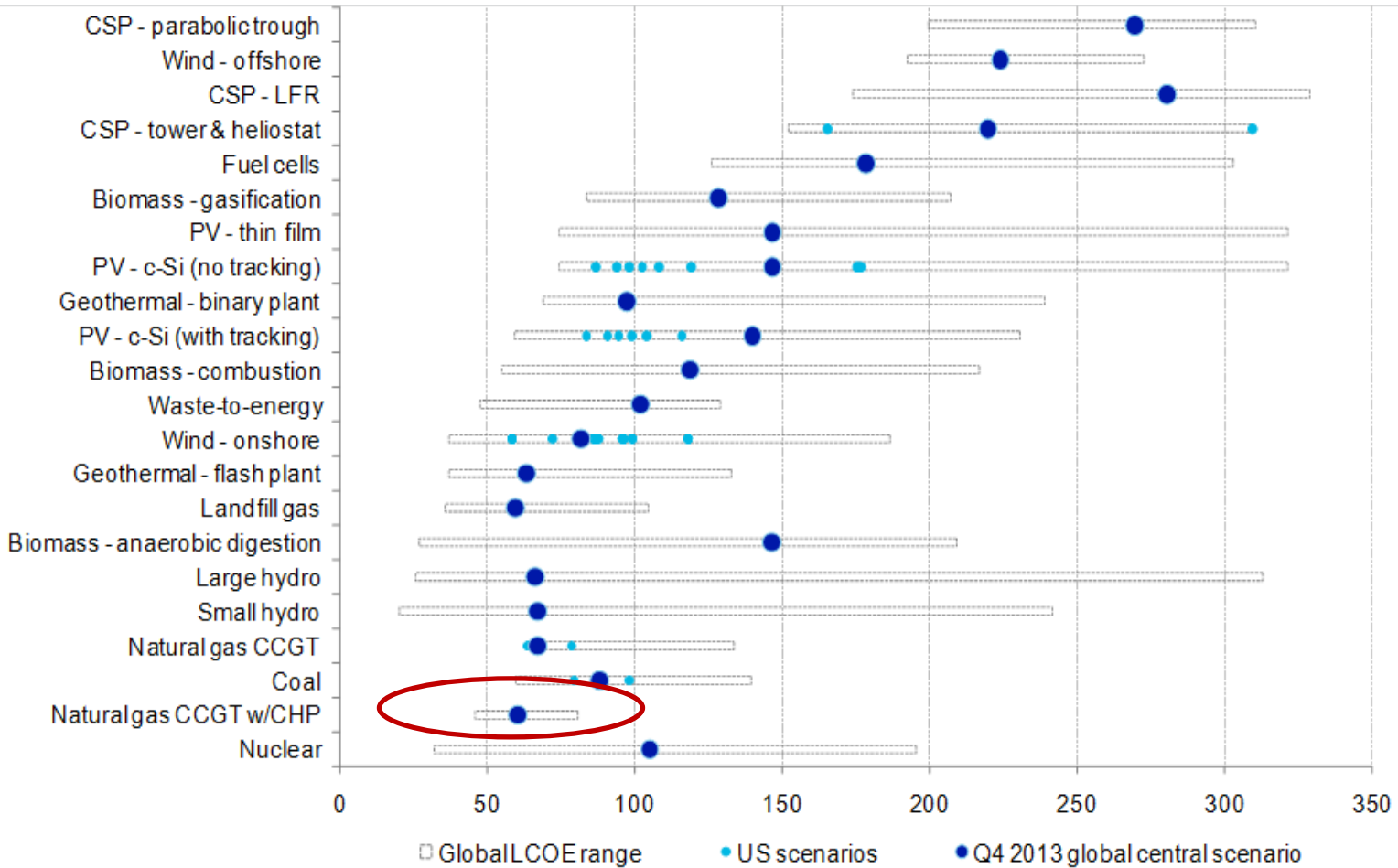


### CHP Benefits:

1. Manufacturers
2. The Public
3. Utilities



# CHP Is Cost Effective



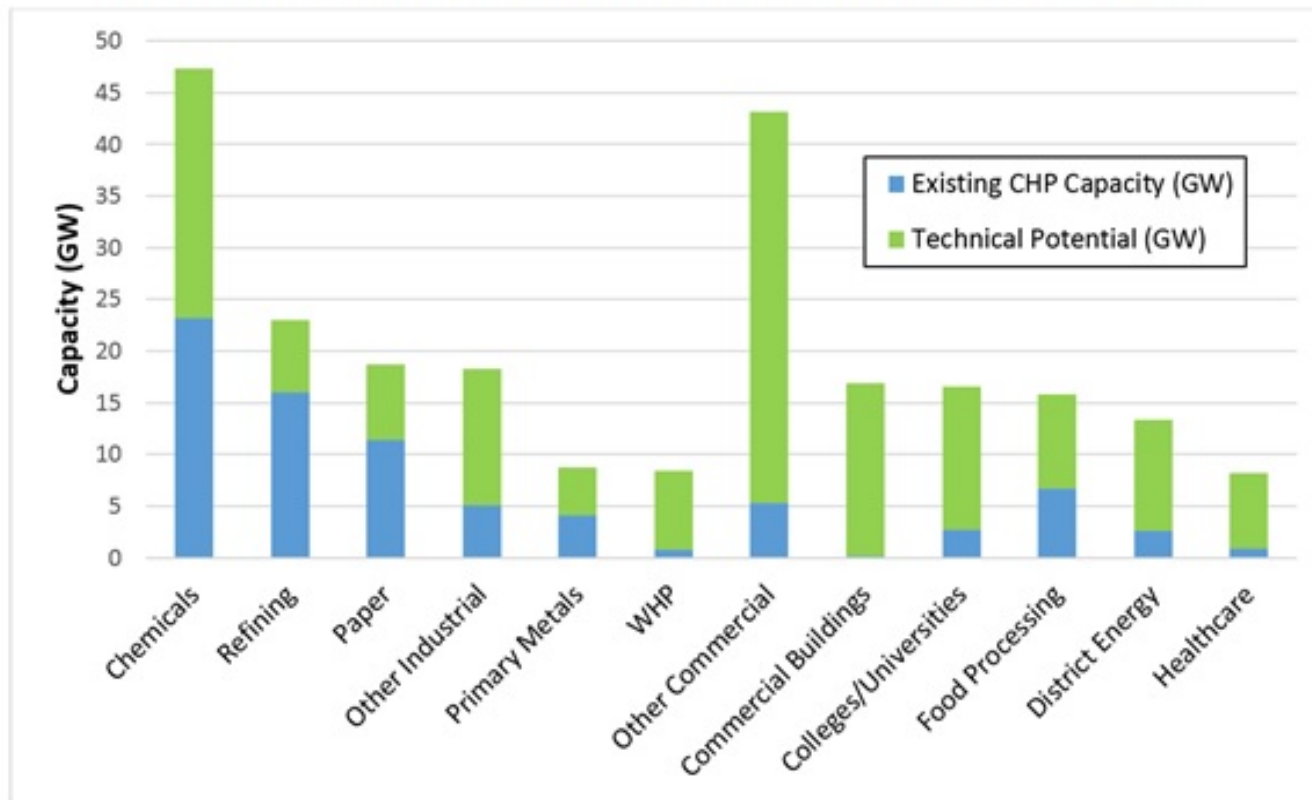
Levelized Costs of Energy across Power Generation Technologies, Q4 2013 (\$/MWh)



Source: BCSE 2014

# Remaining Potential for CHP

Existing CHP Compared to On-Site Technical Potential by Sector



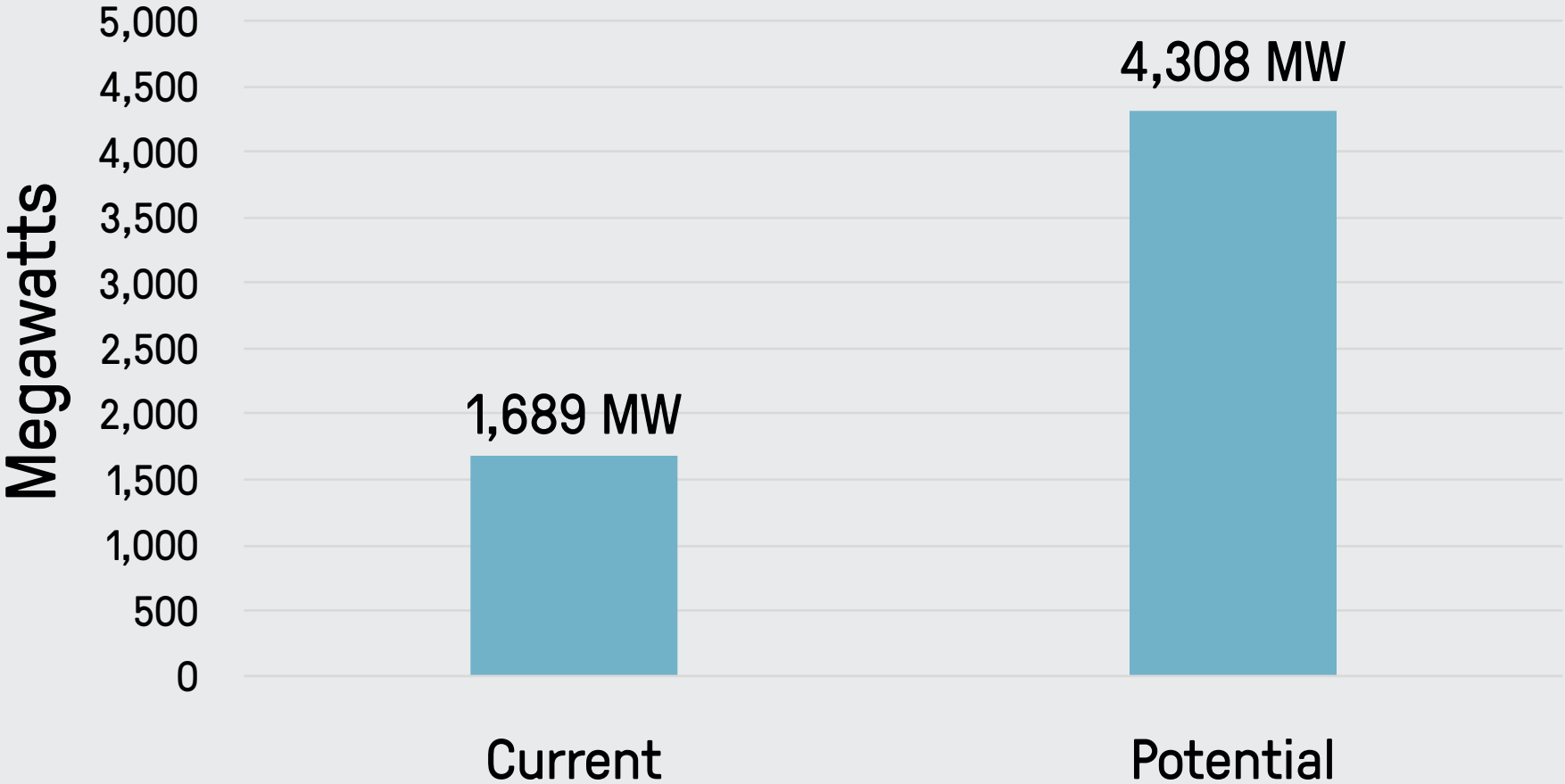
U.S. DOE CHP Deployment Program, 2016.



Source: DOE 2016



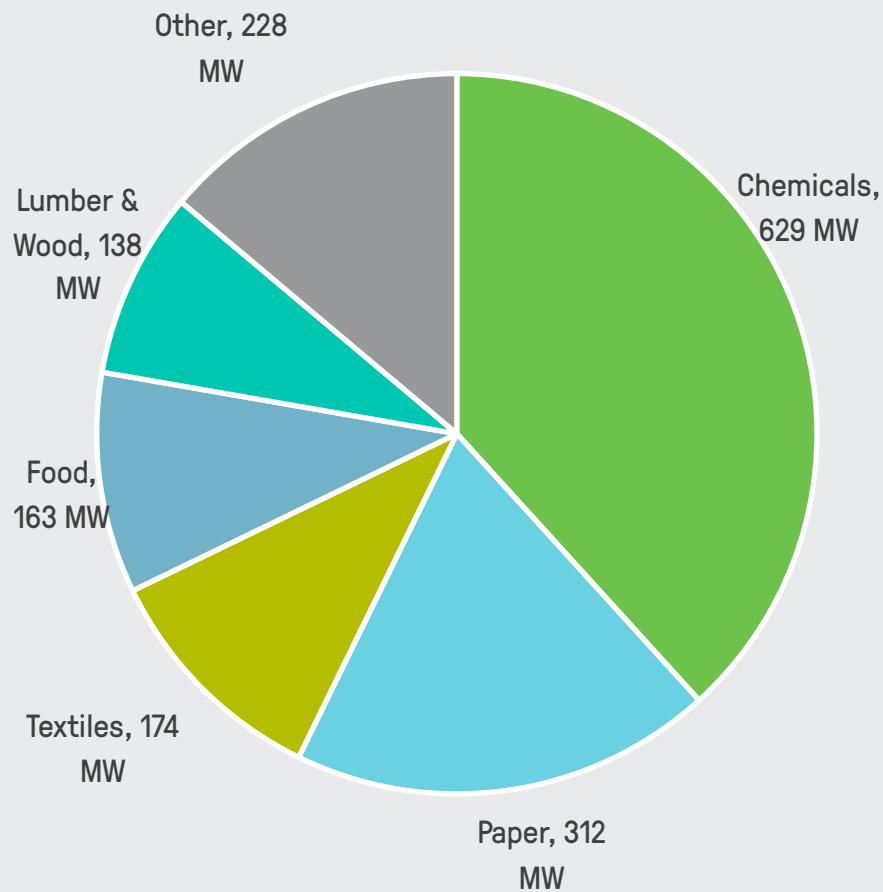
# CHP Technical Potential (Virginia)



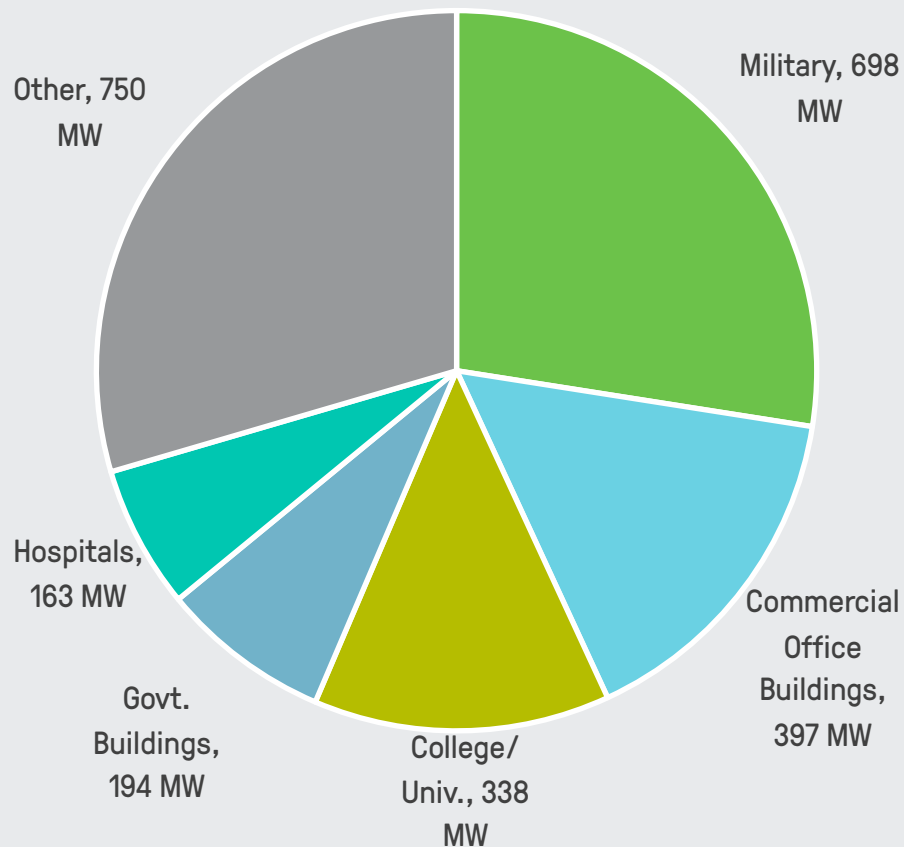
Source: DOE 2016

# Commercial & Industrial CHP Potential (Virginia)

## Industrial On-Site Technical Potential

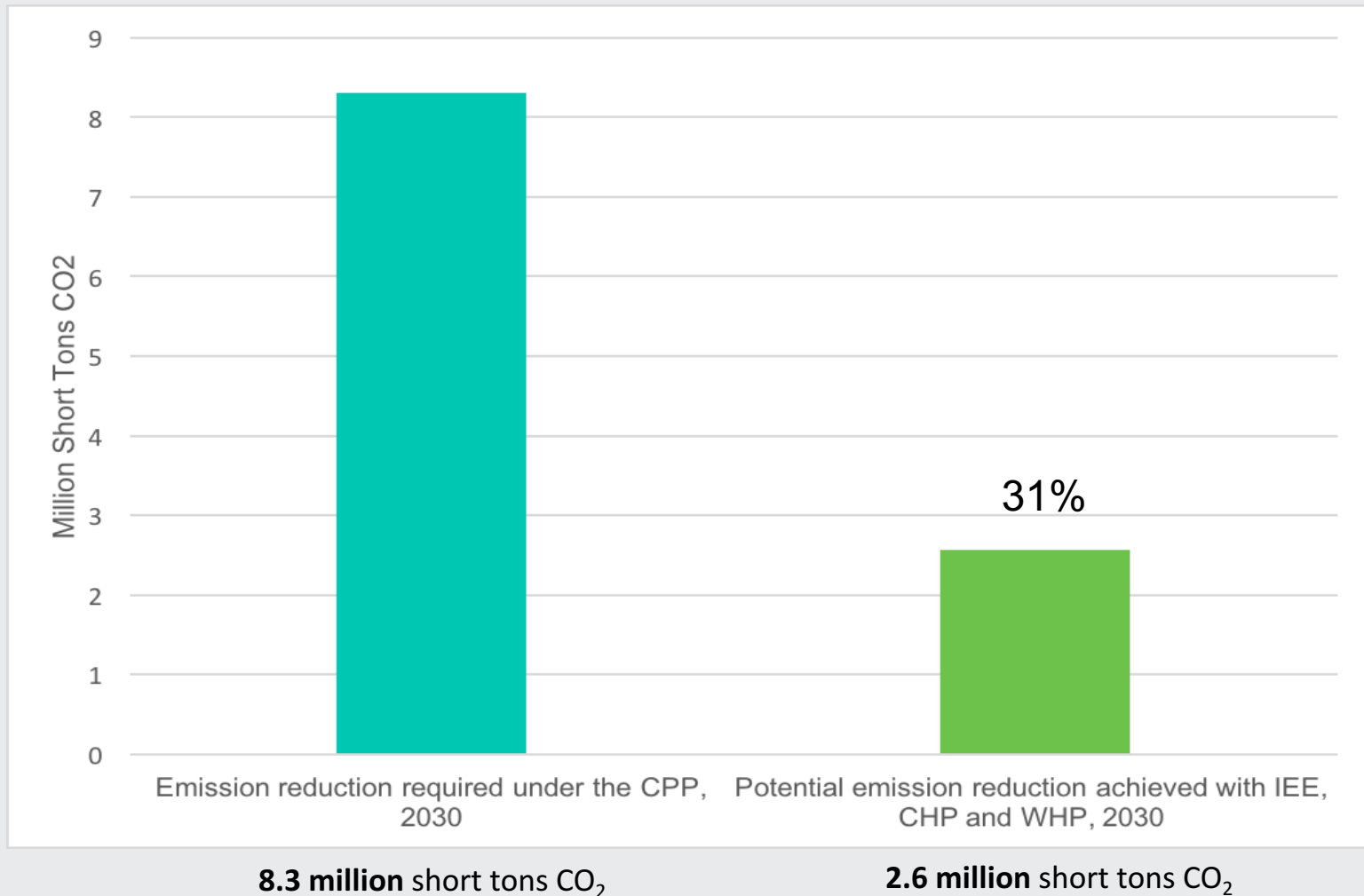


## Commercial On-Site Technical Potential



Source: DOE 2016

# Industrial Energy Efficiency Can Help Virginia Achieve Clean Power Plan Targets



Source: AIE 2016, *State Ranking of Potential Carbon Dioxide Emission Reductions through Industrial Energy Efficiency*

# Hood Dairy (Winchester, VA)

- Combined heat and power and a 15-MW microgrid
- 4 year payback period (ongoing)
- 25% net savings, year-to-date
- 30% emissions reduction



# Barriers to Deployment

- Insufficient utility incentives
- Time- and resource-intensive permitting processes
- Unfavorable standby tariffs
- Inadequate consideration of reliability



# Recommendations

- Recognize CHP as a compliance option in state GHG plans
- Exercise the Administration's convening authority
- Provide streamlined permitting for CHP projects that meet established size and efficiency requirements
- Require consideration of CHP before modifying public facilities and/or critical infrastructure
- Adjust discriminatory tariffs
- Help finance projects



# Conclusion

- CHP benefits Virginia's manufacturers, the public & utilities
- Significant potential remains
- Virginia should adopt policies to overcome barriers:
  - Clean Power Plan/GHG plans
  - CHP working group
  - Streamlined permitting processes
  - Critical infrastructure policy
  - Non-discriminatory tariff rates
  - Utility and state incentives





# ALLIANCE

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