

Midwest Cogeneration Association

Testimony to the 2015 Indiana Interim Study Committee on Energy, Utilities, and Telecommunications

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Midwest Cogeneration Association

- The MCA is a not-for-profit professional association dedicated to promoting clean and energy efficient cogeneration technologies in eight Midwest states, including Indiana.
- MCA members include representatives of CHP and WHP technology manufacturers, distributors, and project developers – many of whom have manufacturing facilities and business operations in Indiana.
- Our members have expertise in CHP and WHP technologies, as well as project financing and development.



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Cummins Inc.



- Founded in 1919 in Columbus, IN.
- Largest independent maker of diesel engines and related products in the world.
- Ranked 168 on the Fortune 500.
- Employ more than 9,000 in Indiana.
- Manufacturing facilities in Columbus and Seymour.



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Combined Heat and Power (CHP)

- CHP – The utilization of both heat and electric energy from a generator
- Also known as Co-generation or Co-Gen
- CHP currently supplies 12% of U.S. generating capacity
- CHP systems can reach efficiencies above 80%
- States/utilities have different requirements for cogeneration
- CHP is not a new technology
 - Used in 1882 in Thomas Edison's first electric generating plant (Pearl Street – NY)
 - Early 1900s regulation promoting the electrification of rural America discouraged decentralized power and made it illegal for non-utilities to sell power
 - 1978 – Realizing efficiency in centrally-fired plants had stagnated, PURPA (Public Utilities Regulatory Practices Act) was passed



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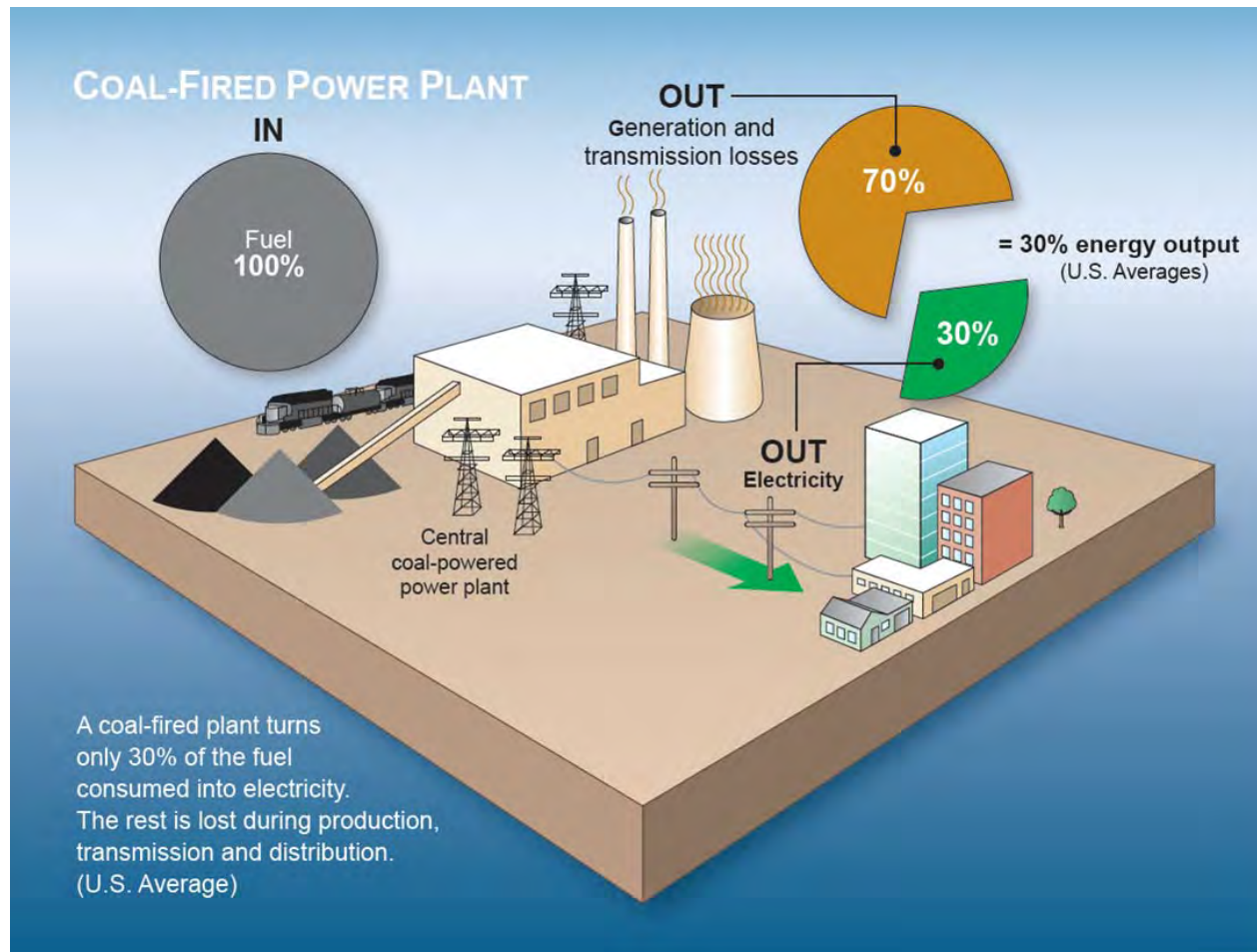
What is CHP?

- Combined heat and power technologies produce both electricity and steam from a single fuel at a facility located near the consumer.
- These efficient systems recover heat that normally would be wasted in an electricity generator, and save the fuel that would otherwise be used to produce heat or steam in a separate unit.
- CHP's inherent higher efficiency and the avoidance of losses in transmitting the electricity to the end-user from the central station generator result in reduced primary energy use and lower greenhouse gas (GHG) emissions.
- The most common CHP configuration is known as a topping cycle, where fuel is first used in a heat engine to generate power, and the waste heat from the power generation equipment is then recovered to provide useful thermal energy.
- A gas turbine or reciprocating engine generates electricity by burning fuel and then uses a heat recovery unit to capture useful thermal energy from the prime mover's exhaust stream and cooling systems.



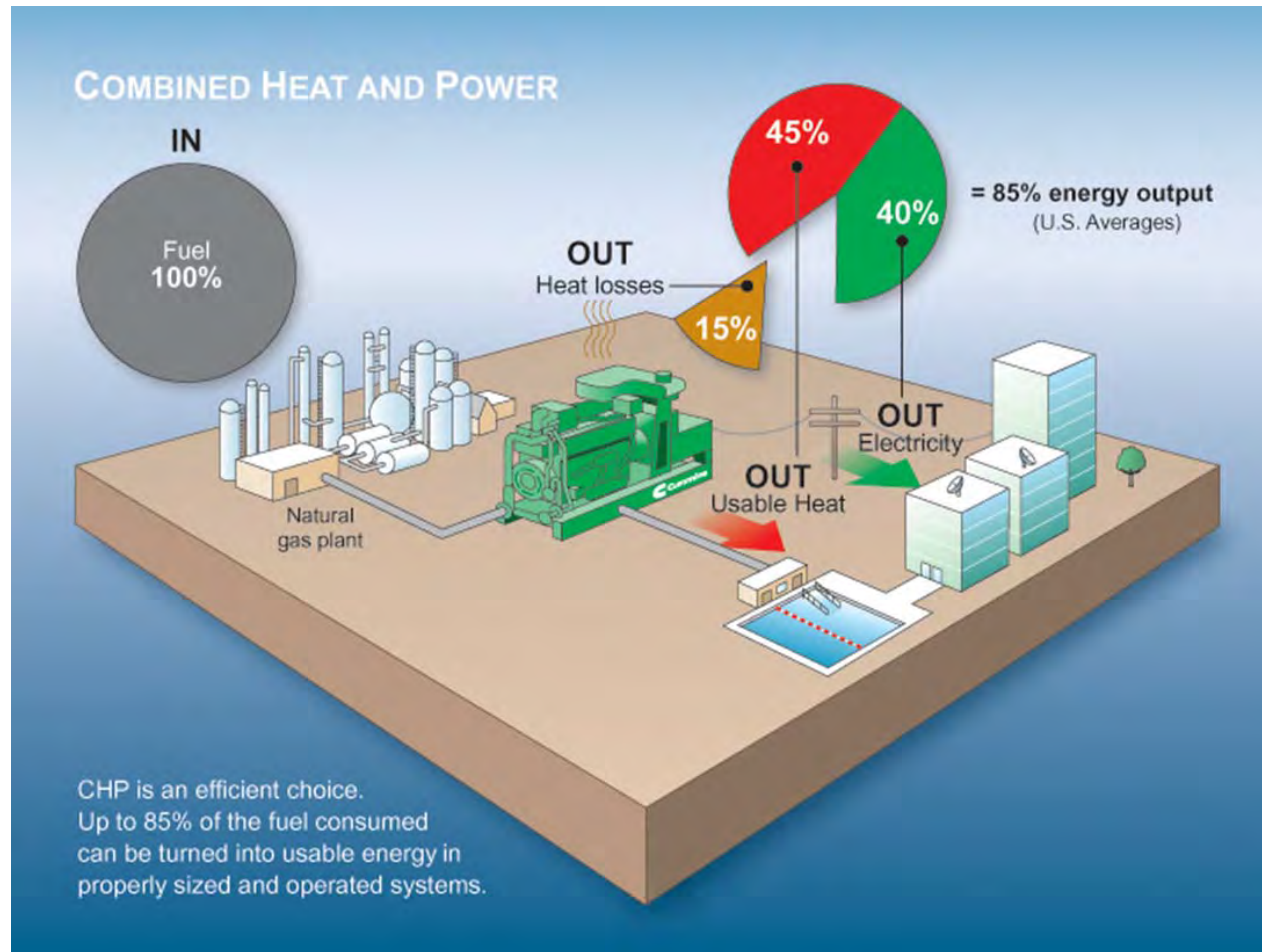
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Traditional Centrally-Fired Generation



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Combined Heat and Power (CHP) Generation



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Cummins CHP Products



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Indiana CHP & WHP

Current and Potential

- 42 CHP and WHP projects in Indiana
 - 2,323 megawatts
 - Source: DOE CHP Installation Database
- Many premier CHP/WHP projects
 - Range from 130 kW to 755 MW
- 3,500-5,700 additional megawatts of unrealized potential CHP/WHP projects in Indiana's commercial, institutional, industrial, and agricultural sectors
 - Source: ICF International Estimates and Oak Ridge National Laboratory



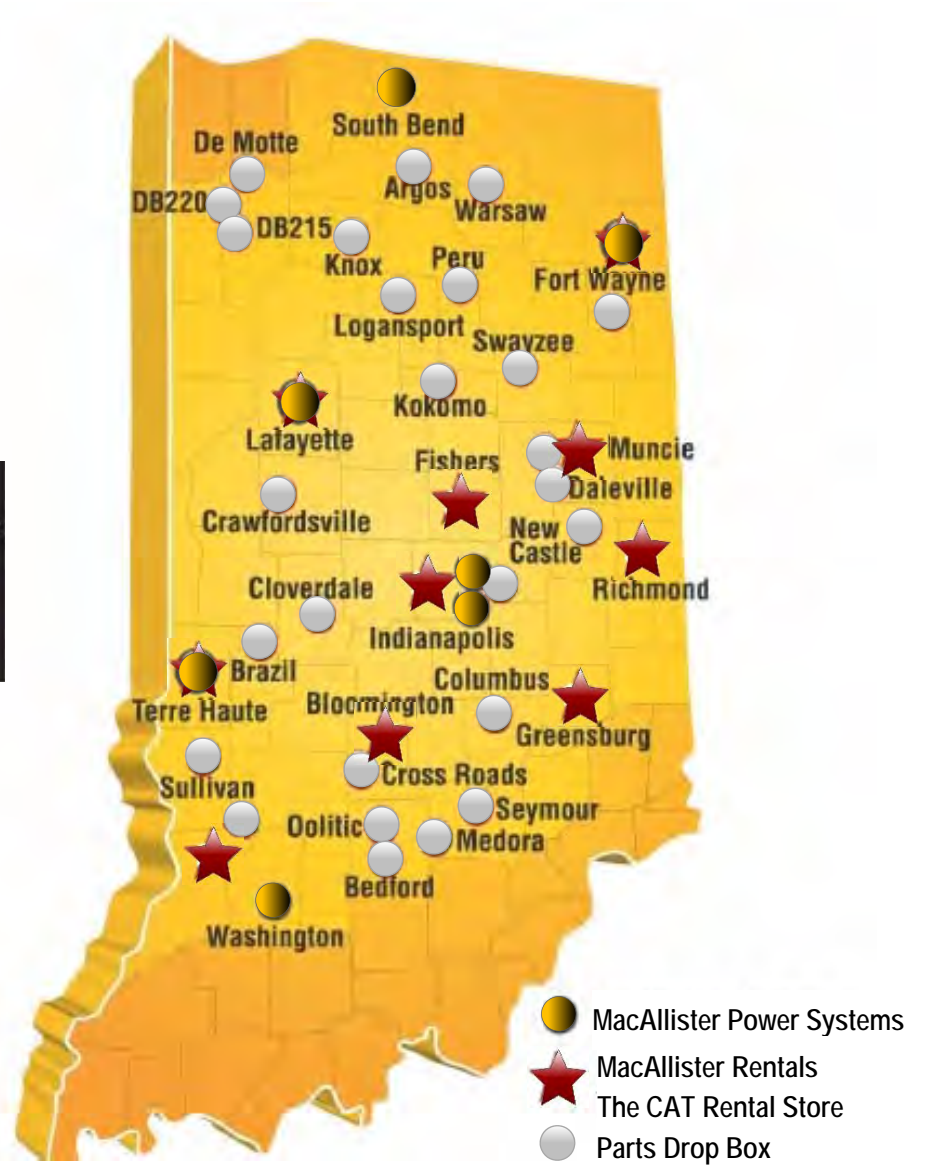
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CHP VALUE PROPOSITION: STATE OF INDIANA

- Additional generation to meet future demand without high cost of new power plants
 - Using private capital
- Demand reductions resulting in lower costs to Indiana consumers
 - Greater efficiency of CHP/WHP systems
 - Reduction in “line losses” (7%+)
- Job creation and increases in Indiana’s manufacturing competitiveness
- Increased energy resiliency during natural disasters and other emergencies
- Reduction in emissions
 - Reduced greenhouse gases, criteria pollutants, and hazardous air pollutants

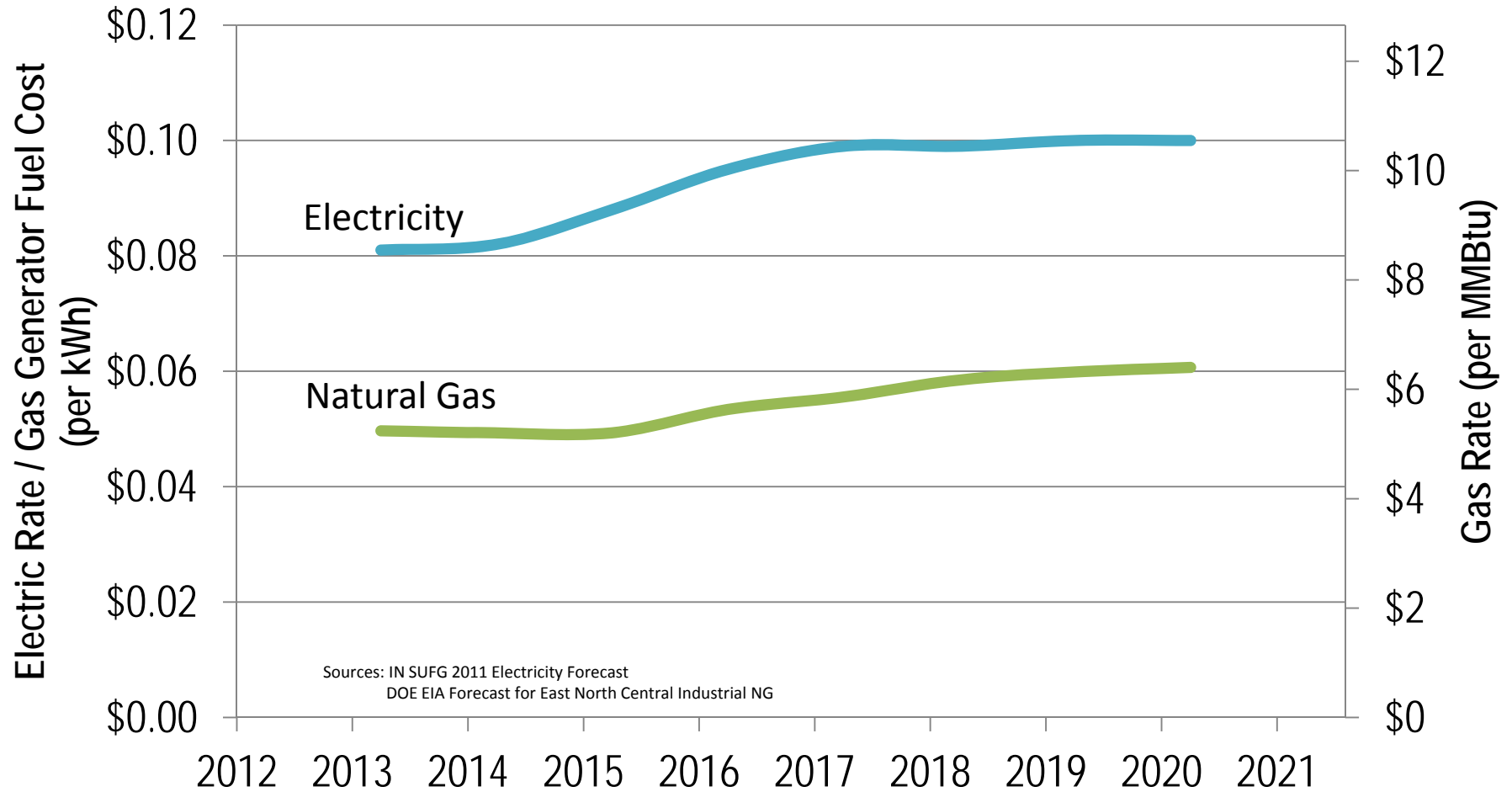


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Indiana Spark Spread Forecast



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Natural Gas



Electricity

Hot Water / Steam

2 MW CHP System Hourly Economic Profile

Natural Gas	\$ (67.84)
Service	\$ (38.90)
Electricity	\$ 153.21
Heat	\$ 32.27
Net Savings	\$ 78.84

Annual Savings \$676,752



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How Can Indiana Promote CHP?

MCA supports the following CHP Coalition proposals for legislation that will level the playing field for private investment in CHP:

- A directive to the IURC to update regulations and tariffs for back up and maintenance rates
- Recognition that utilities and non-utilities can own and provide technical, financing, or operational expertise for private energy projects
- Provision of a pilot regulatory mechanism for streamlining approval of CHP projects



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