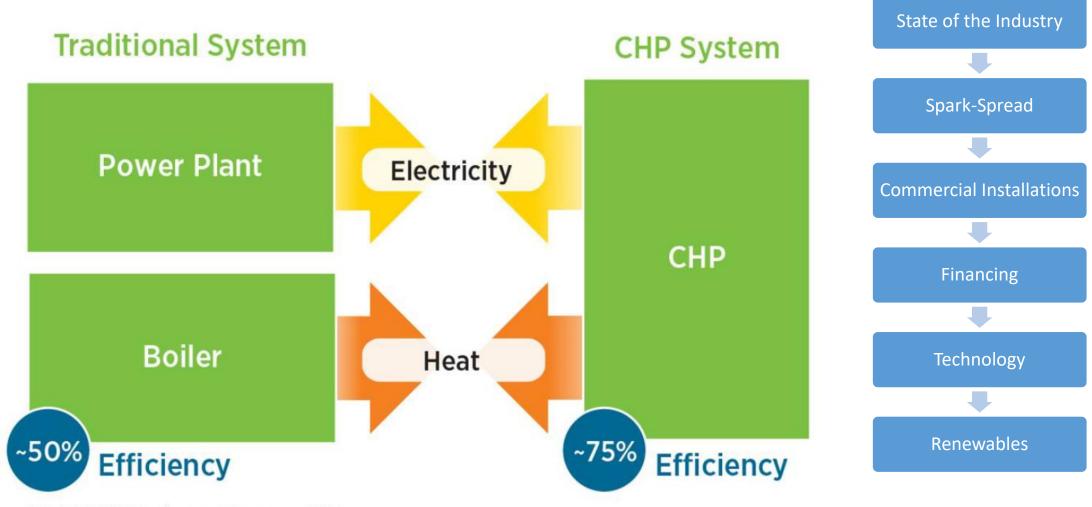
Combined Heat and Power (Cogeneration) in the USA

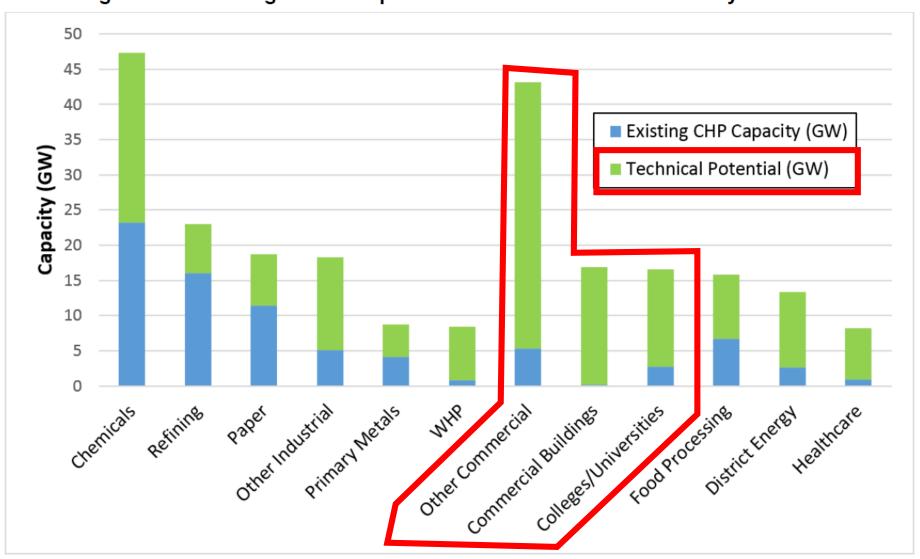
Figure I-1: Energy Efficiency Advantage of CHP Compared to Traditional Energy Supply



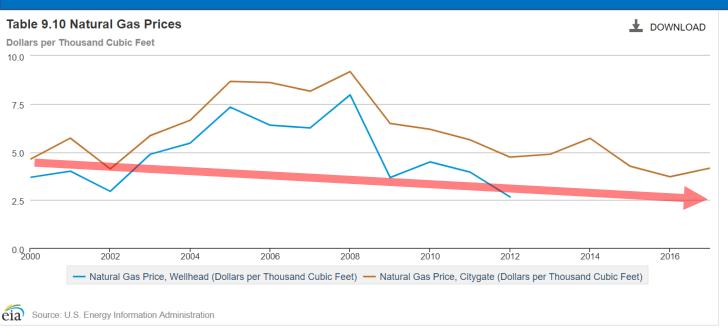
U.S. DOE CHP Deployment Program, 2016.

Cogeneration in the USA Today

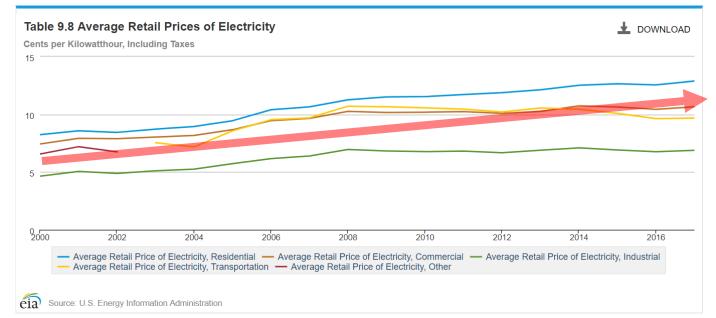
Figure V-1: Existing CHP Compared to CHP Technical Potential by Sector



Spark – Spread: The Driver of Cogeneration



Natural Gas Continues to Drop in Price Despite The Longest Economic Expansion Since the 2nd World War: Hydrofracking = Plentiful and Cheap Natural Gas



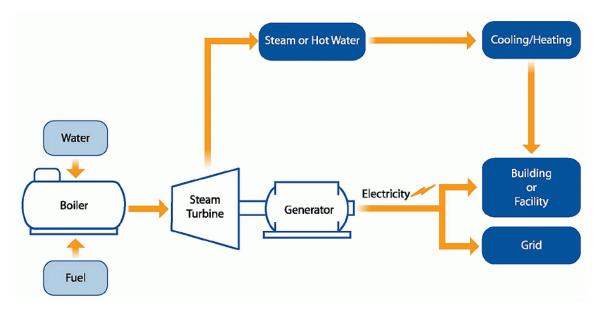
Electricity Prices Continue to Rise as Aging Infrastructure and Renewable Energy Mandates Drive Costs

Commercial Cogeneration Installations

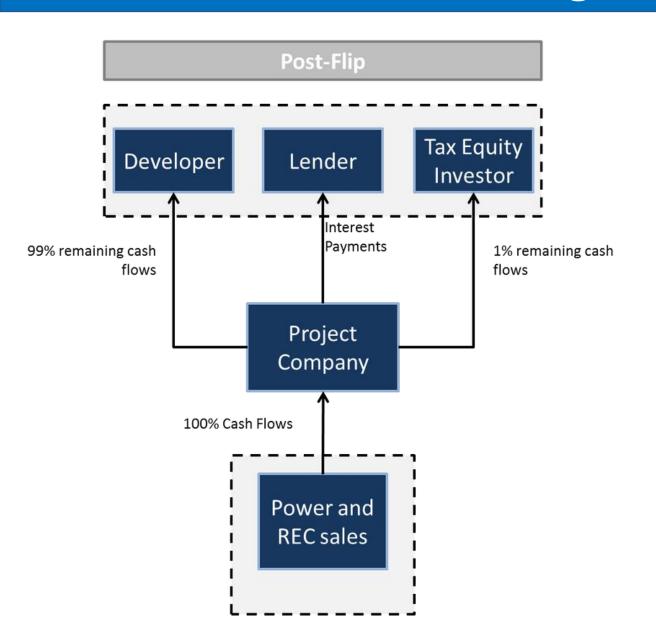








Financing Cogeneration



- 10% Investment Tax Credit
- 5 Year Accelerated
 Depreciation
- Equipment Salvage Value is Low
- 3rd Party Financing is Challenging
- 5 year Term at 10% interest is typical

Future of Cogeneration Technology







Beyond Reciprocating Engines

- Solid Oxide Fuel Cells
- Free Piston Stirling Engines
- Micro-Turbines



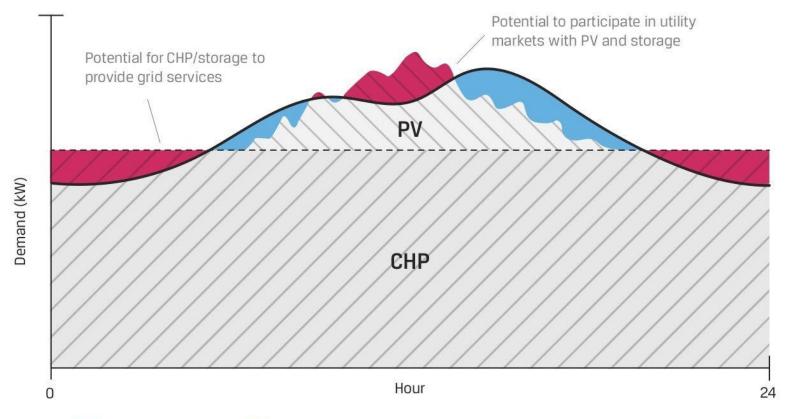
Micro turbine makes micro-CHP affordable





Cogeneration and Renewables





- - - Maximum CHP Output

Load Profile

Discharge Energy Storage

harge Energy Storage

- Cogeneration is the most efficient source of baseload power.
- The world's largest batteries coupled with PV Solar are not a replacement for baseload power.
- As the world shifts away from Nuclear and Coal. The demand for Cogeneration will grow to provide baseload power.

Questions

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