A child with curly hair, seen from behind, wearing a red knitted sweater, stands in a lush green field with arms raised in a 'V' shape. The background shows rolling green hills under a cloudy sky.

We Care for a Better Future.



2G. Company Presentation.

Advanced Energy for LPCs: Combined Heat and Power
10.21.2020

2G. Cogeneration.

Emily Robertson, Business Development

2G Energy is a CHP system and engine manufacturer with state-of-the-art manufacturing facilities and its own R&D division.

100% dedicated to

- Containerized Combined Heat & Power Systems
- Clean Natural Gas, Biogas, Propane, and Hydrogen engines
- 2G manufactures its own engines from 60kW to 1MW

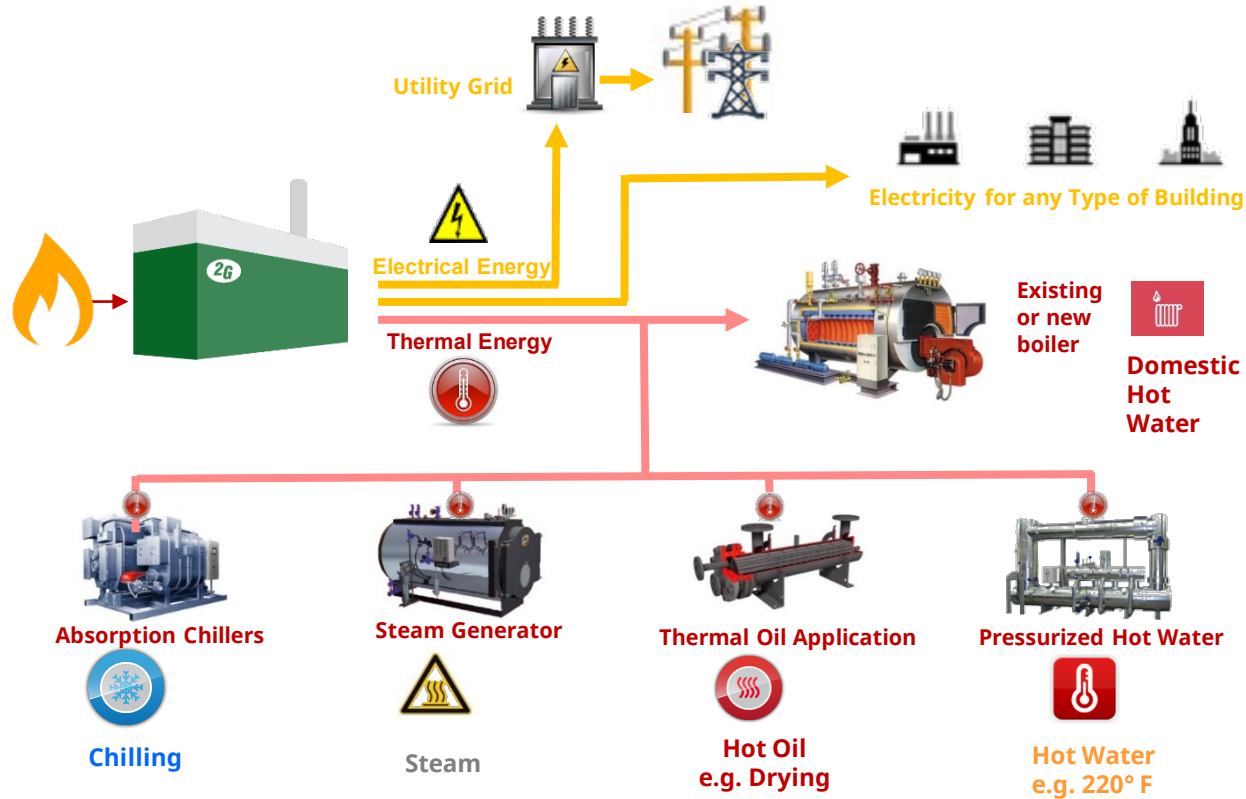




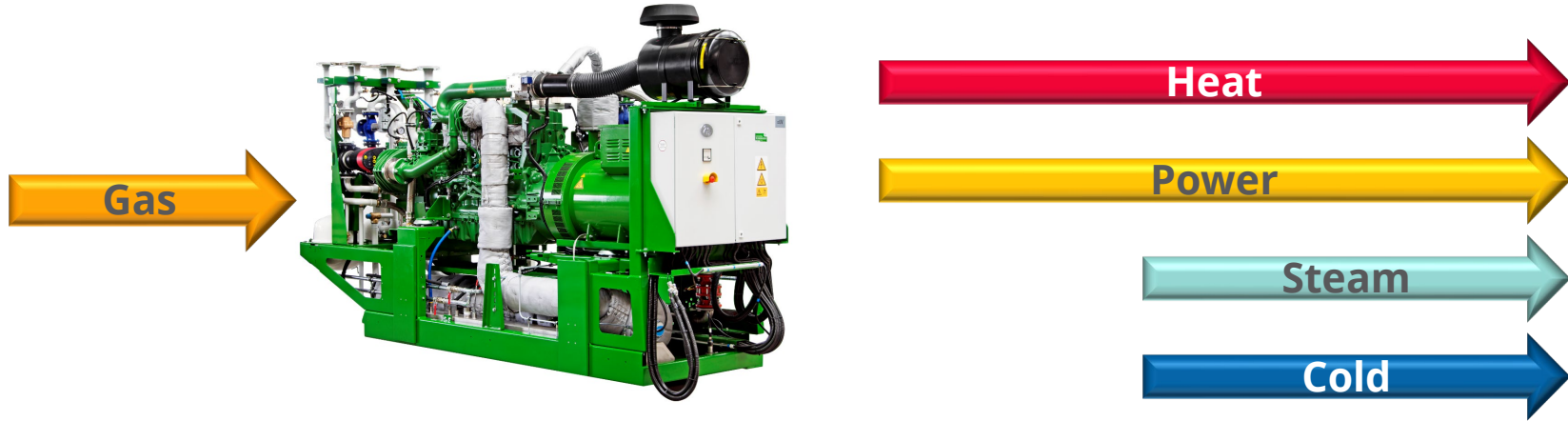
- Founded 1995 - Headquarters in Heek in North West of Germany
- Solution provider: development, project engineering, production, service
- CHP systems for biogas, natural gas, propane and hydrogen applications
60 – 2,500 kW electrical power
- Strong focus on R&D
- 10 national and international subsidiaries
- Since 2007 listed on the German stock market
- 653 employees
- Over 6,500 CHP plants in more than 55 countries worldwide



Cogeneration



Functionality of a Combined Heat and Power Plant (CHP).



Technical advantages CHP:

- The heat of the combustion process can be used (more than 90% total efficiency)
- Decentral and sustainable
- Reliable Systems

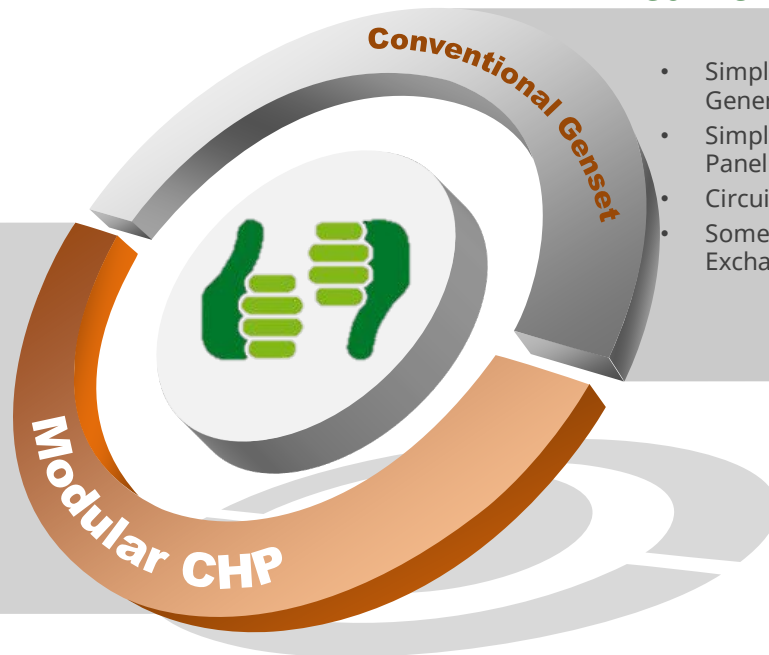


Modular CHP

- Pre- manufactured & All-in-One
- Highly efficient & effective
- Closed Loop Heat Extraction
- Superior Control technology
- Many other Hightech Components
- Easy implementation Plug & Play

Conventional Genset

- Simple Engine & Generator on a metal skid
- Simple Generator Control Panel
- Circuit Breaker
- Sometimes a Heat Exchanger is included



Specialized in container solutions.



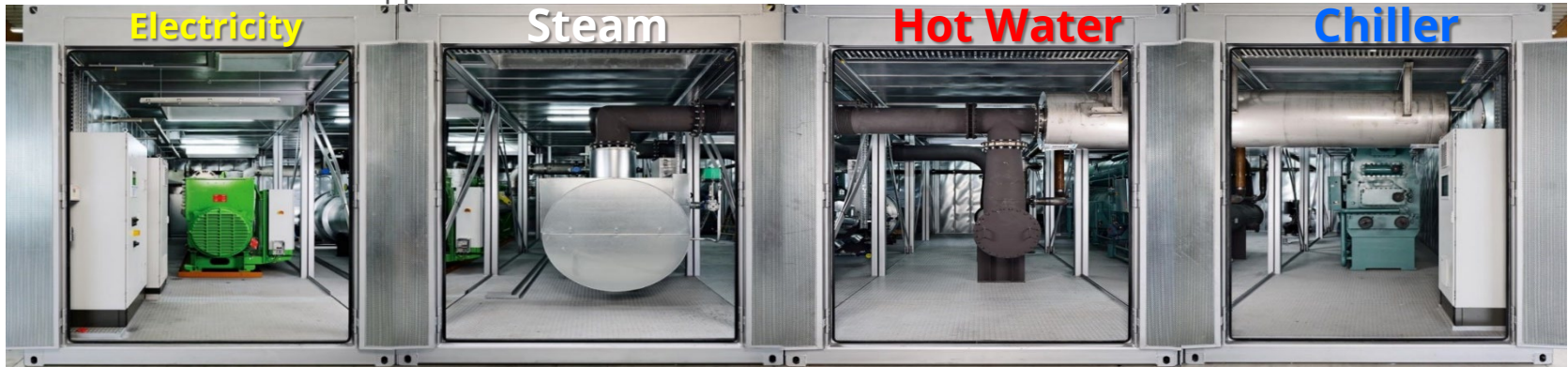
2G CHP systems are 100% modular and can be configured to individual project needs.

Cogeneration (Electricity & Hot Water)

Tri-Generation (Electricity, Hot Water and Steam)

Quad-Generation (Electricity, Hot Water, Steam and Chilling / Cooling)

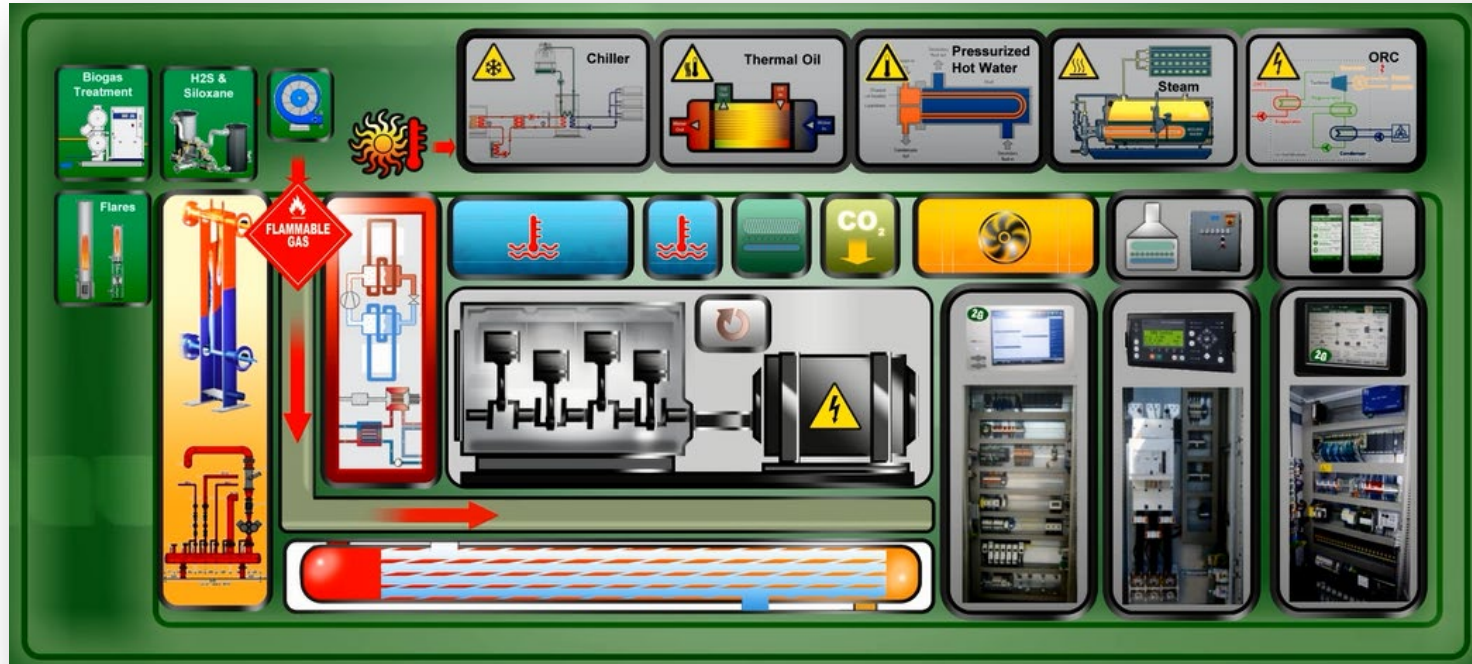
Or any combination of the above applications



A Genuine Modular System

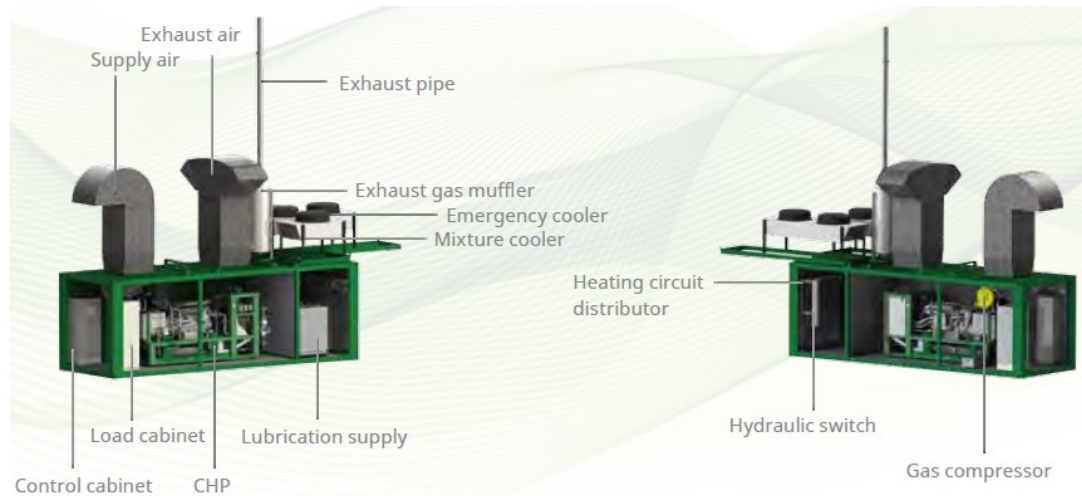


- Professional CHP systems are modularized and contain the entire technology needed to function
- Implementation of the system is easy and bears minimal risk



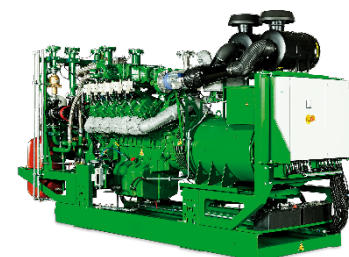
Purpose-Built Containerization

- Sound Attenuation
- Maintenance clearance/ serviceability
- Durable structure (No sag)
- Built-in oil containment



Product Portfolio.

Product Group	Power Range
g-box	60 kW
aura	100 to 420 kW
agenitor	80 to 450 kW
avus	550 to 2,500 kW



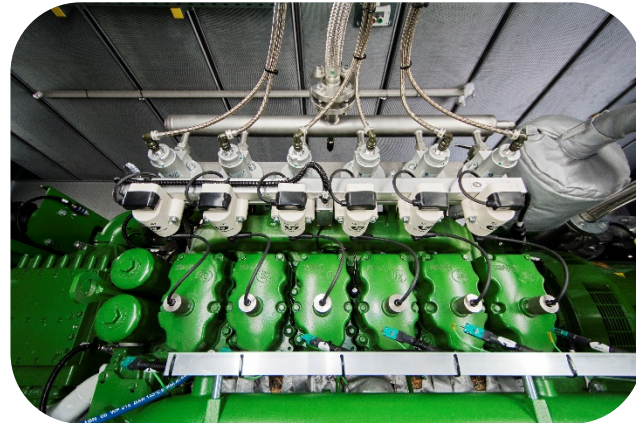
Hydrogen CHP:

Part of the road map to carbon zero.

2G Energy has manufactured the world's first reciprocating engine that can run on 100% hydrogen.



Natural gas

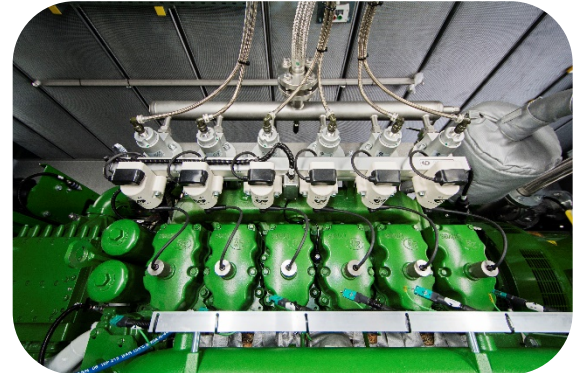


Hydrogen

The 2G engines can be retrofitted for hydrogen injection on site. Run on natural gas now and convert once the hydrogen is available

Examples

- **TOTAL Hydrogen Service Station at BER Airport**
agenitor 306 SG with 2G hydrogen technology
- **APEX in Rostock**
agenitor 404c with 2G hydrogen technology
- **Haßfurt Municipal works**
agenitor 406 SG with 2G hydrogen technology
- **Esslingen residential buildings**
agenitor 408 with 2G hydrogen technology
- **Siemens project in Dubai**
agenitor 412 SG with 2G hydrogen technology



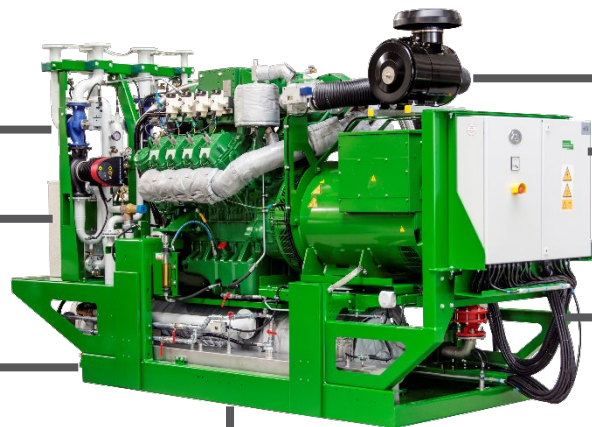
aura 100 - 420 kW. Ultra low emissions

Nitrogen oxide values of
less than 50 mg/Nm³

Lambda-1
technology

Operation without a lean-
burn combustion concept
or SCR catalytic converter

Lifecycle costs of all
aura modules are
reduced



Combustion air is
weakly charged with
the help of a
turbocharger

100 - 420 kW
electrical
output

Overall efficiency of
over 94 % with a
thermal efficiency of
around 56 %.



Gas to Power.

The answer to your Power-Only Generation needs.

natural gas.

A variety of system options can provide you with high quality on-site power generation, while maximizing your savings opportunity. These systems are available for all sectors, including manufacturing, remote areas, data centers, greenhouses, etc. 2G now has a line up of engines from 285 kW to 1,000 kW. Peaker options available from 700 kW to 1,250 kW.

continuous operation	Output	Efficiency
avus 500 plus	550 kW	40.6 %
avus 1000 plus	1,000 kW	42.3 %
patruus 285	285 kW	37.0 %
agenitor 408	360 kW	40.9 %
peaker (max 300 hrs/yr)		
avus 500 plus	700 kW	40.2 %
avus 1000 plus	1,250 kW	41.4 %



- ## Technicians 20 +

Support
24 hr





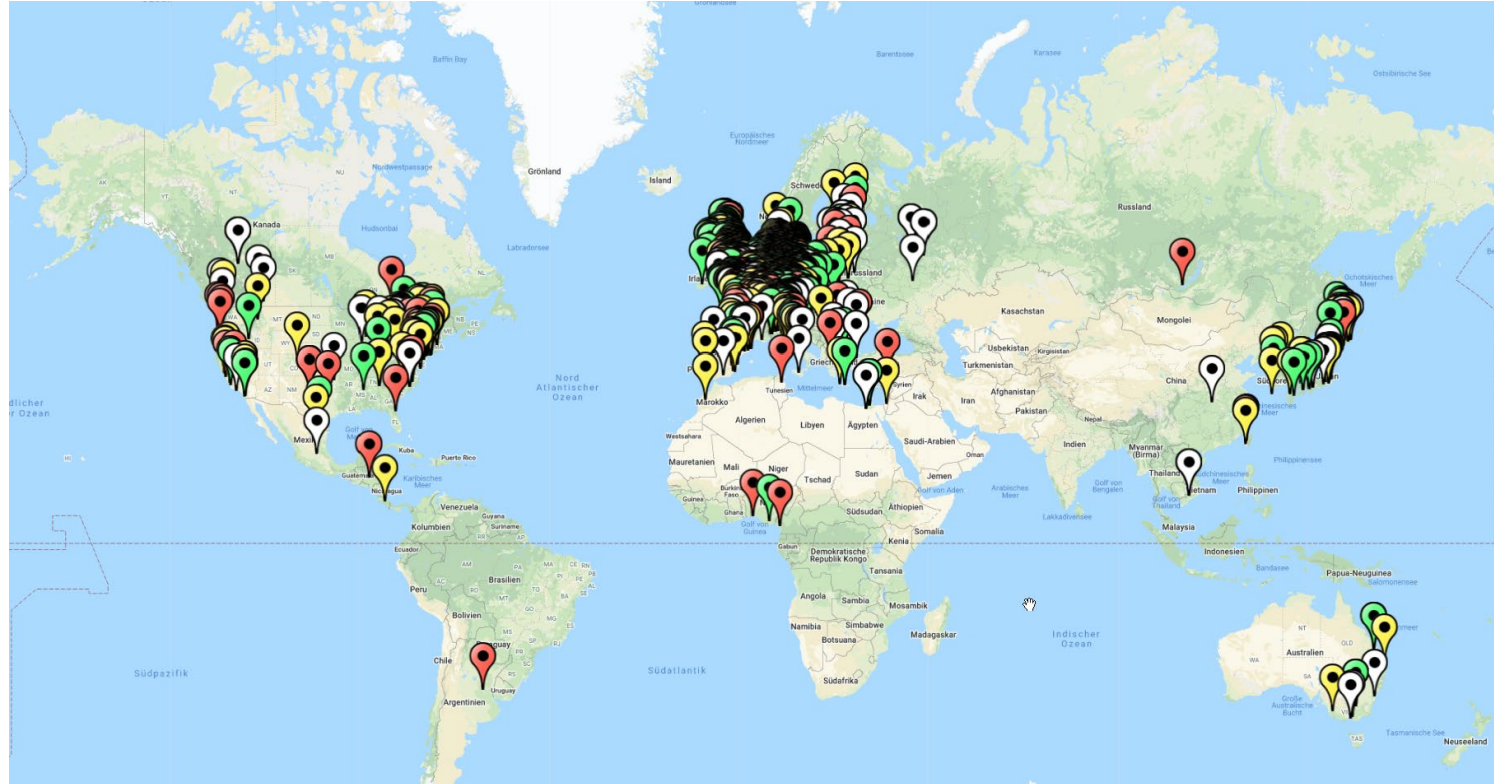
Custom-tailored Service Solutions



- Preventative
- Corrective
- Operations
- Insurance Solutions (BII)
- Machinery Breakdown Insurance (MBI)



Worldwide Installations



North American References.



Fuel Type: Natural Gas **Application:** Manufacturing

Size: 2 x 250 kW, 2 x 265 kW and 1 x 280 kW. Total: 1310 kW

- Manufacturing of wooden window shutters
- 5 CHPs installed onsite
- Savings: approx. \$40,000 per month
- Electricity for the manufacturing process
- Heat is used for drying the wood



Project Description

Installation of 4 x 2,000 kW CHP facility producing:

- 52,000 MWh electricity
- 12,000 lb/hr 115 psi steam
- 14,000 MMBtu/hr hot water
- 800 tons chilled water

Savings

- 52,000,000 kWh annually at \$0.0515/kWh
- Reduced steam need – lower boiler wear & tear
 - Steam production
 - Direct hot water to hot water heating
- Reduced electric load from offloading chillers – absorption chiller





Thank you very much for your attention!



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