

**2G****CENERGY®**  
Advanced Clean Energy Technologies**SYNGAS**

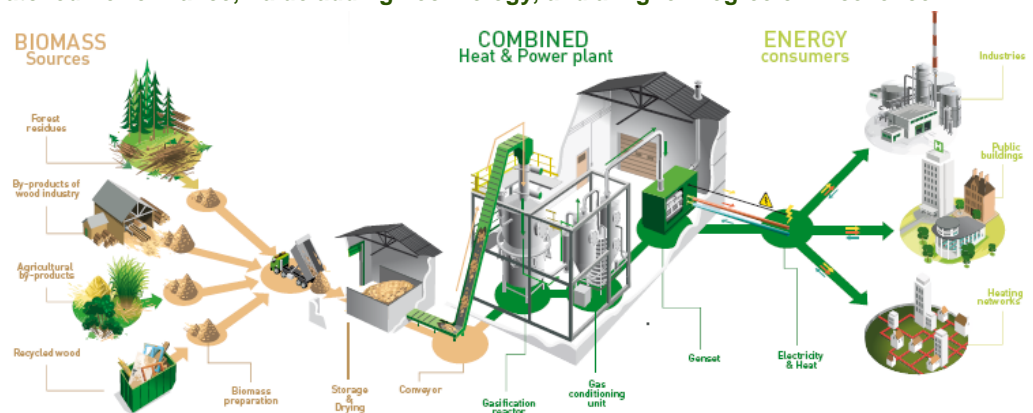
Syn-Tec® 09-2010

**CHP Cogeneration Module - Syn-Tec®****Reduced Fuel Consumption and low Emissions:**

- Thermodynamically optimized for most efficient syngas combustion.
- Proprietary lean burn technology increases the efficiency and achieves lowest NOx emissions well below EPA requirements.

**Syngas Product Line:****75ekW** 60Hz / 480V  
2G 75 SG**142ekW** 60Hz / 480V  
2G 142 SG**165ekW** 60Hz / 480V  
2G 165 SG *agenitor®***190ekW** 60Hz / 480V  
2G 190 SG *agenitor®***280ekW** 60Hz / 480V  
2G 280 SG**300ekW** 60Hz / 480V  
2G 300 SG *agenitor®***450ekW** 60Hz / 480V  
2G 450 SG**600ekW** 60Hz / 50Hz  
2G 600 SG**900ekW** 60Hz / 50Hz  
2G 900 SG**1000ekW** 60Hz / 50Hz  
2G 1000SG**1162ekW** 60Hz / 50Hz  
2G 1162SG**1500ekW** 60Hz / 50Hz  
2G 1500SGAll Ratings are for Syngas with low Btu/ft<sup>3</sup> Heat Value**Small on Size, big on Power**

Unmatched Performance, Value adding Technology, and a higher Degree of Excellence



Our advanced 2G<sup>®</sup> **SYN-TEC<sup>®</sup>** energy generation technology utilizes syngas derived from the thermochemical conversion of biomass into synthesis gas to generate electricity and heat. 2G<sup>®</sup> **SYN-TEC<sup>®</sup>** syngas cogeneration modules are specifically developed for a gas mixture that comprises of CO, CO<sub>2</sub>, N<sub>2</sub>, and H<sub>2</sub>. A compact CHP design with integrated control and switchgear, thermal energy distribution system and advanced enclosure options. As leading manufacturer of CHP cogeneration power modules 2G<sup>®</sup> is a trusted equipment

provider for many biomass power plant specialists all over the world. Biomass-to-Energy (Syngas) plants are only as good and reliable as the overall design, and the quality of the CHP cogeneration module converting syngas into valuable electric and thermal energy. We realize that anybody can claim to use only highest quality components, promising reliable and efficient systems. The difference can be found in the details. Innovative technologies combined with unmatched experience result in incomparable CHP solutions and longevity.

**The Ultimate CHP 75 - 1500ekW**

Less Input,... more Output,... with exceptional Efficiency and proven Reliability



2G<sup>®</sup> **SYN-TEC<sup>®</sup>** syngas CHP systems are designed for unsurpassed operation economy.

We created the next generation of energy efficient CHP modules for the biomass industry.



2G<sup>®</sup> CHP Systems are operational in many Countries.

*“Since many Years we are the Originators, and Innovators,... never the Imitators.”*

*“Building Syngas CHP Systems requires more Know-How than just packaging a standard Gas Engine.”*

*“We continue to lead the Way with an unparalleled Team of Gas Engine Experts and significant R&D Investments .”*



# More than 1500 CHP's installed

2G<sup>®</sup> is worldwide the Market Leader for compact Natural Gas, Biogas & Syngas CHP

In late 2009 our factory reached a milestone of 1200 CHP cogeneration systems manufactured, supplied and installed. Thanks to an additional production plant opened in 2009 and a new factory extension to be operational in Oct. 2010, the total number of installed CHP systems is expected to reach 1900 by the end of

2011. Since years 2G<sup>®</sup> is the most trusted CHP manufacturer with the largest installed number of biogas CHP's <500ekW worldwide. Besides being more efficient, 2G<sup>®</sup> cogeneration systems are designed “connection ready”. MAN<sup>®</sup> prime mover engine cores are thermodynamically optimized and improved for

most efficient biogas utilization. All modules are fully factory tested prior to shipping. This allows for extreme fast and cost-effective installation, increases product reliability, and assures trouble-free operations. No other CHP manufacturer of similar products has comparable capabilities, resources, and experiences.

## Why settle for Less?

A small modular Footprint saves Space,... and our Performance Advantage saves \$\$\$



When it comes to syngas power generation our customers don't take chances. Time after time the worlds leading biomass-to-energy plant developers select 2G<sup>®</sup> to safeguard their investment and success. Why? Because there is no higher level of quality, efficiency, and durability available. We could offer you promising words,... but the numbers of installed units say it all.

The three most important aspects of a syngas CHP cogeneration plant are efficiency, reliability, and durability. High electrical and thermal efficiencies are the key to economical operations. Reliability and durability of syngas engines with a long usable life and low maintenance cost will assure your plant generates the desired economical result. Comparing our CHP systems with competitors (all based on LHV) confirms 2G<sup>®</sup> systems are leading with highest efficiencies.

FIVE STARS = MOST EFFICIENT	
★★★★★	<b>2G</b> MAN 2G <sup>®</sup> Optimized
★★★★★	<b>2G</b> MWM 2G <sup>®</sup> Optimized
★★★★★	<b>2G</b> JENBACHER 2G <sup>®</sup> Optimized
★★★	WAUKESHA
★★	GUASCOR
★	CAPSTONE
★	CATERPILLAR

# A new Generation of Modular Syngas CHP's

“All-In-One” and “Connection Ready”. The most professional and “Best-In-Class” Cogeneration Module Design



The modular design and construction of 2G<sup>®</sup> CHP cogeneration systems makes their installation fast and provides the flexibility of incremental expansion as power needs increase. Hence, the owner can start with

## Modular Design with small Footprint

a small plant that meets current power demands and then the plant can be enlarged later should power demand increase along with business growth. This feature ensures fast revenue flow with the ability to keep production optimized to demand. 2G<sup>®</sup> container modules are highly efficient and economic systems designed especially for CHP applications.

The container represents an economic overall package consisting of all cogeneration components tuned to each other in the best way possible, perfectly aligned with the special requirements of CHP operations, “all-in-one” and “connection ready”. The entire unit is not only extremely compact, but also ensures easy transportation and quick relocation. The design concept is based on years of experience and development. The quality is “second-to-none”.

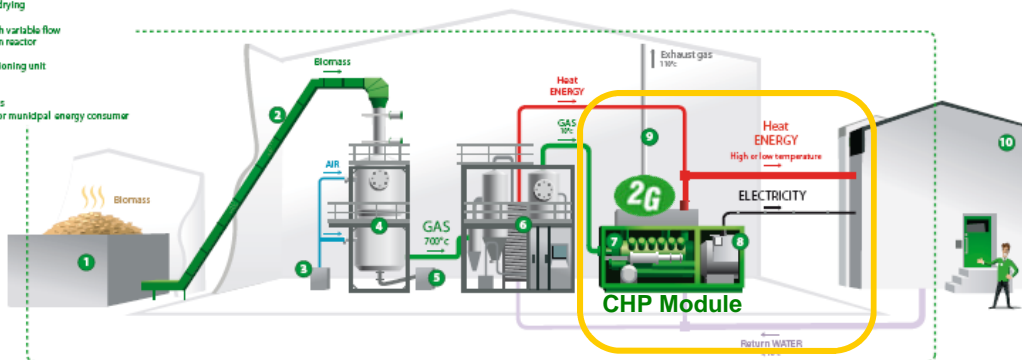


*“A proven technology, very reliable, successfully operating thousands of times in many markets around the world.”*

Irrespective of the biomass gasifier design and configuration,... 2G<sup>®</sup>'s CHP cogeneration modules can be easily integrated.

COMBINED Heat and Power Plant

1. Storage & drying
2. Conveyor
3. Blower with variable flow
4. Gasification reactor
5. Ash
6. Gas conditioning unit
7. Engine
8. Alternator
9. Exhaust gas
10. Industrial or municipal energy consumer



## Best-In-Class-Technology,... the 2G-Drive<sup>®</sup>

2G-Drive<sup>®</sup> Technology added to conventional MAN<sup>®</sup> Engines leads to increased ROI, lower O&M Cost, & higher Durability

Traditionally cogeneration plants in North America have been sized between 1 and 10MW because smaller engines could not provide the same high efficiencies. 2G<sup>®</sup>'s thermodynamically optimized MAN<sup>®</sup> gas engines with 2G-Drive<sup>®</sup> technology are ideal for combined heat and power (CHP) installations. Now customers can also effectively utilize CHP's <500ekW for on-site power generation, heat pro-

duction, cooling, and for agricultural or industrial heat recovery applications in decentralized locations. The technology behind 2G<sup>®</sup> gas engines and their controls makes them highly reliable, offering superior efficiency with low lifecycle costs. The added benefits of these 2G-Drive<sup>®</sup> MAN<sup>®</sup> gas engines over the conventional standard MAN<sup>®</sup>, or any other gas engine in a similar size range, include

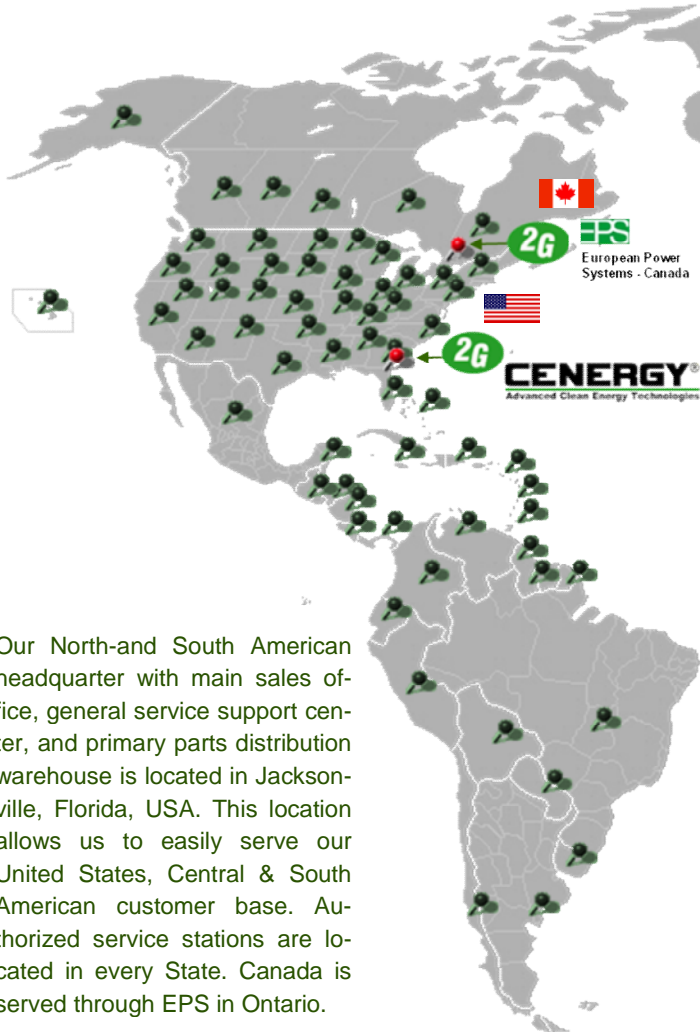
up to 25% higher electrical efficiency, lower maintenance cost, and a longer life cycle. We offer more value than our competition by focusing on advanced technology improvements “superior by design”, and “system efficiency”, rather than just packaging a standard gas engine.



**25% higher Efficiency and up to 35% less Maintenance Cost elevated Return on Investment and outstanding Reliability**

# 2G<sup>®</sup> Service & Product Support

Dependable Service & Maintenance Support 24/7 throughout the Americas



Our North-and South American headquarter with main sales office, general service support center, and primary parts distribution warehouse is located in Jacksonville, Florida, USA. This location allows us to easily serve our United States, Central & South American customer base. Authorized service stations are located in every State. Canada is served through EPS in Ontario.

2G<sup>®</sup> product support is customized to meet your needs. We provide customers with the highest quality of after sales service, incl. maintenance contracts for dependable ongoing support.

## The Factory



2G Main Factory



Factory 2



Factory 3



Research & Development



Production Line with...



...highest Quality Standards



Pre-shipment Quality Testing



Container Module Assembly 1



Qualified Personnel



Container Module Assembly 2



Attention to Detail



Customer & Operators Training



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<http://www.2g-cenergy.com>

2G - CENERGY<sup>®</sup> is a renowned manufacturer dedicated to the production of decentralized power generation systems, providing customers with advanced, highly efficient, and dependable CHP cogeneration modules. The company maintains a "Best-In-Class" product portfolio. 2G<sup>®</sup> is a solid and financially strong corporation publically traded at the Frankfurt Stock Exchange.

