CONVERTING CARBON-BASED FEEDSTOCK TO ENERGY, CHEMICALS, FUELS, AND HEAT

greenfortressengineering@gmail.com
www.greenfortressengineering.com
630 470 7797
Greensburg, Indiana, USA
Who We Are

• GFE: A Pioneer in Green Energy Solutions.
• A Double Bottom Line opportunity
• Spin-Up C-corp. from Indiana University
• Eight US Patents – issued & active:
  - 8,691,115
  - 8,456,562
  - 9,416,326
  - 8,845,772
  - 8,518,856
  - 7,721,601
  - 7,833,418
  - 8,673,811
Product: **BMSG**  **BioMass Super Gasifier**

Four ACTIVE US Patents
- 8,691,115
- 8,456,562
- 9,416,326
- 8,845,772

High Efficiency

Multiple Products

First Pilot Plant “Stalk Stoker”

Biomass Conversion to Energy, Chemicals, Fuels, and Heat

4 Year ROI
Green Fortress Engineering

BioMass Super Gasifier

3 pilot plants built
Green Fortress Engineering

Ag Residue
Sylvan Slash
Sawdust
Packaging Waste
Office Waste
Contraband

GASIFICATION APPLICATIONS

FEEDSTOCK
STEAM
POWER
TRANSPORTATION FUELS
FERTILIZERS
H2 Generation
Heat
Grid Independence
CONSUMER PRODUCTS
Gasification demand growing rapidly

World gasification capacity and planned growth – by end use of syngas
Source: *Worldwide Gasification Database*
Beachhead Markets

- **Agri-business**
  - Lignocellulosic agricultural residue ("crop waste") powers on-farm operations
  - Breweries convert waste grain, packaging materials into heat and electric power

- **Municipal waste management**
  - Reduce landfill volumes and generate electricity
  - Consume sewer sludge and other carbon-based waste

- **Existing solar installations**
  - Provide around-the-clock power
Green Fortress Engineering
Biomass Super Gasifier (BMSG)
Mass and Energy Balance

BIOMASS: 1.8 MT/d... DRYE... BIOMA...

HE...

I-HPG REACTO...

BIOCHAR: 0.4 MT/d...

PARASITI
POWER

BIOCHAR
AMENDMENT

POWER: 87 k...

HEAT: 544500 BTU/...

SPACE HEATING,
HOT WATER,
or
STERILIZATION.

GENS...

SYNG...

POWER: 65 k...

POWE
OBT
Simple Economic Payback Analysis

Initial Capital – Sale Price - $420 K

Operational Cost

- Feedstock: $80/day, $29 K/year

Positive Cash Flow

- Net Power: $156/day, $57 K/year
- Biochar Saleable Product: $132/day, $48K/year
- Natural Gas Offset: $113/day, $41K/year
- TOTAL: $146 K/year

Simple Payback: 3.6 years
Competition

Community Power Corp.
All Power Labs
Flux-I Bio-Power

Potential Challenges

• Long Sales Cycles
• Regulatory Changes
• Loss of Tax Credits
• Lower energy cost
Five Year Financials

Five Year CAGR 112.93%

<table>
<thead>
<tr>
<th>Annual Summary</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
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<tr>
<td>Beginning Cash</td>
<td>$50,000</td>
<td>$14,668,601</td>
<td>$95,985,754</td>
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<td>Revenues</td>
<td>$17,450,000</td>
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<td>Expenses</td>
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<td>Operating Cash Flow</td>
<td>$10,868,601</td>
<td>$81,317,153</td>
<td>$174,034,466</td>
<td>$303,228,704</td>
<td>$576,132,930</td>
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<tr>
<td>Investments</td>
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<td>Grants</td>
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Five Year Ending Cash Balance

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Five Year Net Cash Flow

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Management Team

- Dr. Peter Schubert P.E. CEO, Primary Inventor, Lead Technologist

Peter is a full-rank, tenured Professor of Electrical and Computer Engineering at Indiana University-Purdue University Indianapolis and also serves as the Director for the Richard G. Lugar Center for Renewable Energy. Previously at Delphi Electronics & Safety (Kokomo, IN), he was a Technical Fellow.

- Peter has 41 US and 13 EU patents in his name and has over 100 technical publications in 9 fields of study, and he has been responsible for over 6 million USD in research grants from DOE, NASA, NSF, DOD, and USDA.
- His degrees in physics and engineering are from Washington University, University of Cincinnati, and Purdue University.
- Mr. John Craun – Senior Business Executive

John has over 20 years managing different chemical businesses and a wide variety of international business experience negotiating major sales and purchasing agreements, creation of joint ventures, and restructuring of manufacturing operations.

- He was VP of Strategic Initiatives at Vertellus Specialties and led the development of a 9 MW solar farm on company property, helping Indianapolis become the 2nd highest per capita solar city in America.
- John was President of Agriculture & Nutrition Specialties with $260M in revenues.
- John received his degree in Chemical Engineering from Carnegie-Mellon University and holds a MBA from Indiana University.
- Craun and Schubert have worked together since 2012.

- Alan Wilks Ph.D. – Principal Investigator

Alan is an analytical chemist with extensive experience in the field of catalysis, particularly the study of those catalysts used in the petroleum and automotive fields. He was employed at UOP, Inc. for 25 years and through a series of acquisitions reached the position of Vice President and Director of AlliedSignal Corporation, now Honeywell.

- He was the founder of “SmartSignal, Inc.” now owned by General Electric and has participated in a number of research/engineering projects involving biomass conversion to energy and other technical subjects.
- He received a BS in Chemistry from the University of Kansas and a Ph.D. in Analytical Chemistry from the State University of Iowa.
- He holds numerous Patents and has authored/delivered technical papers throughout his career.

- Our University ties give us access to highly-prized student resources.
  - Post-doctoral researchers (“post-docs”)
  - Graduate students in engineering and chemistry
  - Pro bono students: MBA candidate, 2 undergraduates
  - Access to a large pool of student interns via our relationship with IUPUI.
• **Seeking $160,000 in equity**
  • For beta testing and certifications of the Biomass Super Gasifier

• **Pre-money valuation at $6,000,000**
  • Based upon the number of patents (8) and patent applications (2) we have, the near market readiness for the BMSG systems and our revenue projections.

• **Additional equity free dollars**
  • other grants relevant to the BMSG in 2018.