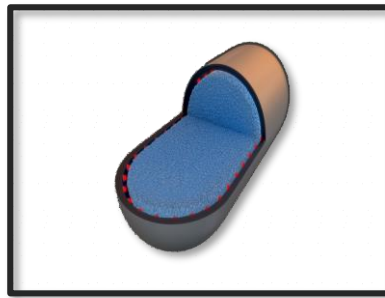




A HYDROGEN STAR IS BORN

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# Green Fortress Engineering



*NSF Funded*

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## Who We Are

- GFE: A Pioneer in Green Energy Solutions.
- A Dual Revenue and Double Bottom Line opportunity
- Spin-Up C-corp. from Indiana University
- **NINE** US Patents – all are 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    10,093,875

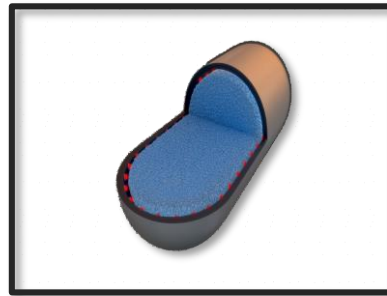


# Green Fortress Engineering

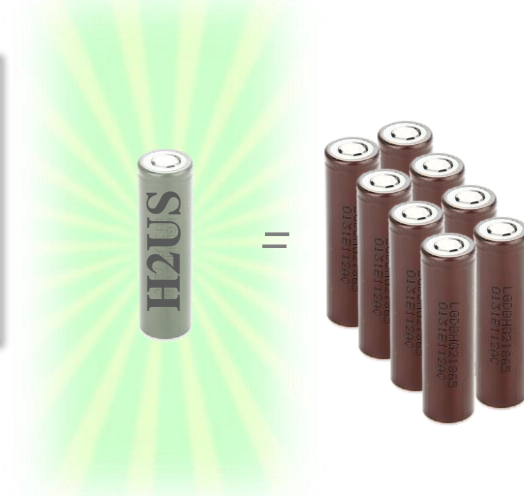
Product: **H2US** Hydrogen (H<sub>2</sub>) Ultra Storage

Low Cost

High Density



*H<sub>2</sub> Storage Vessel*



DOES THE WORK OF  
**EIGHT**  
Li-ion BATTERIES

**AT  $\frac{1}{10}$  THE COST**



# Green Fortress Engineering

Product: **BMSG** **B**io**M**ass **S**uper **G**asifier

Five ACTIVE US Patents

8,691,115 8,456,562

9,416,326 8,845,772

10,093,875

**High Efficiency**

**Multiple Products**



*First Pilot Plant "Stalk Stoker"*



FUNDING AGENCIES

**4 Year ROI**

*Biomass Conversion to  
Energy, Chemicals,  
Fuels, and Heat*



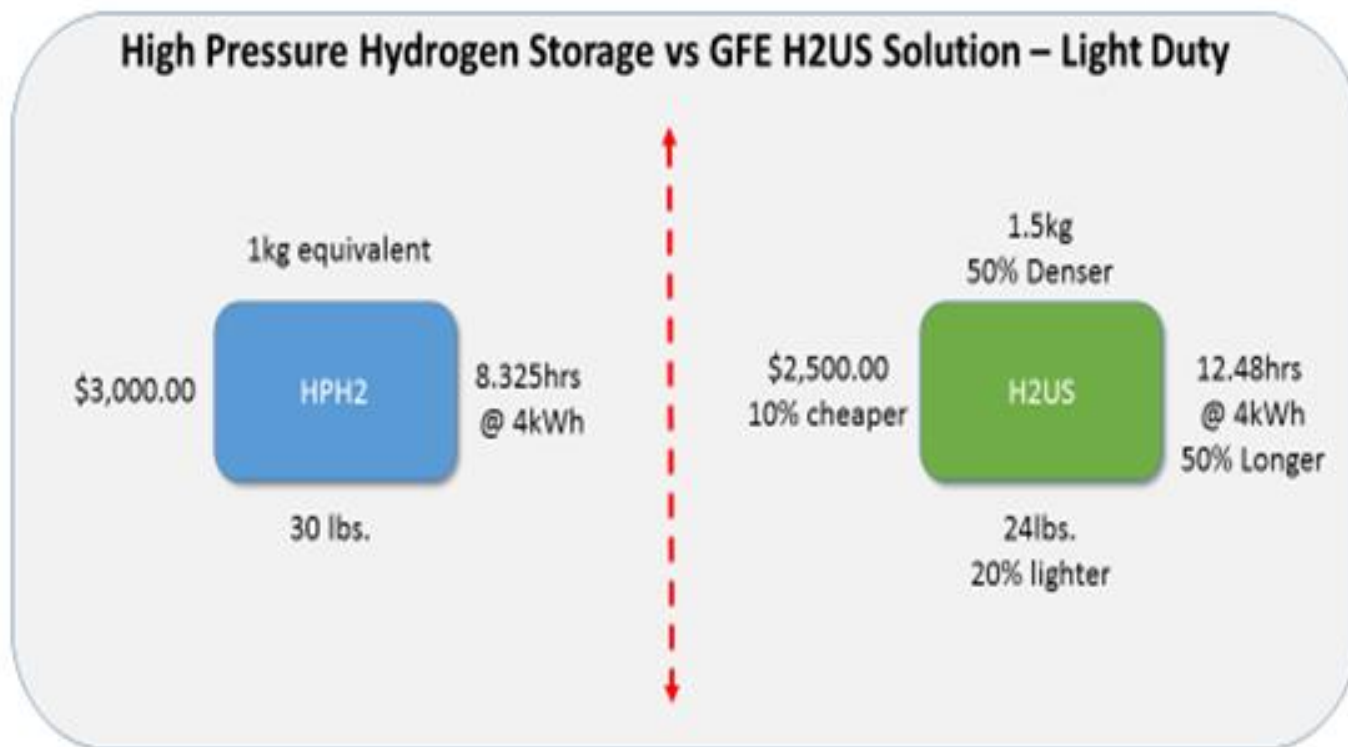


# Green Fortress Engineering

## H2 Ultra Storage

### Advantage GFE

Assuming identical vessel size and different storage system peripherals requirements

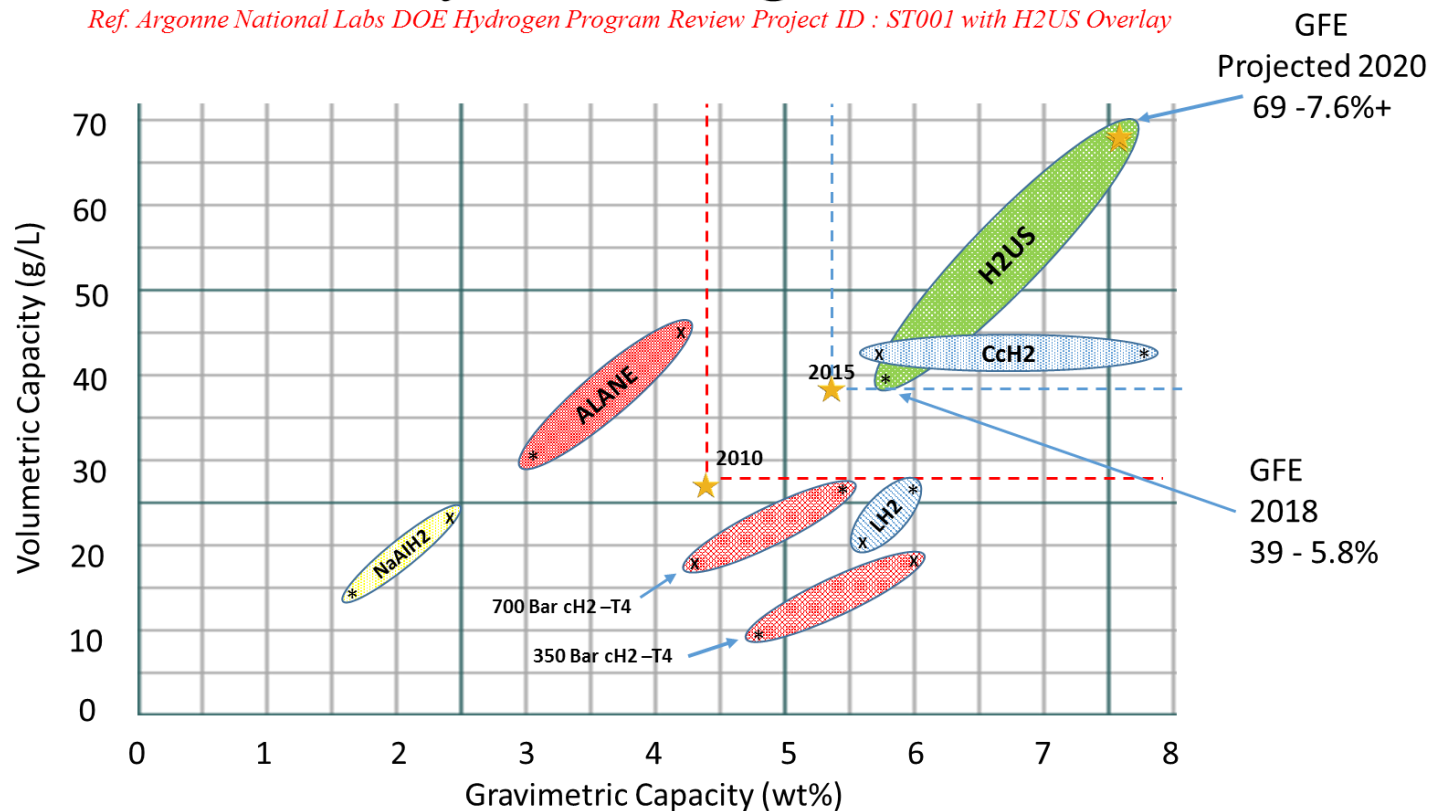




# Green Fortress Engineering

## ANL Analysis - 5.6kg Usable H<sub>2</sub>

*Ref. Argonne National Labs DOE Hydrogen Program Review Project ID : ST001 with H<sub>2</sub>US Overlay*

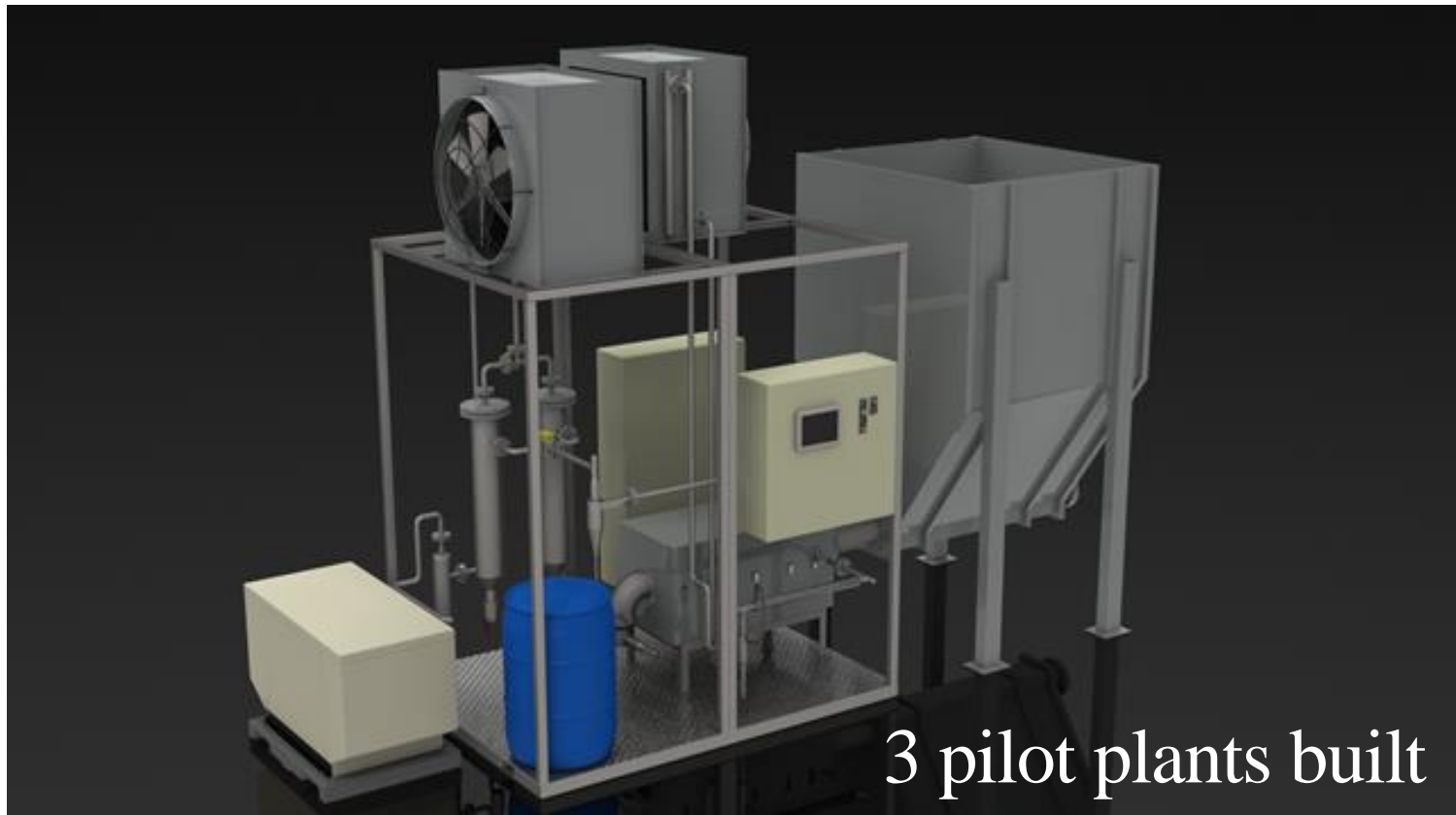




# Green Fortress Engineering

## BioMass Super Gasifier

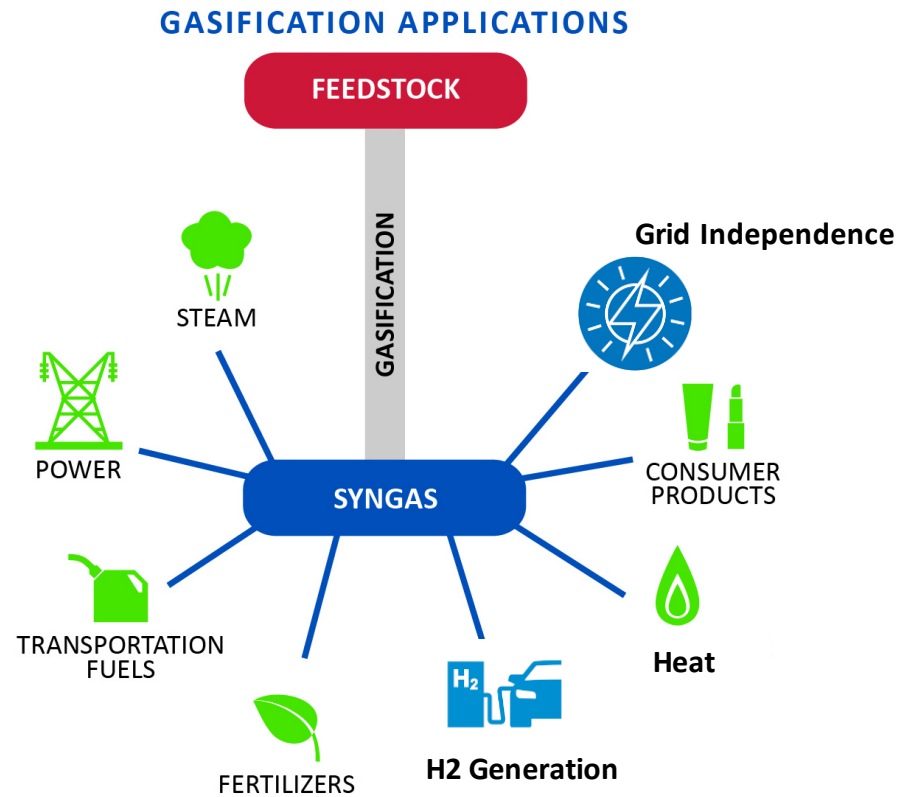
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# Green Fortress Engineering

*Ag Residue*  
*Sylvan Slash*  
*Sawdust*  
*Packaging Waste*  
*Office Waste*  
*Contraband*



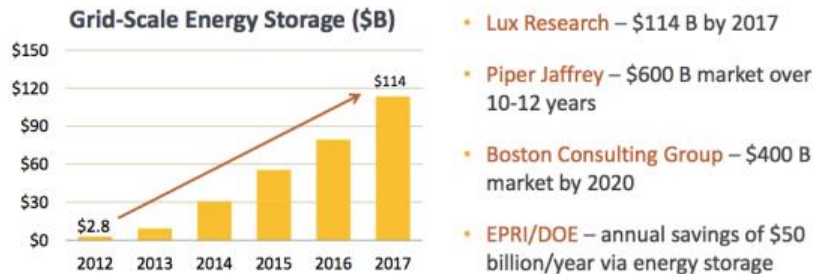




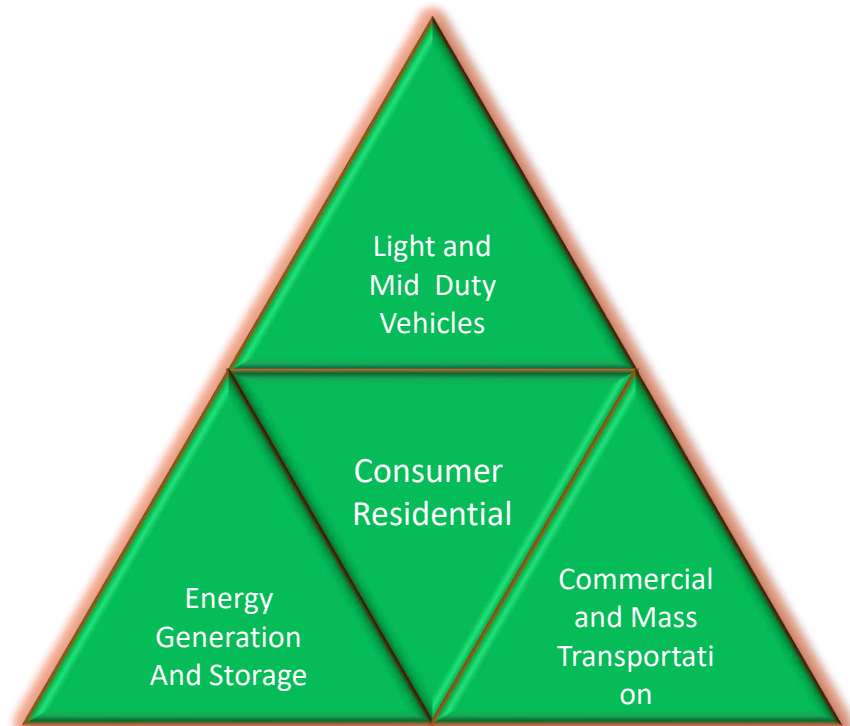
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- Hydrogen market: 154 billion USD 2022

## Energy Storage Market Potential



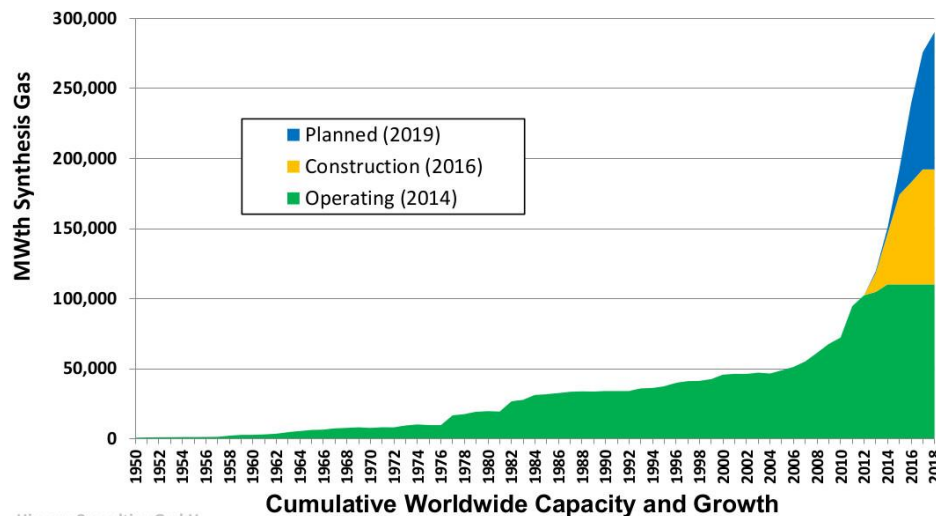
Plenty of market potential... for the right product at the right price





# Green Fortress Engineering

Gasification demand is also growing rapidly



Higman Consulting GmbH

World gasification capacity and planned growth – by end use of syngas

Source: *Worldwide Gasification Database*





# Green Fortress Engineering

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## Beachhead Markets

### H2US

- Fork lift markets
- Drones
- Light-duty cars & trucks

### BMSG

- Agri-business
- Municipal waste management
- Existing solar installations



# Green Fortress Engineering

## COMPETITION



### H2US

#### Competitive Analysis

Competitor	Strength	Weakness	GFE Response	Advantage GFE
Cella - Alane	<ul style="list-style-type: none"><li>• Cartridge based System</li><li>• Stable with long shelf life</li></ul>	<ul style="list-style-type: none"><li>• Co-Combustion with Diesel = carbon emissions</li><li>• High Pressure</li><li>• Not rechargeable</li></ul>	GFE's H2US is a low pressure, emissions free solution. Rechargeable	✓
Luxifer Gas Cylinders - G-Stor H2	<ul style="list-style-type: none"><li>• Light Weight for High Pressure system</li></ul>	<ul style="list-style-type: none"><li>• High Pressure</li><li>• Moderate density</li><li>• Large Foot Print</li></ul>	GFE's H2US is a compact, high density, low pressure solution	✓
Toyota Miria H2 Storage	<ul style="list-style-type: none"><li>• Early adoption</li><li>• Fixed internal market</li></ul>	<ul style="list-style-type: none"><li>• High pressure</li><li>• Moderate density</li><li>• Limited application dual tank system</li><li>• Proprietary</li></ul>	GFE's H2US is a Low pressure, high density, single tank system that can be used in many applications.	✓
BMW CCH2	<ul style="list-style-type: none"><li>• Stores H2 gas at lower temp at 350 bar.</li><li>• 50% more H2 storage capacity than typical 700 bar tanks</li></ul>	<ul style="list-style-type: none"><li>• High Pressure</li><li>• Moderate density</li><li>• Large Foot Print</li></ul>	GFE's H2US is a compact, high density, low pressure solution	✓

### BMSG

Community Power Corp.

All Power Labs

Flux-I Bio-Power



# Green Fortress Engineering

## Potential Challenges

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### H2US

- Slow adoption
- Long sales cycles
- Disruptive Regulations
- Battery breakthroughs

### BMSG

- Long Sales Cycles
- Regulatory Changes
- Loss of Tax Credits
- Lower energy cost



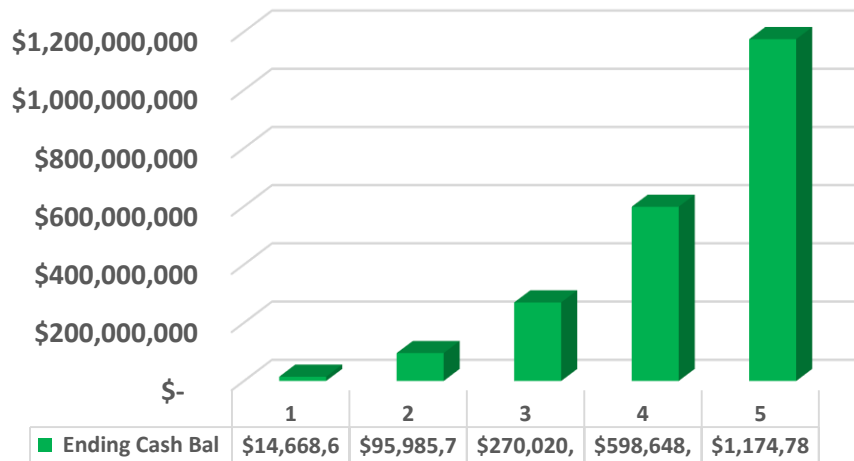
# Green Fortress Engineering

## Five Year Financials

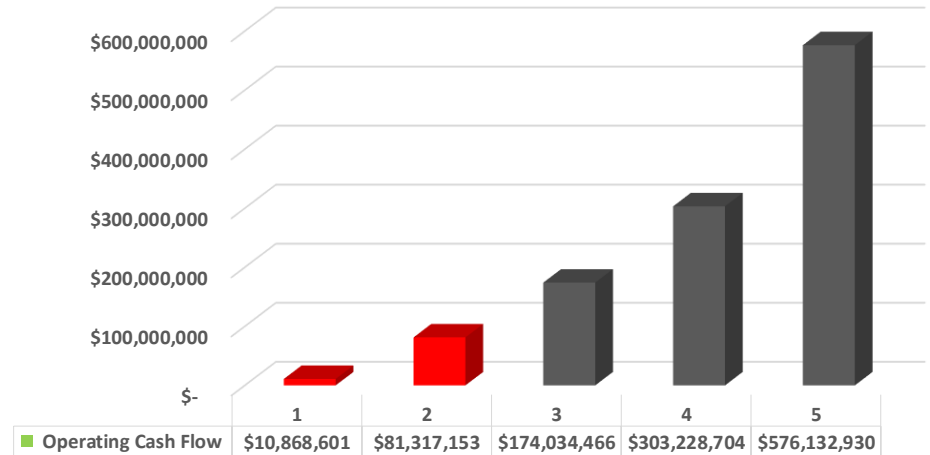
**Five Year CAGR 112.93%**

Annual Summary	2020	2021	2022	2023	2024
Beginning Cash	\$ 50,000	\$ 14,668,601	\$ 95,985,754	\$ 270,020,220	\$ 598,648,924
Revenues	\$ 17,450,000	\$ 102,950,000	\$ 217,600,000	\$ 414,900,000	\$ 763,800,000
Expenses	\$ 6,581,399	\$ 21,632,847	\$ 43,565,534	\$ 86,271,296	\$ 187,667,070
Operating Cash Flow	\$ 10,868,601	\$ 81,317,153	\$ 174,034,466	\$ 303,228,704	\$ 576,132,930

**Five Year Ending Cash Balance**



**Five Year Net Cash Flow**





# Green Fortress Engineering

## Management Team

SCHUBERT



WILKS



CRAUN



- 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 43 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.



# Green Fortress Engineering

## Fund Raising

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- Seeking \$3,100,000 in equity
  - For commercialization of the H2 Ultra Storage and to complete the beta testing and certifications of the Biomass Super Gasifier
- Pre-money valuation at \$6,000,000
  - Based upon the number of patents (9) and patent applications (2) we have, NSF funded work to date on the H2US project, the near market readiness for the BMSG systems, and our revenue projections.
- Additional equity free dollars
  - other grants in 2019 & 2020.