

## IT Committee

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**From:** Charles A. Smith <chuck@hotelsustainabilityinc.com>  
**Sent:** Saturday, August 28, 2021 9:38 AM  
**To:** IT Committee  
**Subject:** Gold Seal Industries Presentation  
**Attachments:** Maui Presentation Reduced.pdf

You don't often get email from chuck@hotelsustainabilityinc.com. [Learn why this is important](#)

Please find attached the presentation for the **August 30,2021** meeting of **Infrastructure and Transportation Committee** per Eric Nakagawa.

Please contact me with any issues. Mahalo for your assistance.

Regards,

**Charles A. Smith, CEO**  
**Stonebridge Sustainability Solutions, Inc. (SSSI)**  
**Integrated Sustainability Solutions, Inc. (ISSI)**  
**Hotel Sustainability Solutions, Inc. (HSSI)**  
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*"Advanced Waste Conversion Technology, which, through Collaboration, provides  
Alternative Solutions to Environmental Restoration and Resiliency Goals"*



Sustainability  
Solutions



AN ADVANCED TECHNOLOGY SOLUTION FOR TODAY'S &  
TOMORROW'S ENVIRONMENTAL CHALLENGES!

**Presentation To**

**Maui County Council Infrastructure and Transportation Committee  
Department of Environmental Management – Maui County, Hawaii**

**“Waste Conversion Technology Solutions  
Maui County”**

**August 30, 2021**

**Presenter**

**Charles A. Smith**

**Stonebridge Sustainability Solutions, Inc.**

**Gold Seal Industries, LLC**

**Stonebridge Sustainability Solutions, Inc.**

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Sustainability  
Solutions



AN ADVANCED TECHNOLOGY SOLUTION FOR TODAY'S &  
TOMORROW'S ENVIRONMENTAL CHALLENGES!

## Offered Solutions for Maui County

### Environmental Issues addressed - using GSI System Technology

- **Water Shortage/replenishment**
- **Water Quality -potable**
- **Sewage Treatment (cesspools)**
- **Ocean Runoff contamination**
- **Regenerate island agriculture industry**
- **Reduce imports. (Oil, food, fuel)**
- **Add commodities for potential export trade**
- **Reduce unnecessary Exports (tires, sludge, others)**
- **Water / soil remediation – restore agriculture industry**
- **Zero added emissions**
- **Carbon Sequestration**
- **Carbon Neutrality**
- **Landfill Life-cycle extension – reduce airspace, ground cover costs**
- **ZERO/Reduced landfill deposits**
- **Green Waste Management**
- **Reduced recycling costs & unhealthy operations**
- **Desalination / algae options**
- **Plastics waste conversion**
- **Job creation and retooling**
- **C/D Processing**
- **Island produced Biofuels, Renewable Energy, Potable Water, Soil Amendment (Biochar) & more**

- **Multiple Sustainable Solutions for Maui Environmental Management Services goal achievement and leadership**
- **Use of island resources to support greater self-sufficiency**
- **Conversion of negative island environmental issues into positive island benefits**
- ***Operational Performance Guarantee- Worldwide by Lloyd's of London-risk adverse financial provision***
- ***Third party conclusion, "GSI technology will revolutionize the way waste streams will be managed", addressing environmental challenges globally***
- ***Elevate Maui's Environmental score – Leadership!***
- ***Methane Conversion***

***O***

STONEBRIDGE SUSTAINABILITY SOLUTIONS, INC.(SSSI)

Global Distributor

## GOLD SEAL INDUSTRIES, LLC (GSI)



Sustainability  
Solutions



AN ADVANCED TECHNOLOGY SOLUTION FOR TODAY'S &  
TOMORROW'S ENVIRONMENTAL CHALLENGES!

VIA "ELECTRO MAGNETIC INDUCTION HEATING" -

A WASTE CONVERSION PROCESS

VALUABLE MARKET DEMANDED COMMODITIES ARE  
GENERATED

CREATING MULTIPLE REVENUE STREAMS = SOUND  
FINANCIAL PERFORMANCE

ZERO EMISSIONS & NO LANDFILL DEPOSITS

FULLY MOBILE UNITS (Plane, Tractor Trailer, Helicopter, Ship, Train)

SELF POWERING - NO GRID CONNECTION REQUIRED

LOW DECIBEL – ASSEMBLED IN 53' ISO TRAILERS,  
STACKABLE, SCALABLE, FIRE SUPPRESSANT & FULL  
OPERATIONAL REDUNDANCY

OPERATIONAL PERFORMANCE is GUARANTEED BY LLOYD'S  
OF LONDON WORLDWIDE PLUS 25 YEAR MANUFACTURE  
WARRANTIES.

ALL FEEDSTOCKS INCLUSIVE OF SEWAGE SLUDGE,  
AGRICULTURE, BIOMASS, TIRES, WATER/SOIL  
CONTAMINATION, DAIRY/CATTLE WASTE, PLASTICS, MSW  
& MORE EXCEPT NUCLEAR, EXPLOSIVES, RADIOACTIVE  
MATERIALS (Federal Law)

COMMODITIES GENERATED – RENEWABLE ENERGY,  
BIOFUELS, BIOCHAR, BLACKCHAR, STEEL, CHEMICALS,  
WAXES, PLASTICS, MEDICAL GRADE WATER, SYNGAS.

"TRUE SUSTAINABILITY" FULL CIRCLE



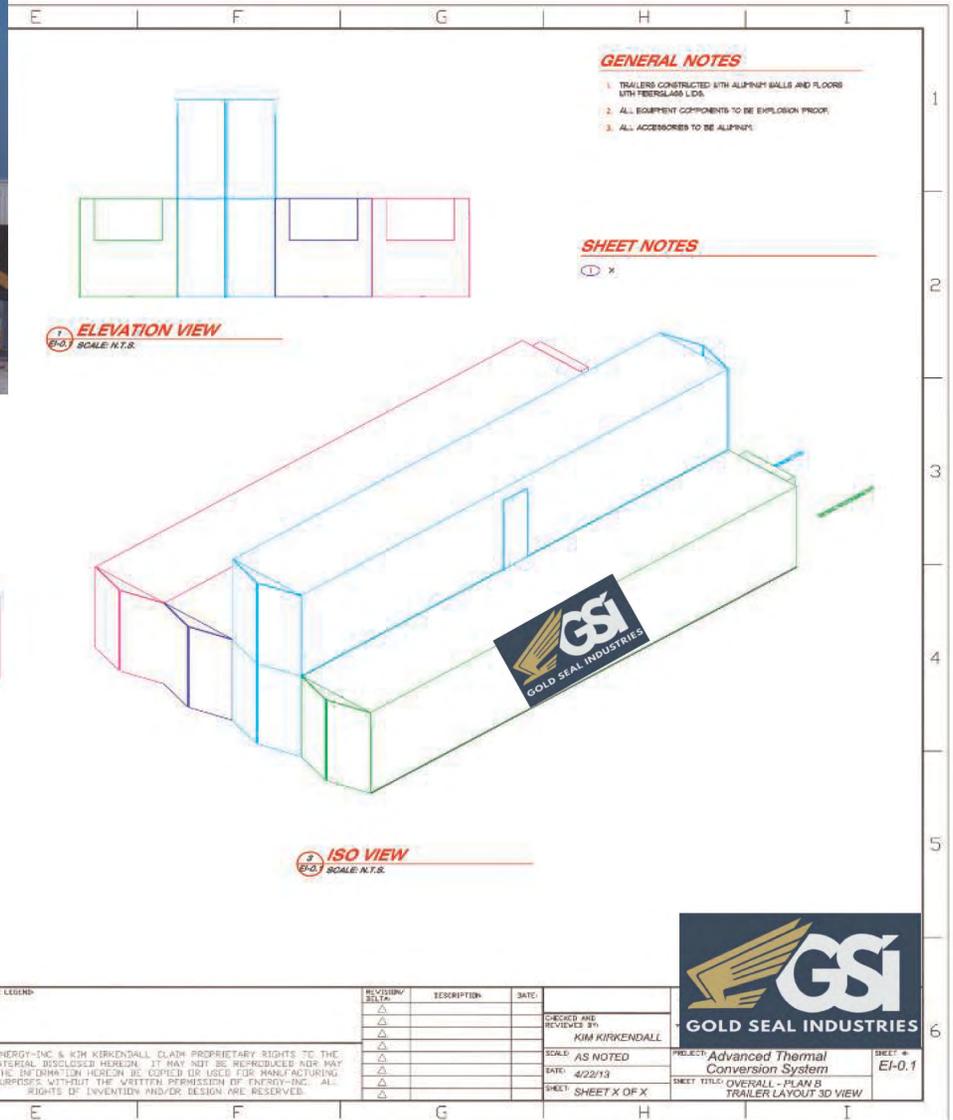
# Modular Equipment

- Unique manufacturing makes the equipment scalable to fit any size project
- All equipment is installed and can operate within a 53' ISO container
- Can be used as the building blocks for a waste to energy facility
- Easily transported via: Tractor Trailer, Rail, Ship, Barge, Air Cargo and Helicopter
- Marketing and advertising opportunities on the side of the containers
- Military applications for ships, bases and battlefield
- Aid in emergencies and disaster, provides:
  - Waste clean-up, Recycling
  - Electricity
  - Gas and Fuels
  - Recycled water
  - Hot water and/or steam

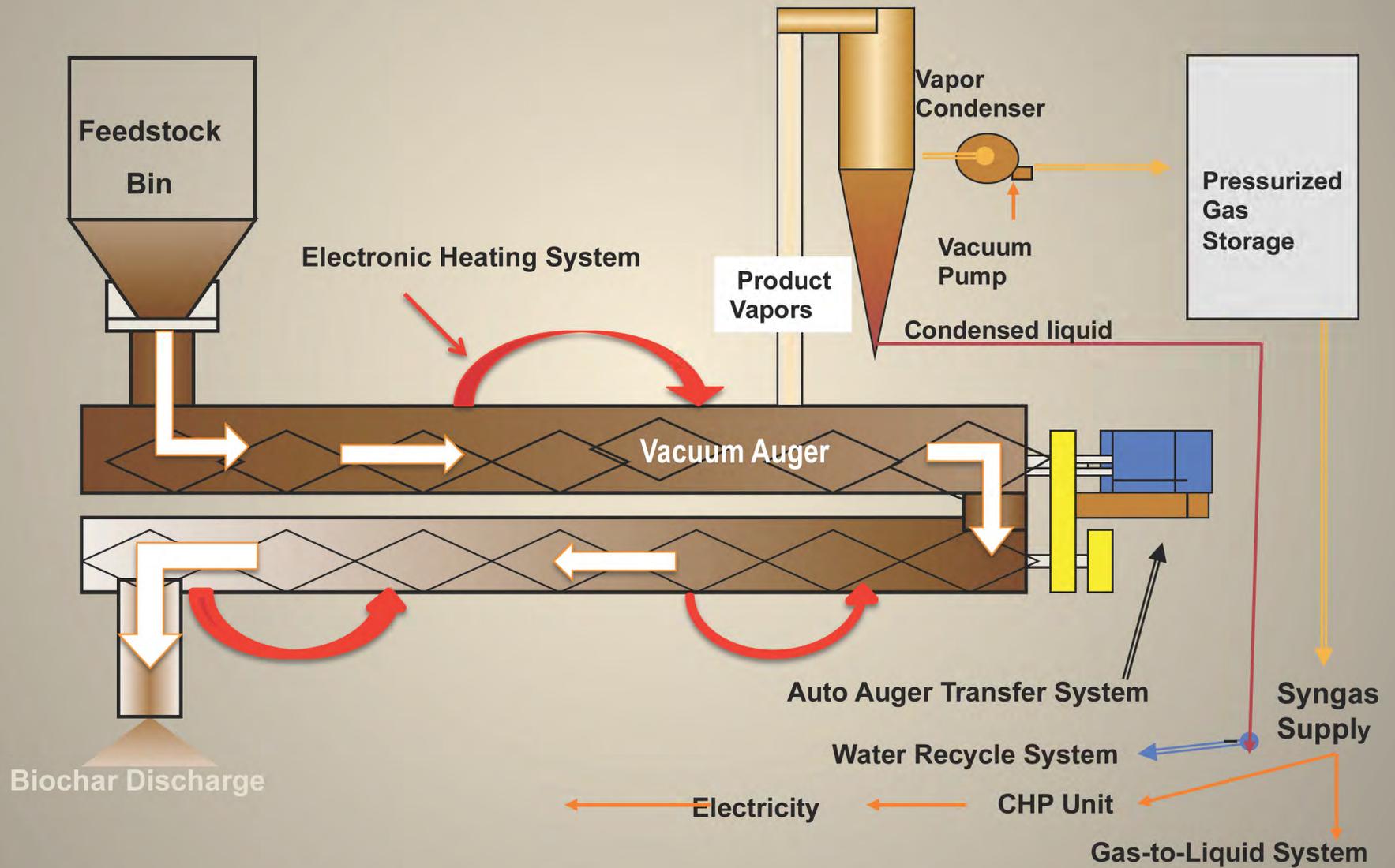


ISO - International Organization for Standardization

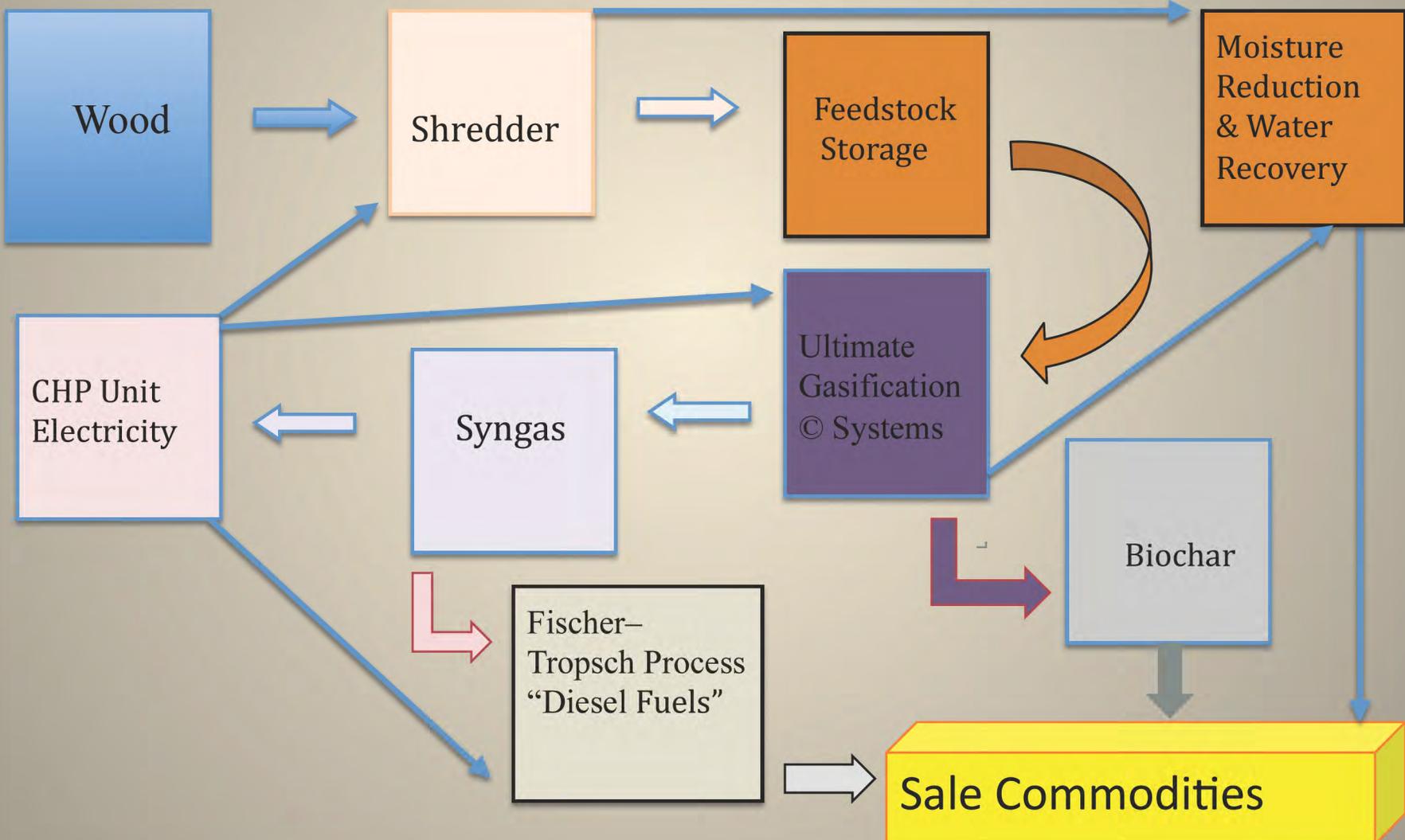
# Stackable Units



# Simple System Diagram



# Simple Flow Chart



# Strategic Partners



Rockwell International

**FMC** Technologies



**Ajax**  
Magnethermic



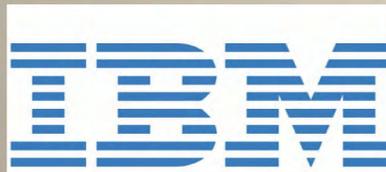
**TOCCO**

**Rockwell**  
Automation

**HAYNES**  
International



Franklin Fueling Systems  
Solutions You Can Trust



**Microsoft**<sup>®</sup>

# *“See What We Do”*

**STONEBRIDGE SUSTAINABILITY SOLUTIONS, INC. (SSSI)  
GOLD SEAL INDUSTRIES, LLC (GSI)**



*“Advanced Waste Conversion Technology, which through  
Collaboration, provides Alternative Solutions to  
Environmental Protection, Restoration, and  
Resiliency Goals”*



# Feedstock Diversity

## Works best when the input waste is carbon-rich:

- Municipality Solid Waste (MSW) / Refuse
  - Cooking Oils & Grease
- Medical Waste, Bio-hazardous and Pharmaceuticals
  - Paper / Cardboard
- Coal, Petroleum Sludge, Oils, Oil Sands
  - Wood, Yard Waste, Biomass,
- Construction & Demolition Materials, Mattresses & Furniture
  - Tires / Rubber / Plastics / Textiles
- Automobile Shredder Residue (ASR) or Auto fluff
  - Sewage & Sludge Treatment
- Agricultural Wastes, Plant Stock, Manure
- Commercial & Industrial Waste, Chemical Waste
- Environmental Remediation, Soil, Surface & Groundwater
  - Brownfield Sites & Redevelopments





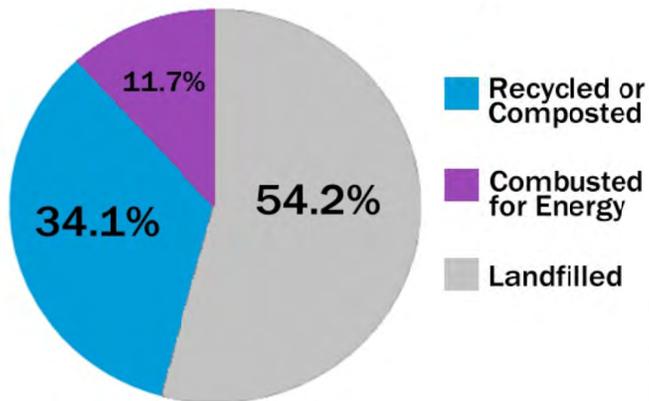
Stonebridge Sustainability Solutions Inc.



# Landfills



## What Happens to Stuff We Throw Away\*?



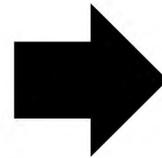
\*Based on the 2010 Municipal Solid Waste Characterization Report

**“No trash is sent to Landfills and/or Incinerators”**



# Zero Landfills

## Gold Seal Industries System





# C&D Debris

## Construction and Demolition





# Medical & Pharmacy Waste





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# MSW Leachate

**60% of Weight is Contaminated Water**

• **Transportation Cost**

• **Tipping Fees** (\$250.00 Per Truck Load)



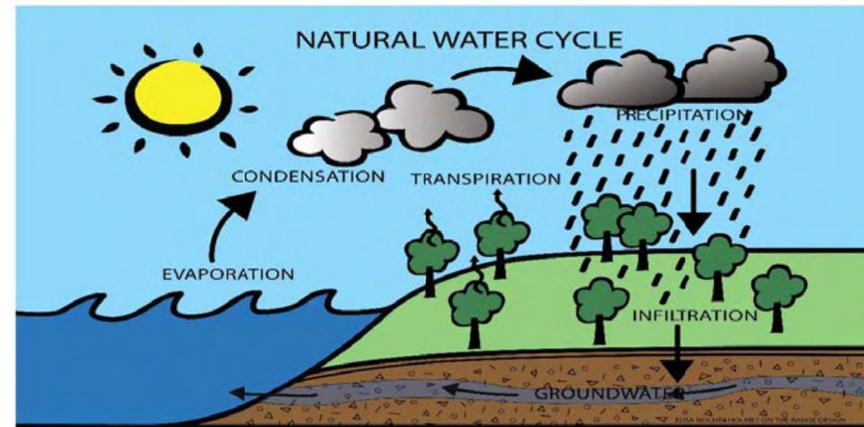
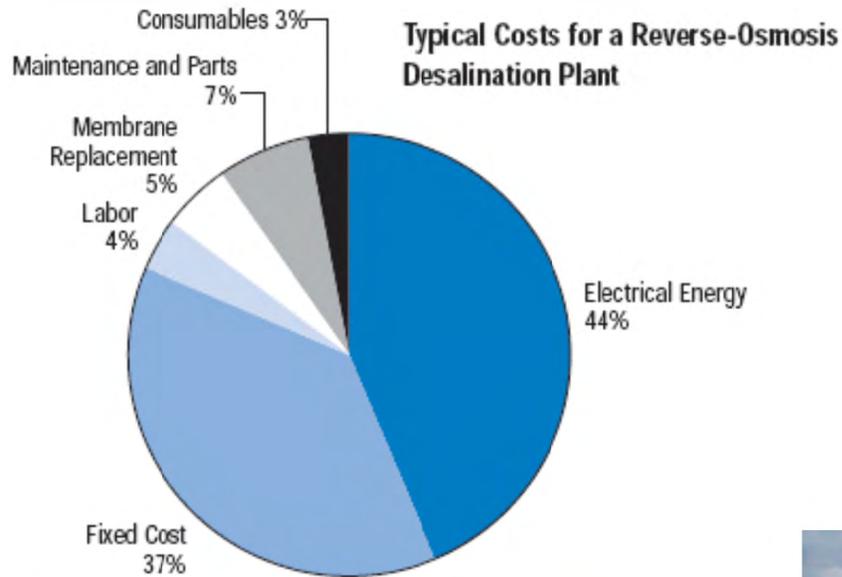
Converted to Clean Safe Drinkable Water



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# Desalination

## Removal of Salts and Minerals



LIVING WITH THE TRINITY Major funding provided by The Meadows Foundation and The Dixon Water Foundation. TrinityRiverTexas.org KERA UNT





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# Sewage & Sludge





# Used Oil & Grease



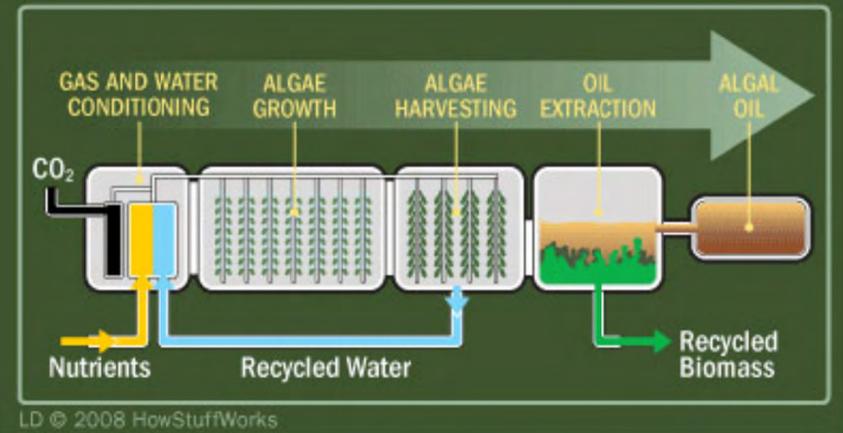


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# Algae



## How Algae Biodiesel Works Bioreactor Process





# Ships and Tanks





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# Wood-Biomass





# Ocean Plastic



# ***“Commodities Produced”***

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# Distilled Water System

## Gold Seal Industries

*“ Highest Purity - Distilled Water ”*

MODULAR EVAPORATOR

1 Million Gallons Per Day

Water recovered can be used  
for clean-in-place procedures





Stonebridge Sustainability Solutions Inc.

# Syngas/Fueling Systems



## Celebrating 25 Years



A complete line of petroleum equipment including Submersible Pumping Systems, Piping & Containment Systems, Service Station Hardware, Dispensing Systems, Fuel Management Systems and Transport Systems.





# Decentralized Energy

## Distributed Generation

It includes:

On-site renewable energy

High efficiency cogeneration Combined Heat and Power  
(CHP)

Industrial energy recycling and on-site power  
(Micro Grids)

Uninterrupted and On-Demand Power





Stonebridge Sustainability Solutions Inc.

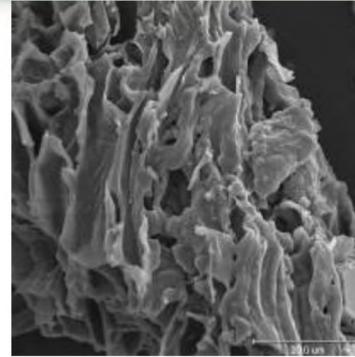
# Biochar

Biochar is a natural by-product of the Ultimate Gasification© process.

Biochar is also used as a blacking agent for many industries, commodity applications for carbon char across many different disciplines including:

Biotechnology Increased crop productivity and soil enrichment The benefits of mixing the char in with soil are well known, as a highly effective and organic means for binding nitrogen which helps plants to thrive

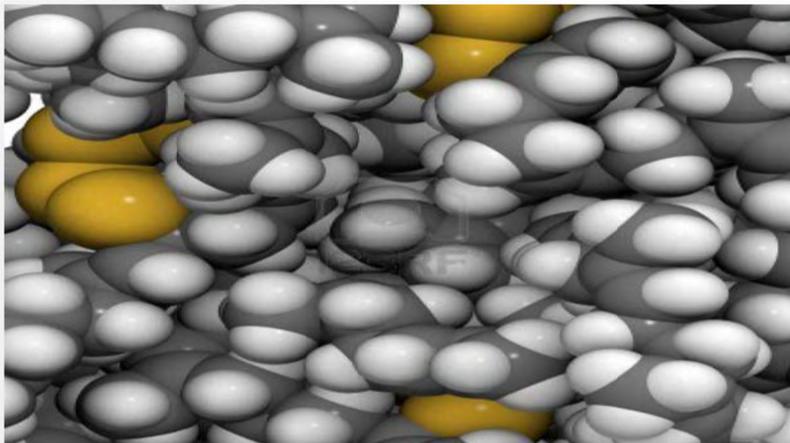
Environmental sciences Carbon sequestration  
Nanotechnology Carbon fiber





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# Breakdown



Sulfur- cross linked polyisoprene strands



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# Carbon Black





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# MSW Project Phase II

**1,500 tons per day of MSW**

Produces:

Synthetic Diesel – 13,830,000 gallons per year

Metals – 40,000 Tons per year

Water – 200,000,000+ Gallons per year

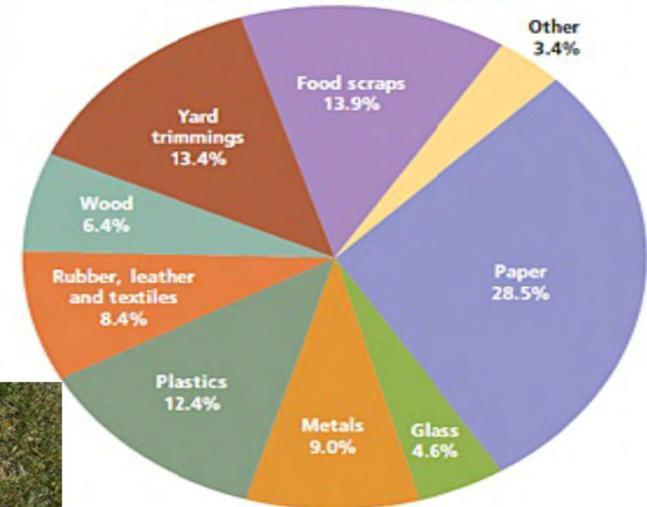
\$37+ Million Per in Water Tipping Fees

**60% of weight is water**

- Transportation cost
- Tipping fees



Figure 5. Total MSW Generation (by material), 2010  
250 Million Tons (before recycling)





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# Marketable Commodities

## Increase Revenue



- Electricity
- Fuels
- Carbon Black
- Steel recovery



# Paper Industry

## The pulp and paper industry

Black liquor is separated from



Dirty pulp

Washing



Black liquor

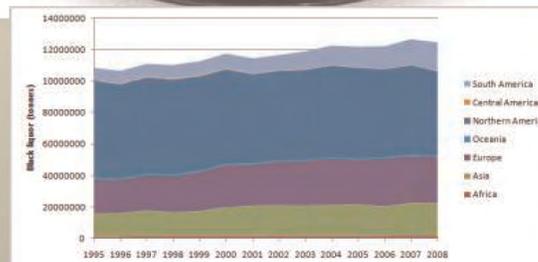


Typical black liquor analysis



Agent	Content [g/kg dry solid]
Na	19.3
K	3.34
S <sub>tot</sub>	5.50
Cl <sub>tot</sub>	0.41
S <sup>2-</sup>	1.93
NaOH	1.1
CO <sub>3</sub> <sup>2-</sup>	6.2
Na <sub>2</sub> SO <sub>3</sub>	0.1
Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	2.13
Na <sub>2</sub> SO <sub>4</sub>	1.23
C	31.9
H	3.33
N	0.08

Calorimetric heat value, HHV 12.74  
(MJ/kg dry solids)





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# Insurance

## Lloyd's

The world's specialist insurance market for over 325 years  
The world's leading insurance platform



**“Operational  
Performance Guarantee -  
Worldwide up to 120% of  
Total Equipment Cost”**

Underwriting since 1688

**LLOYD'S**  
LLOYD'S OF LONDON

# Third Party Review

**SOENECS**  
Innovative Sustainable Solutions

Social, Environmental & Economic Solutions (SOENECS) Ltd  
Technology Report for Albion Energy



NEW TECHNOLOGY REVIEW

Author: Dr. David Greenfield  
February 2017

It is the view of SOENECS that the Electromagnetic Induction Gasification System (EIGS) has the potential to revolutionize the way that difficult wastes can be managed in an appropriate, localized and optimal way, according to their individual chemical and physical composition.

# Project Strengths

- Turn environmental compliance into positive financial investments
- Creates ultra-low sulfur fuels
- Reduced Carbon Emissions
- Limited pre-treatment to handle biomass recycling (limited sorting, labor savings)
- Efficient on site electricity generation
- Environmental compliances with the EPA
- Positive Environmental Change
- **Creation of Local Jobs & Educational Opportunities**
- Saving taxpayer money and expands the tax base
- **“100% Recycling”**



# Sample Projects

**STONEBRIDGE SUSTAINABILITY SOLUTIONS, INC. (SSSI)**  
**GOLD SEAL INDUSTRIES, LLC (GSI)**



*“Advanced Waste Conversion Technology, which through  
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# Sample Tire Project

100 tons per day of Shredded Tires

35,000 tons per year  
(approximately 3,510,000 used automobile and commercial tires)

Produces:

Synthetic Diesel – 3,510,000 gallons per year

(or 10,000 gallons per operational day)

Carbon Black – 12,950 tons per year

Recycled Steel- 3,500 tons per year



# Project Examples

The following project examples have been provided for a basic understanding of potential cost and outputs. These numbers do not include tax incentives or credits of any kind. For precise numbers The GSI Project Assessment is required.

## Biomass to BioDiesel Fuel

<b>Feedstock Input</b>		
Biomass		
Tons per day	100	
Operating Hours	24	
Annual Operating Days	351	
<b>Project Cost</b>		
Ultimate Conversion System	\$35,000,000	
Building & Land	\$10,000,000	
Total:	\$45,000,000	
<b>Commodities</b>		
Diesel Fuel	2,386,800	Gallons/yr
BioChar	12,987	Tons/yr
<b>Revenue</b>		
Diesel Fuel	\$7,160,400	
BioChar	\$4,545,450	
Total:	\$11,705,850	
<b>Finances</b>		
Revenue	\$11,706,850	
O&M	\$6,000,000	
EBITDA	\$5,706,850	
PROJECTED ROI	7.9	Years

## Sewage Sludge to BioDiesel Fuel

<b>Feedstock Input</b>		
Sewage Sludge		
Tons per day	100	
Operating Hours	24	
Annual Operating Days	351	
<b>Project Cost</b>		
Ultimate Conversion System	\$35,000,000	
Building & Land	\$10,000,000	
Total:	\$45,000,000	
<b>Commodities</b>		
Diesel Fuel	2,246,400	Gallons/yr
BioChar	12,987	Tons/yr
<b>Revenue</b>		
Diesel Fuel	\$6,739,200	
BioChar	\$4,545,450	
Total:	\$11,284,650	
<b>Finances</b>		
Revenue	\$11,284,650	
O&M	\$6,000,000	
EBITDA	\$5,284,650	
PROJECTED ROI	8.5	Years

**Note:** The information contained herein is a model based on assumptions for a waste to energy system. This is **NOT** a proposal, bid, solicitation, offer for sale, sale price, contract, or agreement of any kind. This may be used for discussion purposes only.

# Project Examples

## Used Tires to Diesel Fuel-1

<b>Feedstock Input</b>		
Used Tires		
Tons per day	100	
Operating Hours	24	
Annual Operating Days	351	
<b>Project Cost</b>		
Ultimate Conversion System	\$35,000,000	
Building & Land	\$10,000,000	
Total:	\$45,000,000	
<b>Commodities</b>		
Diesel Fuel	3,510,000	Gallons/yr
Carbon Black	12,987	Tons/yr
Steel	3,510	Tons/yr
<b>Revenue</b>		
Diesel Fuel	\$8,775,000	
Carbon Black	\$2,597,400	
Steel	\$702,000	
Tipping Fee	\$3,510,000	
Total:	\$15,584,400	
<b>Finances</b>		
Revenue	\$15,584,400	
O&M	\$6,000,000	
EBITDA	\$9,584,400	
PROJECTED ROI	4.7	Years

## Used Tires to Electricity-1

<b>Feedstock Input</b>		
Used Tires		
Tons per day	100	
Operating Hours	24	
Annual Operating Days	351	
<b>Project Cost</b>		
Ultimate Conversion System	\$52,500,000	
Building & Land	\$12,000,000	
Total:	\$64,500,000	
<b>Commodities</b>		
Electricity	12.5	Mwh
Carbon Black	12,987	Tons/yr
Steel	3,510	Tons/yr
<b>Revenue</b>		
Electricity	\$12,636,000	
Carbon Black	\$2,597,400	
Steel	\$702,000	
Tipping Fee	\$3,510,000	
Total:	\$19,445,400	
<b>Finances</b>		
Revenue	\$19,445,400	
O&M	\$6,000,000	
EBITDA	\$13,445,400	
PROJECTED ROI	4.8	Years

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## WASTE-TO-CLEAN-ENERGY TECHNOLOGY

MUNICIPAL SOLID WASTE PROJECT OUTPUT OVERVIEW **ESTIMATES**

<b>Tons/Day</b>	<b>100</b>	<b>350</b>	<b>500</b>	<b>1,000</b>	<b>1,700</b>
Net Useable	60	200	<b>300</b>	600	1000
# of Units	1	2	<b>3</b>	6	10
<b>OUTPUT</b>					
<b>Commodities</b>					
<b>Electricity</b>					
MW Per Hour	1.73	6.04	<b>8.63</b>	17.26	29.34
MW Per Day	41.52	144.96	<b>207.12</b>	414.23	704.19
MW Per Year	14,498.00	50,743	<b>72,490.01</b>	144,980.01	246,466.02
<b>Diesel</b>					
Gals/Hour	109.77	384.19	<b>548.84</b>	1,097.68	1,866.06
Gals/Day	2,634.44	9,220.53	<b>13,172.18</b>	26,344.36	44,785.41
Gals/Year	922,052.57	3,227,183.98	<b>4,610,262.83</b>	9,220,525.65	15,674,893.61
<b>Syngas</b>					
MMBtu/Hour	16	57	<b>82</b>	164	279
MMBtu/Day	393.52	1,377.31	<b>1,967.59</b>	3,935.17	6,689.79
MMBtu/Year	137,731.01	482,058.55	<b>688,655.07</b>	1,377,310.13	2,341,427.22
<b>Water</b>					
Gals/Hour	1,563	5,469	<b>7,813</b>	15,625	26,563
Gals/Day	37,500	131,250	<b>187,500</b>	375,000	637,500
Gals/Year	13,125,000	45,937,500	<b>65,625,000</b>	131,250,000	223,125,000
<b>Char</b>					
Tons/Hour	0.04	0.13	<b>0.18</b>	0.36	0.61
Tons/Day	0.86	3.02	<b>4.32</b>	8.64	14.69
Tons/Year	302	1,058.00	<b>1,512</b>	3,024	5,141
<b>Metals</b>					
Tons/Hour	0.317	1.11	<b>1,583</b>	3.167	5.38
Tons/Day	7.6	26.6	<b>38</b>	76	129
Tons/Year	2,660	9,310	<b>13,300</b>	26,600	45,220
COST**	Not cost Effective	\$24,574,856.00	<b>\$32,077,466.02</b>	\$61,368,295.42	\$102,357,456.58
EBITDA		\$9,743,590.00	<b>\$11,698,557.00</b>	\$24,557,621.00	\$42,560,310.00
ROI years/%		4.91/17.7%	<b>4.01/22.01%</b>	3.61/24.96%	3.46/26.23%

Feedstock: Municipal Solid Waste (MSW)

• 24 Hour Day for 7 Days Per Week Operation, 351 days/yr

Moisture @ 25%\*\* Turn Key Operation, Based on 100% Finance @ 5% over 25 years

**ALL ESTIMATED PROJECTIONS ARE SUBJECT TO CHANGE BASED ON FEEDSTOCK MAKEUP, RAW MATERIAL COST ADJUSTMENTS AND OPERATIONAL LOCATIONS.**