

IT Committee

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

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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)
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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***

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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



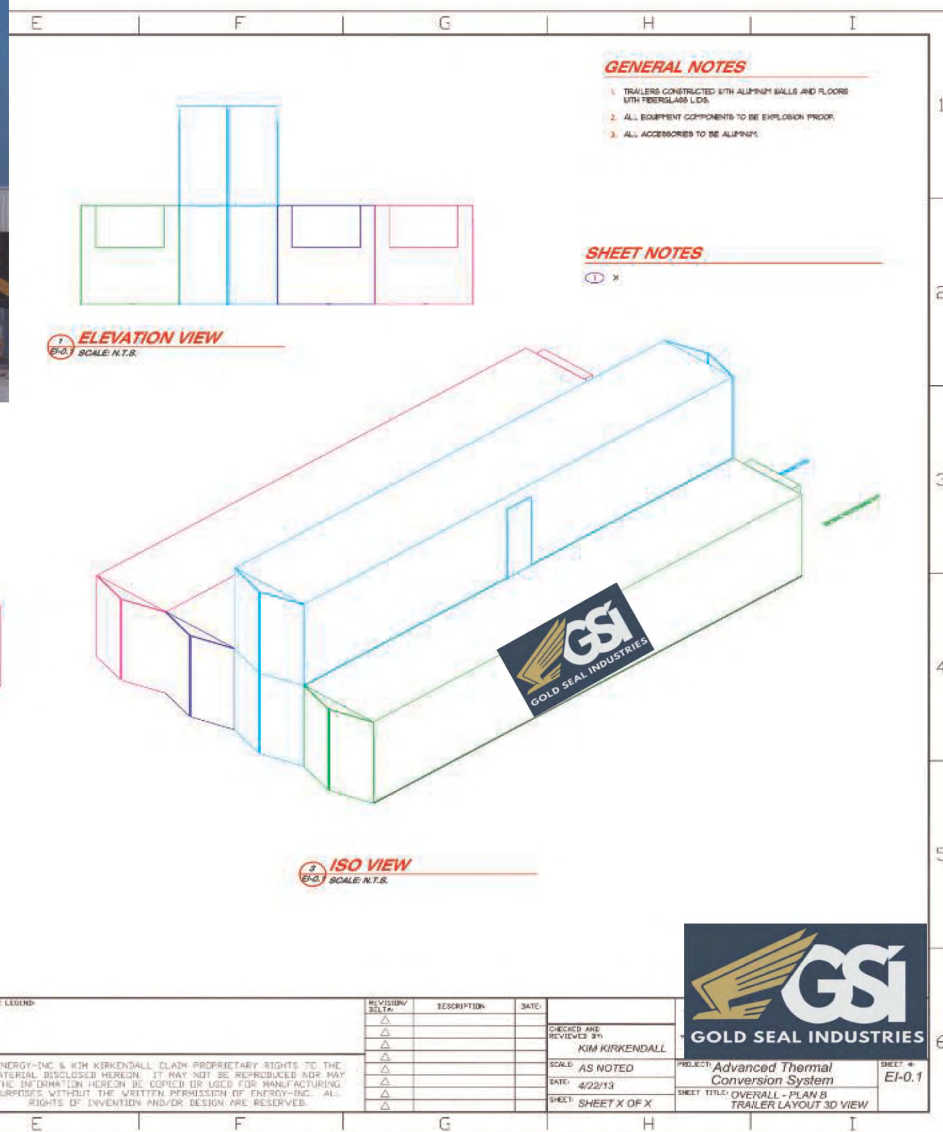
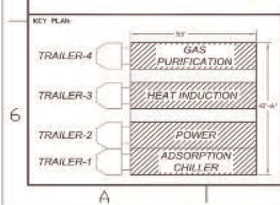
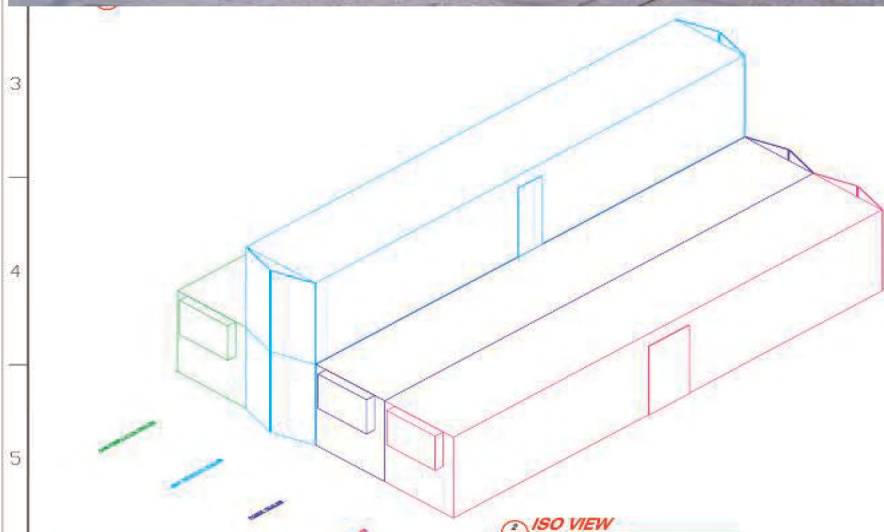
Modular Equipment

- 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

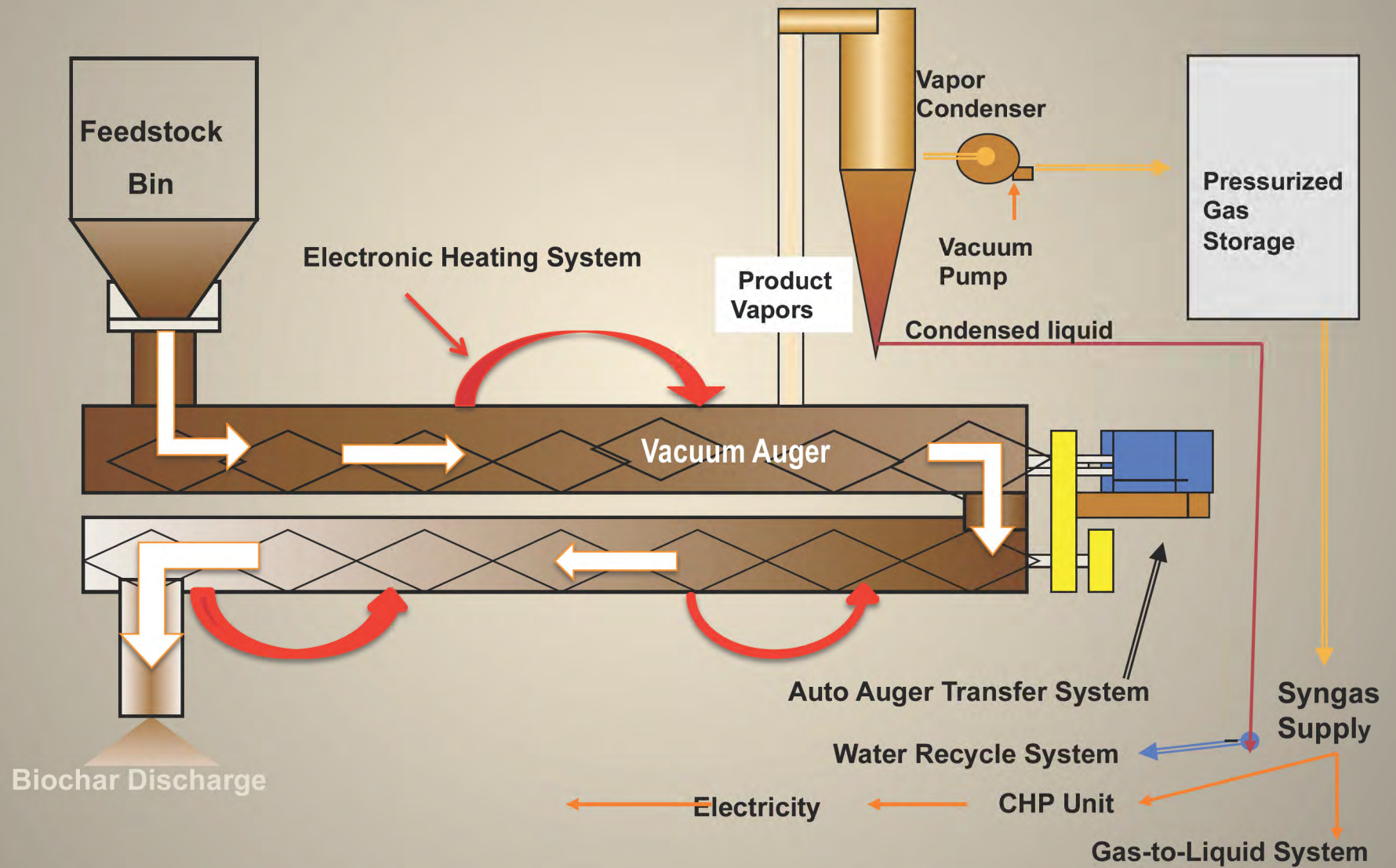


ISO - International Organization for Standardization

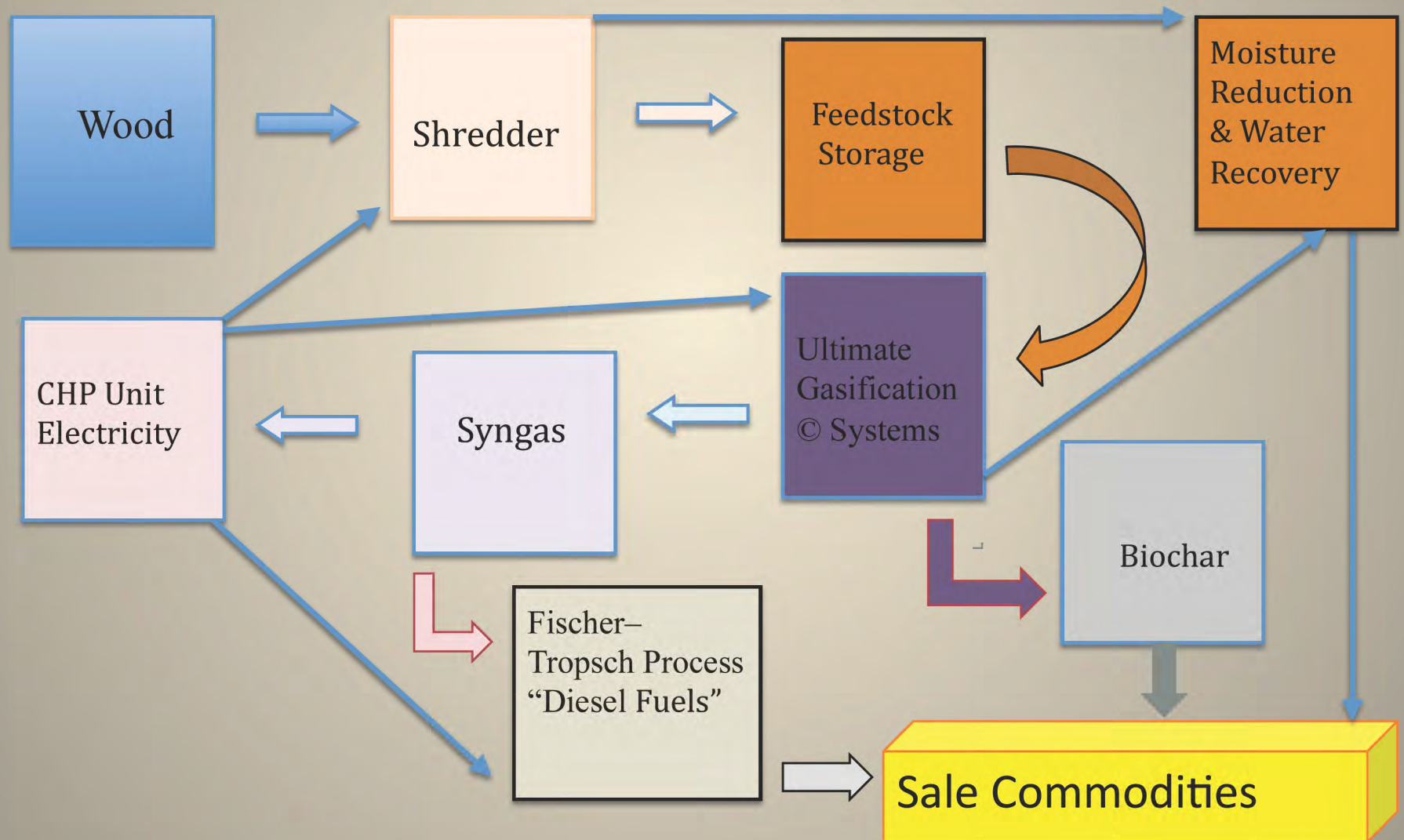
Stackable Units



Simple System Diagram



Simple Flow Chart



Strategic Partners

FMC Technologies



Rockwell Automation

HAYNES International



“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
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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





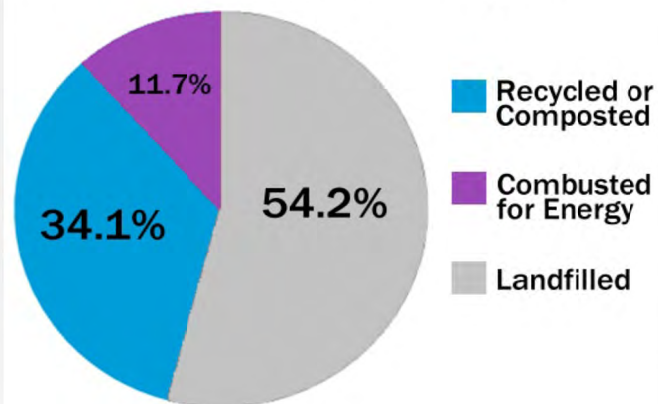
Stonebridge Sustainability Solutions Inc.



Landfills



What Happens to Stuff We Throw Away*?



*Based on the 2010 Municipal Solid Waste Characterization Report

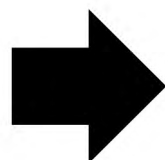


“No trash is sent to Landfills and/or Incinerators”



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)



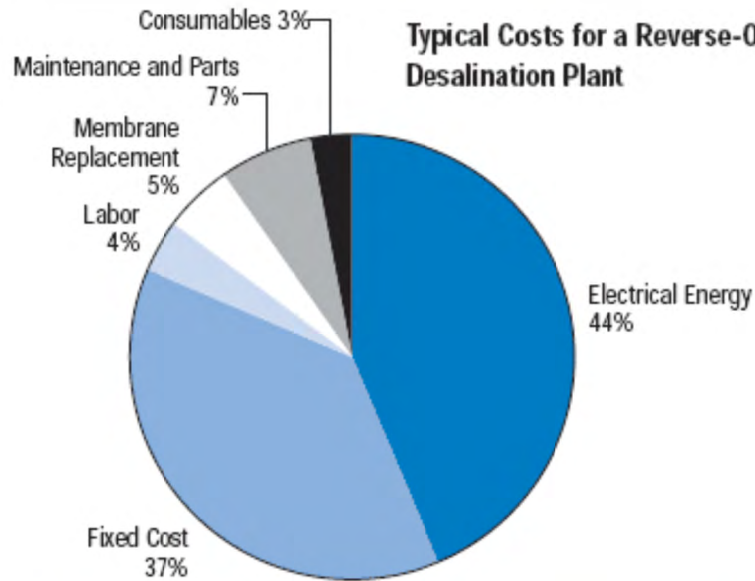
Converted to Clean Safe Drinkable Water



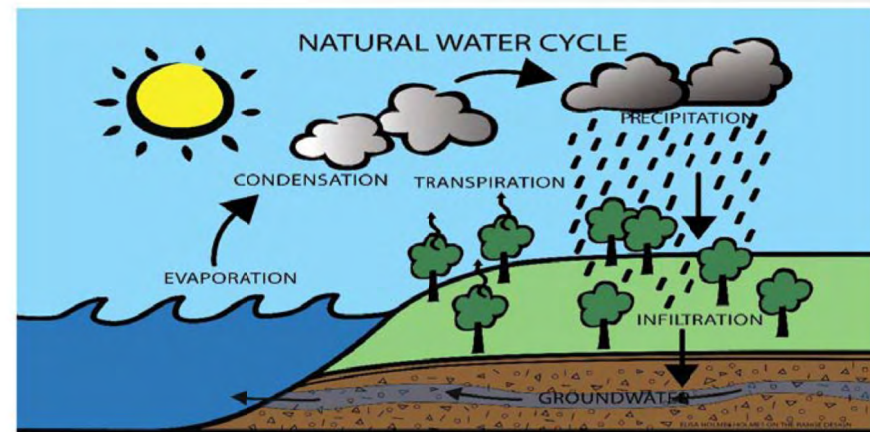
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Desalination

Typical Costs for a Reverse-Osmosis Desalination Plant



Removal of Salts and Minerals

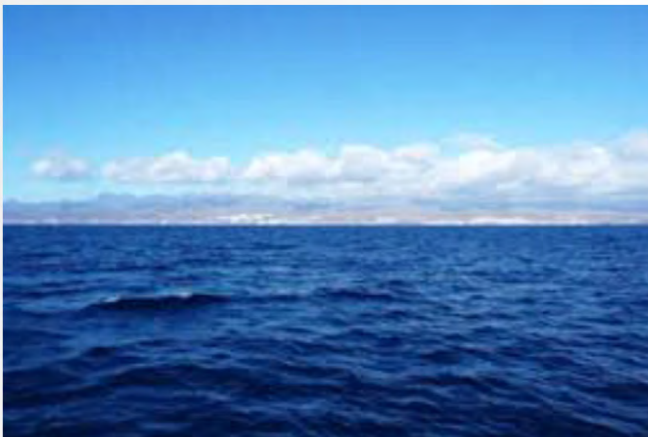


LIVING WITH THE TRINITY

Major funding provided by The Meadows Foundation and The Dixon Water Foundation. TrinityRiverTexas.org

UNT

KERA





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Sewage & Sludge





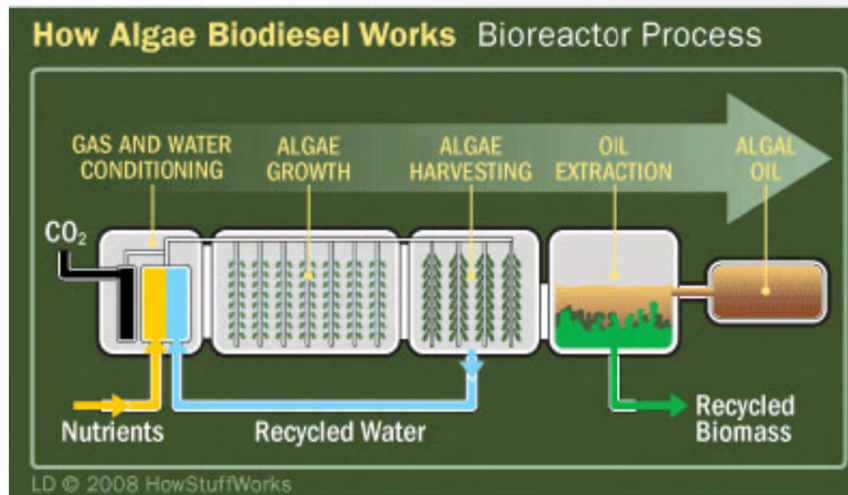
Used Oil & Grease





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Algae





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





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





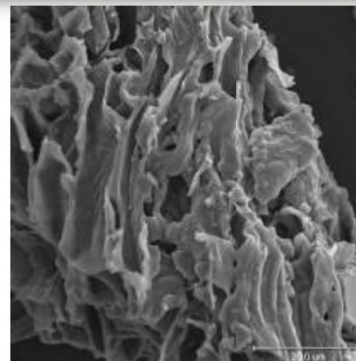
Biochar

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

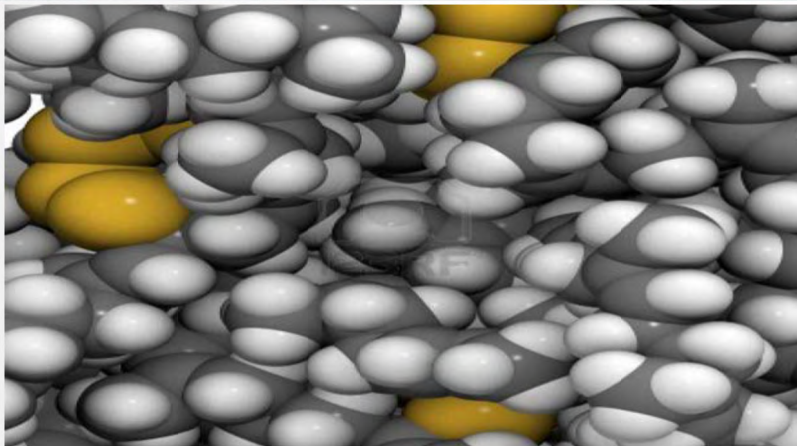
Environmental sciences Carbon sequestration
Nanotechnology Carbon fiber





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Breakdown



Sulfur- cross linked polyisoprene strands



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Carbon Black





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

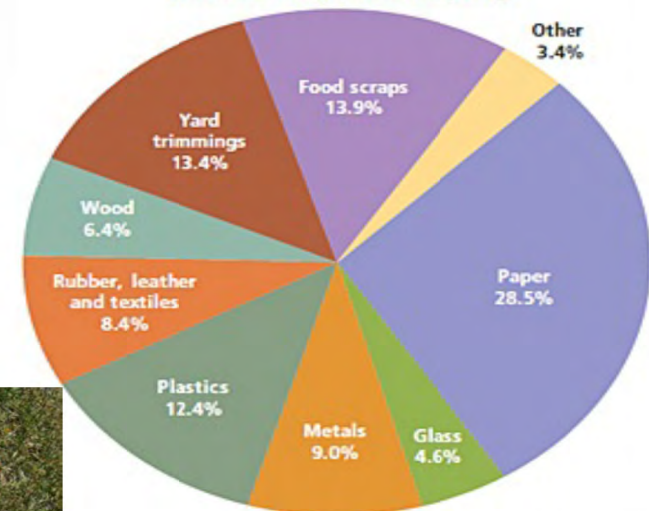
\$37+ Million Per in Water Tipping Fees

60% of weight is water

- Transportation cost
- Tipping fees



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



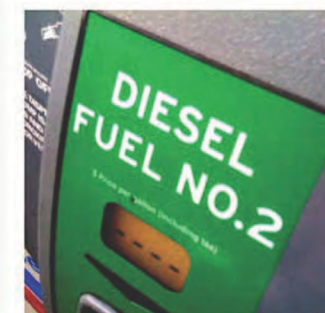


Marketable Commodities

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

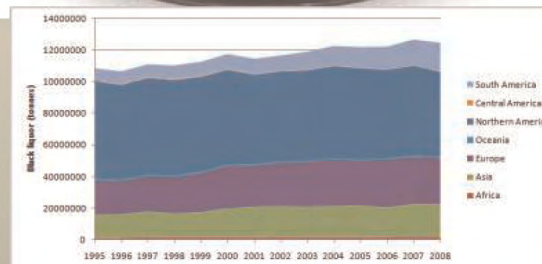


Typical black liquor analysis



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

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





Stonebridge Sustainability Solutions Inc.

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)



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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

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

Sewage Sludge to BioDiesel Fuel

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

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

Used Tires to Electricity-1

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



WASTE-TO-CLEAN-ENERGY TECHNOLOGY

MUNICIPAL SOLID WASTE PROJECT OUTPUT OVERVIEW **ESTIMATES**

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