

# A GREENER SOLUTION<sup>LLC</sup>

Environmental Management and Consulting

**CT Department of Energy and  
Environmental Protection**

**“Innovative Business Practices”**  
Sustainability/ Waste Reduction/ Getting to Zero Waste

**Robert Render –Director of Industrial Solutions  
A Greener Solution-A Casella Company**

**September 26, 2013**



# Partners For A More Sustainable Future

- ✓ A Greener Solution (AGS) offers a full spectrum of programs and services designed to support **corporate efforts** to achieve **zero waste targets**
- ✓ Our goal is to help manufacturers **enhance profitability** through the identification and implementation of **sustainable** business practices



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# Sustainability Approaches

- Reduce Landfill
- Increase Recycling and Recycling Rebates
- Manage All Waste Streams to Reduce Cost
  - Universal, Hazardous and Non-Hazardous
- Reduce Energy Consumption
  - Lighting Retrofits
- Reduce Carbon Footprint



# By-Products are Resources to be Managed and Valued



## Reuse Value

- Pallets sold or remanufactured
- Boxes sold as used boxes
- Acids sold as components in fertilizer
- Chemical by-products
- Asphalt used as asphalt ("reusable fill")
- Glass used as road aggregate or fill (CGS 22a-208z(c))
- Alum sludge used as soil amendment<sup>1</sup>

<sup>1</sup> DEEP Approved Beneficial Use Determination ("BUD")



# By-Products are Resources to be Managed and Valued



## Recycling Value

- Metals, Plastics, & Paper
- Waste Oils & Chemicals
- Organics
- Wood Waste
- Batteries, Used electronics, Hg bulbs
- Off-specification fuels re-processed into fuels
- Asphalt Shingles<sup>1</sup>
- Metal bearing sludges & Baghouse dusts<sup>2</sup>

<sup>1</sup> Required registration under CT DEEP GP

<sup>2</sup> Potential regulatory issues associated with reuse of these materials.



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# By-Products are Resources to be Managed and Valued

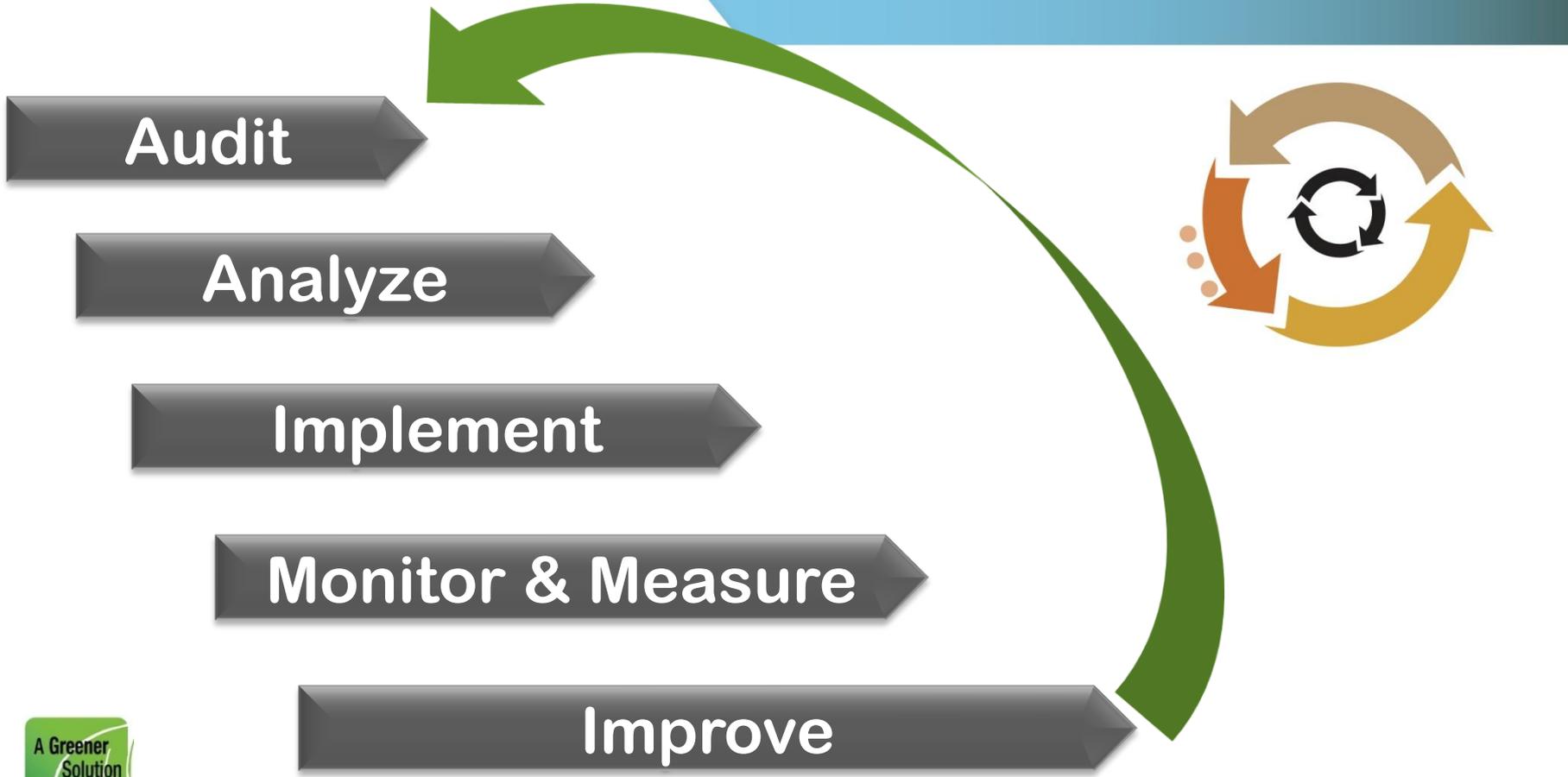


## BTU Value

- WTE – Waste to energy
- Conversion to fuel



# By-Product Analysis and Feasibility



# By-Product Analysis and Feasibility

**Audit**

What can be diverted

**Analyze**

**Implement**

**Monitor & Measure**

**Improve**



# By-Product Analysis and Feasibility

**Audit**

What can be diverted

**Analyze**

Recyclable or not

**Implement**

**Monitor & Measure**

**Improve**



# By-Product Analysis and Feasibility

**Audit**

What can be diverted

**Analyze**

Recyclable or not

**Implement**

Change management

**Monitor & Measure**

**Improve**



# By-Product Analysis and Feasibility

**Audit**

What can be diverted

**Analyze**

Recyclable or not

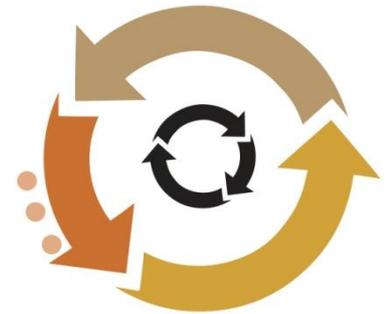
**Implement**

Change management

**Monitor & Measure**

Report

**Improve**



# By-Product Analysis and Feasibility

**Audit**

What can be diverted

**Analyze**

Recyclable or not

**Implement**

Change management

**Monitor & Measure**

Report

**Improve**

There is  
*always* room



# Case Study #1 - Energy

## Lighting Retrofits

- Reduce energy usage/Reduce cost
- Increase productivity
- Reduce maintenance
- Earn LEED points
- Increase facility value



# Case Study #1 - Energy

## High Bay Solutions – HID to FL

### Before

- 120 400 watt HPS High-Bay w/ Spun Aluminum Reflector
- Poor color rendering 20 to 40 foot candles maintained
- 455 watts/fixture
- Once on, operates all day
- \$21,840/year (5000 hrs @ .08/kwh)



# Case Study #1 - Energy

## High Bay Solutions – HID to FL

### Before

- 120 400 watt HPS High-Bay w/ Spun Aluminum Reflector
- Poor color rendering 20 to 40 foot candles maintained
- 455 watts/fixture
- Once on, operates all day
- \$21,840/year (5000 hrs @ .08/kwh)



### After

- 120 F54T5HO High Bay
- High Color Rendering
- 30 to 40 foot candles maintained
- 234 Watts / fixture
- Sensors on, 40% less hours
- \$6,739 /year (3000 hrs @ .08/kwh)



# Case Study #2 – The Technology Group

Mfg Challenge – Reduce Landfill and Increase Recycling Value

**2009**

- Collecting and selling very few recyclable materials
- Majority went into compactor
  - Bottles & cans
  - Plastic parts
  - Corrugated boxes
  - Assembly parts
  - Office paper
- Compactor was picked up every 7 days at average cost of \$650 per pull



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# Case Study #2 – The Technology Group

Solution  
**Mfg**

## 2013 - Consistent Performance for 3 Years

- Recycling 100% of plastic parts
- Recycling 100% of assemblies
- Recycling 100% of corrugated
  - Baler supplied for corrugated boxes
- Program was expanded to plastic bags, batteries, pop cans, plastic bottles & office paper



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# Case Study #2 – The Technology Group

Results  
Mfg

- \$145,500 Annual Savings & Increased Revenue
- Scrap plastic sales - \$115,500 additional revenue
  - A Greener Solution provided better pricing and accepts more materials
  - 2009 scrap plastic revenue = \$18,000
  - 2012 scrap plastic revenue = \$133,500
- Trash pickups – \$30,000 annual savings
  - Previous every 7 days @ average cost of \$650 per pick up
  - Reduced to every 60 days
  - Negotiated new vendor contract with assistance of A Greener Solution



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# A Greener Solution Initiatives

2013

- Rubber De-vulcanization Technology Partner
  - Tire & Rubber Waste-EPA estimates >3.0 million tons of tires per year
  - Closed loop recycling of scrap back to feedstocks
- Bio-Solids & Organics Conversion to Electricity
  - Unique technology dries organics with anaerobic reactive heat
  - Can be used a 9,000 BTU coal replacement or to power turbines
  - Perfect for Third World countries where there is little infrastructure
- Reverse Vending Kiosks to Collect Aluminum Cans & Bottles
  - Provides recycling incentives-coupons & credits to online retailers
  - Targets malls, convention centers, universities, theme parks



A GREENER SOLUTION LLC  
Environmental Management and Consulting

# Greenredeem USA Recycling Kiosk

Reverse Vending Machines combine video messaging and couponing with recycling.

Creates opportunities for marketing and positive messaging for companies and institutions



# Recipe for a Sustainable Future



- Companies need a green strategy
- Committed leadership
- Clear and achievable goals
- Capable recycling partners



# Your Part in a Sustainable Future

- Companies need green strategies
  - Achievable goals that can be measured
  - Marketing & communications
- Opportunities are out there
  - LinkedIn sustainability groups
  - Sustainable Brands Conference 2014
  - PE funds consider sustainability risk



# Sustainability and Waste Reduction

**Thank you!**

Robert Render  
A Greener Solution -  
A Casella Company



A GREENER SOLUTION LLC  
Environmental Management and Consulting