



**SUSTAINABILITY COUNCIL  
PRESENTATION**

**Sustainable to  
Restorative  
Energy Answers Baltimore, LLC.**

# THE RESOURCE RECOVERY COMPANY

- Energy Answers has been in the Resource Recovery business for over 27 years and we stress “resource recovery” over waste-to-energy as our system is designed to maximize the recovery of both energy and materials and minimize disposal.
- We have designed, financed, owned and operated energy and materials recovery systems which have:
  - Processed 20 million tons of waste
  - Generated 12 million megawatt hours of electricity
  - Produced 3.5 billion pounds of industrial steam
  - Recovered 700,000 tons of ferrous metals and 60,000 tons of non-ferrous metals
  - Produced 2 million tons of usable aggregate from combustion ash
  - Recycled 20 million gallons of waste sludge

## The benefits of the Fairfield Alternative and Renewable Energy Project go beyond “sustainable” to “restorative” and include:

### LAND:

- brownfield recovery
- landfill use reduction

### AIR:

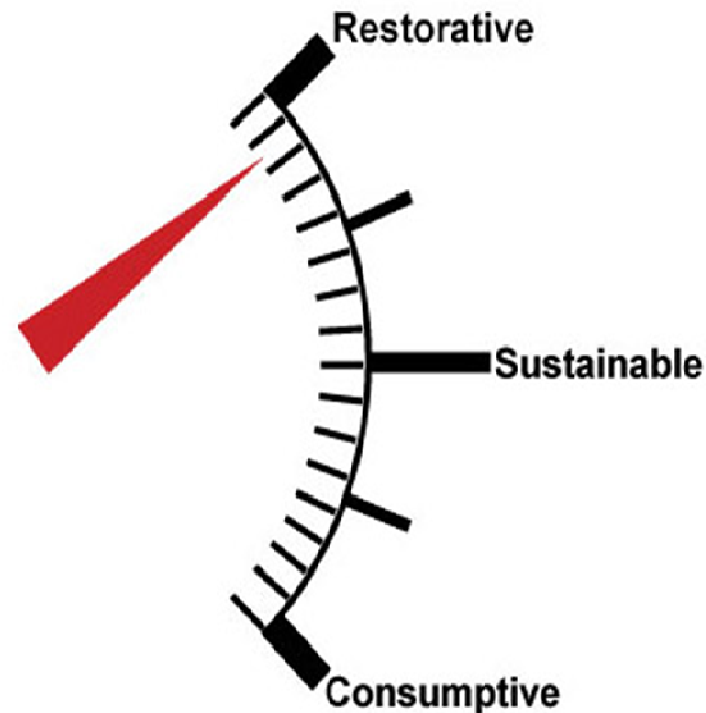
- GHG emission reductions
- overall emissions reductions
- criteria pollutants reductions

### WATER:

- treated water use reduction
- use of 3 MGD of treated wastewater effluent for cooling
- industrial wastewater elimination
- landfill leachate elimination

### RESOURCES:

- extraction reduction (metals and aggregate recovery)
- fossil fuel use reduction
- new project development using recovered materials
- existing buildings and infrastructure



# COMPATIBILITY WITH THE BALTIMORE SUSTAINABILITY PLAN

- Co-location of industries in Eco-Industrial Park will minimize overall energy and materials usage resulting in a reduced net discharge to the environment and carbon footprint.
- Eco-Industrial Park will substantially improve environmental conditions of Fairfield Peninsula.
- The Green Power Plant attracts satellite industries by producing below-market energy which utilizes renewable and alternative fuels.
- Projected jobs created with the Eco-Industrial Park.

# PROMOTING THE CONSERVATION OF ENERGY IN THE STATE OF MARYLAND

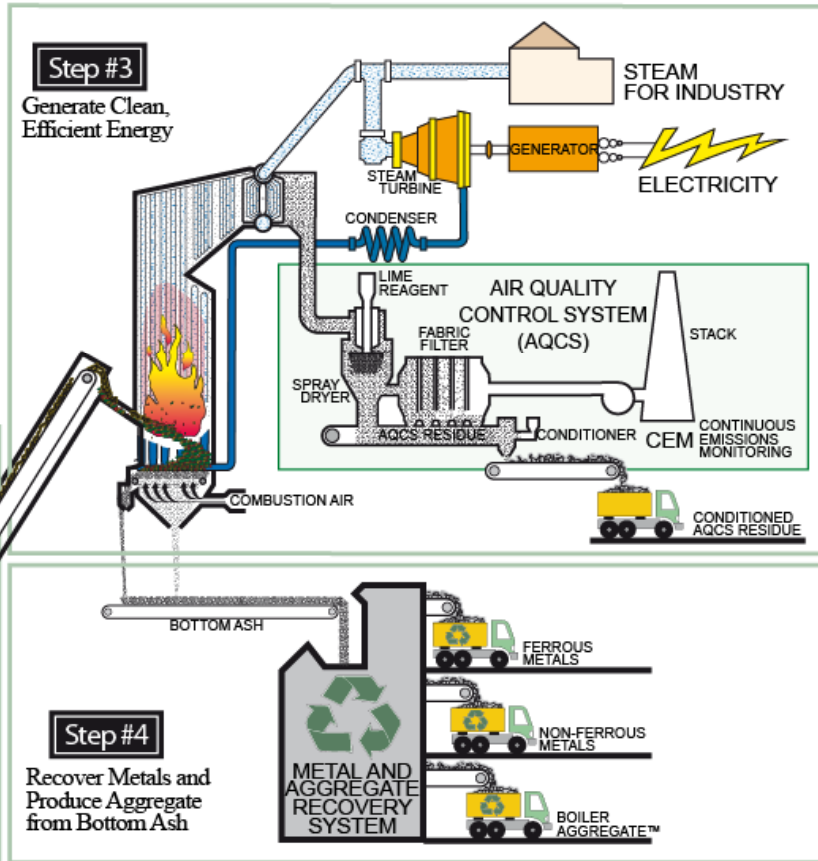
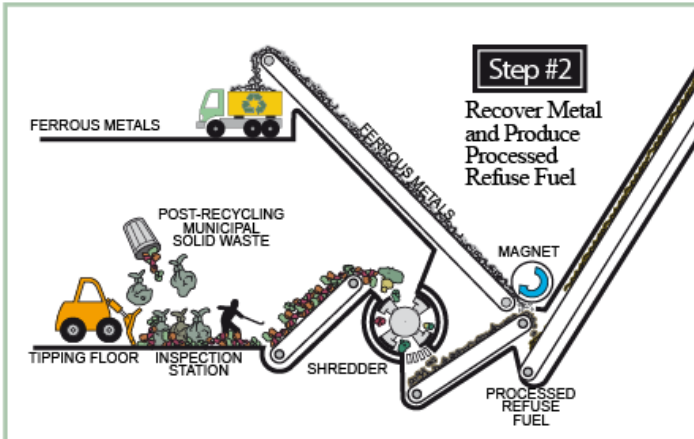
- The Power Plant will generate its own power for internal use and not require any power from the grid.
- Another source of clean energy generation at the Power Plant will come from the incorporation of the state-of-the-art solar membrane technology on the rooftops of the primary operations and support buildings to provide additional power for the LEED-certified buildings.
- The Eco-Industrial Park will be able to provide steam or electricity to adjacent industries allowing them to operate without having to take power from the electric grid.
- Rainwater and Gray water will be diverted and collected from all Power Plant buildings' roofs for reuse as boiler make-up water and cooling water thereby reducing the need to treat the water needed for operations.

# ENERGY ANSWERS PRF TECHNOLOGY

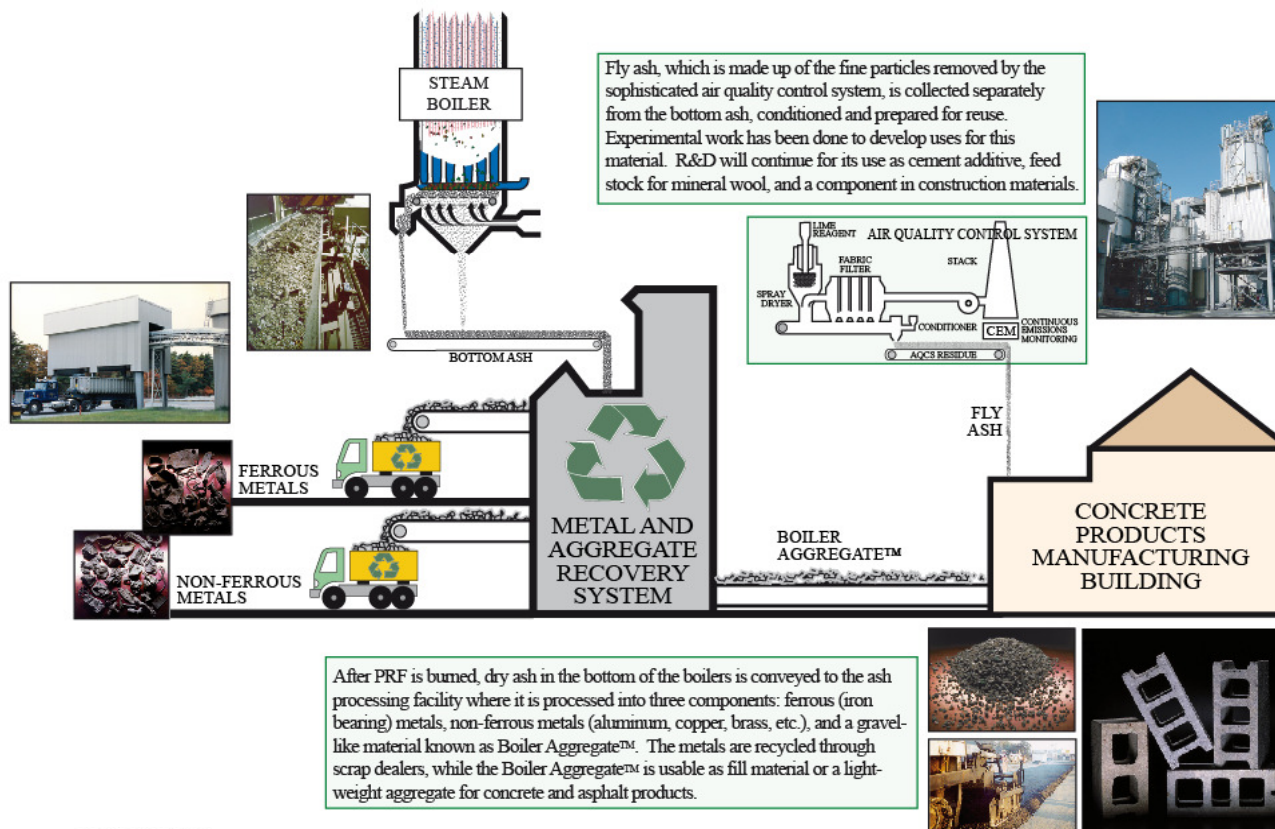
## EFFICIENT ENERGY RECOVERY WITH MATERIALS RECYCLING AND RECOVERY

### Resource Recovery Process

RECYCLABLES AND REUSABLE MATERIALS TO MARKET & END USERS



# COMBUSTION BY-PRODUCTS RECOVERY AND REUSE



# OFF-SITE ALTERNATIVE FUEL PREPARATION



Municipal solid Waste



Urban Wood Waste



Used Tires



Recycled Cars

**Fuel Produced off-site from Waste Materials**

Fuel derived from municipal solid waste, urban wood waste, tires, auto recycling operations, special industrial wastes and sludges will be produced at off-site locations and transferred to the Green Power Plant by truck or rail.

No unprocessed fuel will be delivered to the Fairfield Peninsula.



Processed Refuse Fuel  
Up to 100%



Wood Chips  
Up to 50%



Tire Derived Fuel  
Up to 10%



Auto Shredder Residue  
Up to 10%

# FAIRFIELD RENEWABLE ENERGY PROJECT PROJECT OFFSETS & “GREEN” BENEFITS

The Fairfield Renewable Energy Project provides significant benefits to the environment in the following areas:

Reduction of landfill gas emissions

Increased metals recovery, recycling and reduction of associated emissions

Reduction of associated transportation emissions

Reduction of Greenhouse gas emissions

Offset of fossil fuel power production and the associated emissions

“In a predominantly built environment, bold thinking is sometimes required to create new opportunities.”  
**Baltimore Development Commission**

# FAIRFIELD RENEWABLE ENERGY PROJECT PROJECT OFFSETS & “GREEN” BENEFITS

## Reduction of landfill gas emissions:

- Landfill emissions are comprised of approximately 54% Methane and 46% Carbon Dioxide (CO<sub>2</sub>).
- Methane is 21x more potent in trapping solar heat than CO<sub>2</sub>.
- Even at 60% LFG collection rates, landfill GHG impacts are far greater than those of a WTE.
- Based on the assumption that the Fairfield Renewable Energy Project will divert 4,000 tons/day from landfill disposal, the result is the avoidance of approximately 620,000 tons/year of carbon equivalent emissions.
- A 98% Recover/Recycle rate of materials from MSW.

# FAIRFIELD RENEWABLE ENERGY PROJECT

## PROJECT OFFSETS & “GREEN” BENEFITS

### Reduction of associated transportation emissions:

- In 2004, NYC exported 3 million tons of waste
- Many 20 ton trailers were sent to PA, VA & OH
- More than 4,000 tons/day of MSW pass the Fairfield Project site continuing 180 miles to a landfill in VA
- Avoidance of this trip equates to the offset of:
  - 1,303.6 Tons/Year of NO<sub>x</sub>
  - 5,051.4 Tons/Year of CO
  - 32.6 Tons/Year of PM
  - 97,893.0 Tons/Year of CO<sub>2</sub>
- Additionally truck emissions include dioxins and other toxic emissions that have harmful human and environmental impacts

## ECONOMIC IMPACT: JOBS & INVESTMENT

<b>Proposed Use</b>	<b>Area In Acres</b>	<b>Gross Sq. Feet of Structure</b>	<b>Permanent Employee *</b>	<b>Estimated Capital Costs</b>
Green Power Plant	9.40	409,464	100	\$250million
Recycled Paper Mill	14.08	306,715	164	\$500 million
Paper Mil Satellites	7.52	163,794	136	\$50 million
Eco-Industrial Park Administration, Parking & Training Ctr.	2.2	215,716	94	\$5 million
Warehousing & Distribution	9.7	282,486	177	\$100 million
Laboratories	2.21	48,486	48	\$10 million
Central Maintenance, Shops, Grounds Maintenance & Cafeteria	1.97	43,006	29	\$5 million
<b>TOTAL:</b>			<b>748</b>	<b>\$920 million</b>

\*300 construction jobs over a 2-year period are projected for the Green Power Plant only. A comparable number of jobs will be created during the construction of other industries at the Eco-Industrial Park

# JOB OUTLOOK

- The Renewable/Alternative Energy facility will create 150 permanent jobs with full benefits package
- Typical Job Descriptions vary from:

-Plant Operators \$17-21/hr

-Electricians \$23-26/hr  
\$17-20/hr

-W/W Treatment Operators  
\$22-26/hr

- Utility Operators \$12 -16/hr

- Maintenance Workers

- Supervisors \$56-79K/Yr

- Skill set requirements-
  - Management - Bachelor's Degree or Technical School Training
  - Hourly - High School Diploma or Equivalent
- Working with the Local Community organization, Energy Answers will create a local Employment Office. As part of that process, training for specific needs will be identified to help LOCAL community members obtain the ability to fill the needs of the organization.

**It is our intent to fill the jobs listed above  
with qualified members of the community  
*first.***

# COMMUNITY INTERACTION PROGRAM ADVISORY GROUP

- Representatives from Community Groups, City and Energy Answers International
- Vehicle for 2-way Communication
- First Priority for Employment
- First Priority for Supply and Services from Local Businesses
- Employee Training and Certification Program
- City Master Planning Support
- Scholarships and Internships
- Grants to civic / school groups for environmental efforts (funding for community activities, public school events, sports teams, etc.)
- Other activities

# SUSTAINABILITY TRIPLE BOTTOM LINE

