



**We Are Columbia**

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**COLUMBIA ENVIRONMENT AND INFRASTRUCTURE COMMITTEE MEETING  
AGENDA  
TUESDAY, FEBRUARY 20, 2018**

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**The Columbia Environment and Infrastructure Committee will conduct a Meeting on Tuesday, February 20, 2018 at 10:00 a.m. in the Mayor's Conference Room at City Hall, 1737 Main Street, 2nd Floor, Columbia, SC 29201.**

*Prior to entering the meeting please turn all electronic communication devices to the silent, vibrate or off position. All presenters are asked to speak directly into the microphone for recording purposes.*

**CALL TO ORDER**

**COMMITTEE DISCUSSION**

1. Presentation from Allied Energy Services

**ADJOURNMENT**



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We Are Columbia

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**MEETING DATE:** February 20, 2018

**DEPARTMENT:** City Clerk

**FROM:** *Erika Moore, City Clerk*

**SUBJECT:** Presentation from Allied Energy Services

**FINANCIAL IMPACT:**

**ATTACHMENTS:**

- Waste to Energy for Columbia SC 022018 (PDF)

**HISTORY:**

11/22/17

Environment and Infrastructure Committee

DEFERRED

# Municipal Solid Waste to Liquid Fuel, Bio Char and Wood Products



**Public/Private Partnership**

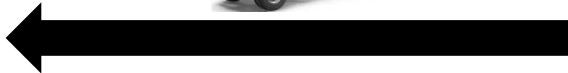
# The Team

- ALLIED Energy Services, LLC
  - *Developer and Operator*
- Soukos Environmental USA, Inc.
  - *MSW Feedstock Technology Provider*
  - *Energy Conversion Technology Provider*
- AMEC Foster Wheeler
  - *Environmental Engineering*
- AECOM
  - *EPC (Engineering, Procurement and Construction)*



# MSW to Diesel Fuel, Bio Char and Wood Products

## Soukos Aeolus System



## Municipality Landfill (MSW)



Output is RDF Pellets

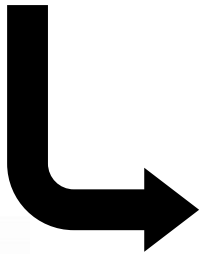
## Soukos Knossos System

Output is Building Products



## Soukos Archimedes System

Output is Diesel Fuel & Char



Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)

# Non-Waste Fuel



## Soukos RDF Pellet Heating Value

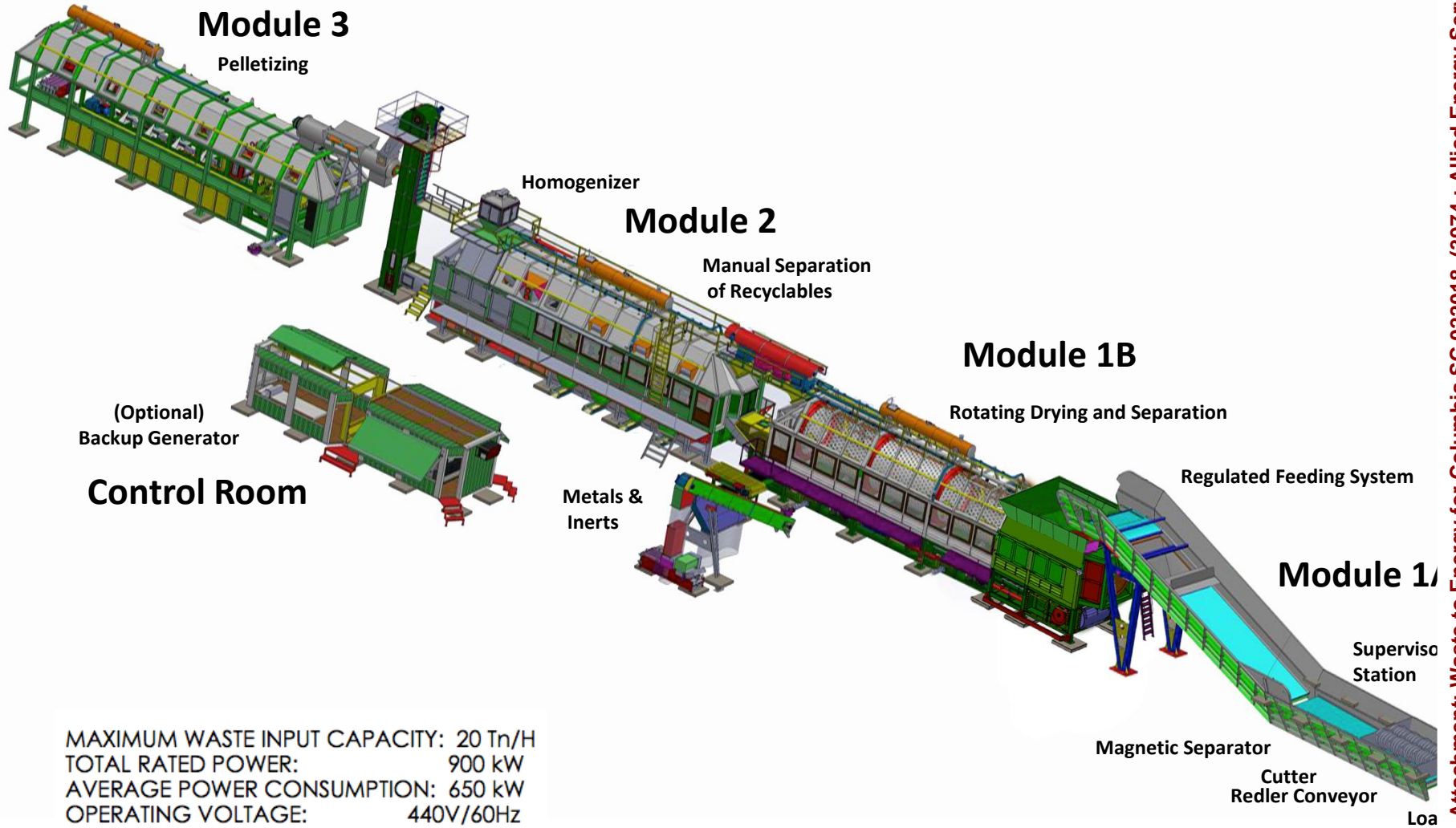
Gross Heating Value 13,281 BTU/lb, 30.89 MJ/kg

Net Heating Value 12,296 BTU/lb, 28.60 MJ/kg

\*Based on testing at PPI on 10/26/16



# Non-Waste Fuel Pellets



MAXIMUM WASTE INPUT CAPACITY: 20 Tn/H  
 TOTAL RATED POWER: 900 kW  
 AVERAGE POWER CONSUMPTION: 650 kW  
 OPERATING VOLTAGE: 440V/60Hz

Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



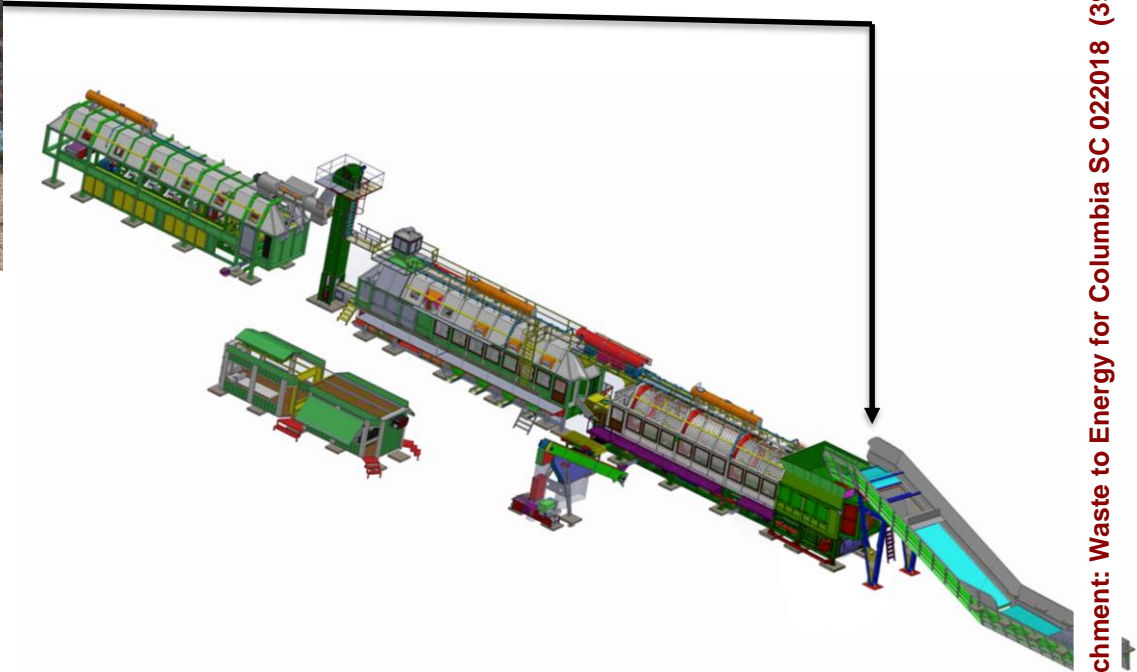
# MSW to Non-Waste Fuel



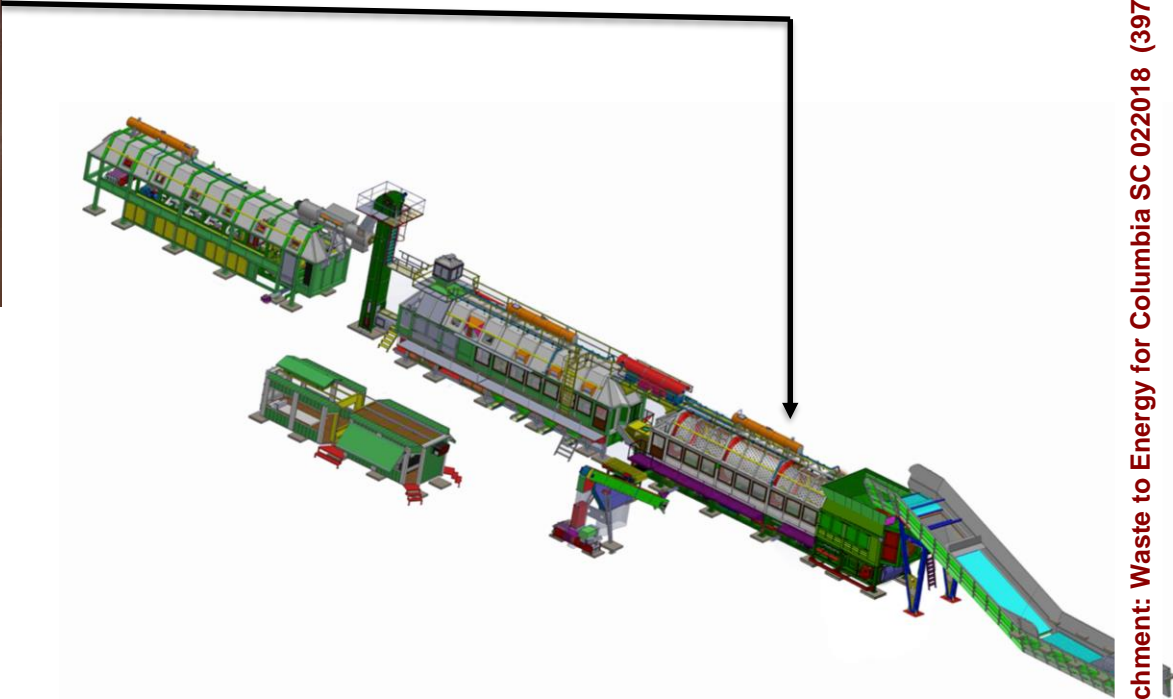
Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



# MSW to Non-Waste Fuel



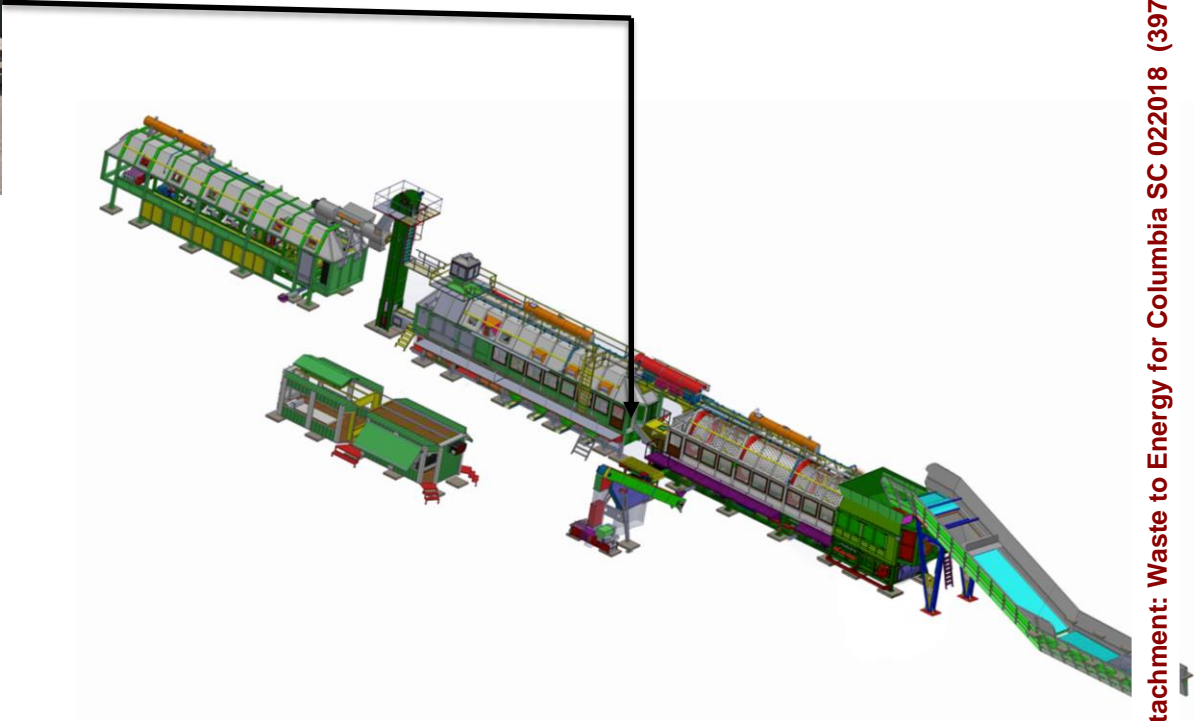
# MSW to Non-Waste Fuel



Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



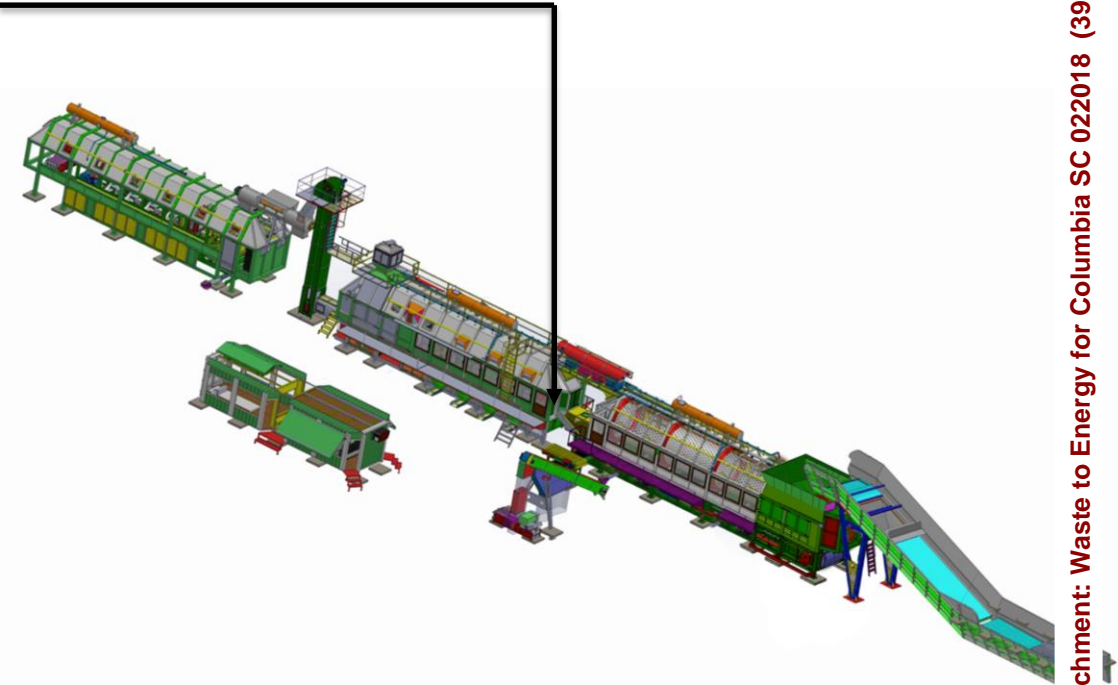
# MSW to Non-Waste Fuel



Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



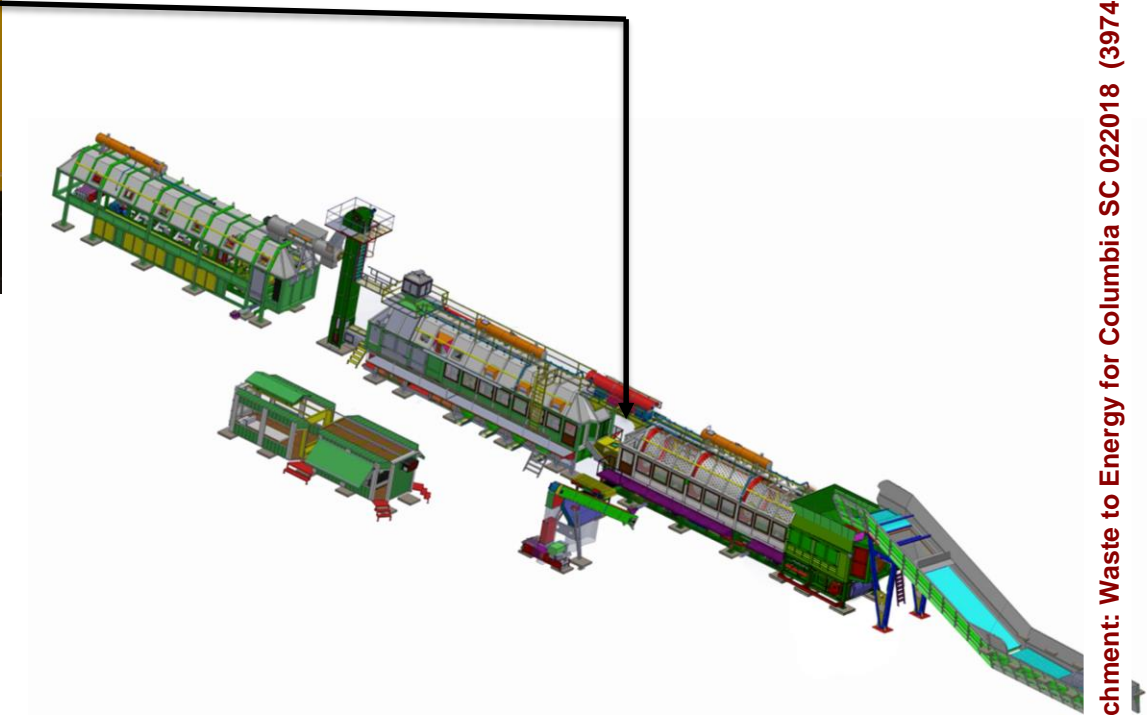
# MSW to Non-Waste Fuel



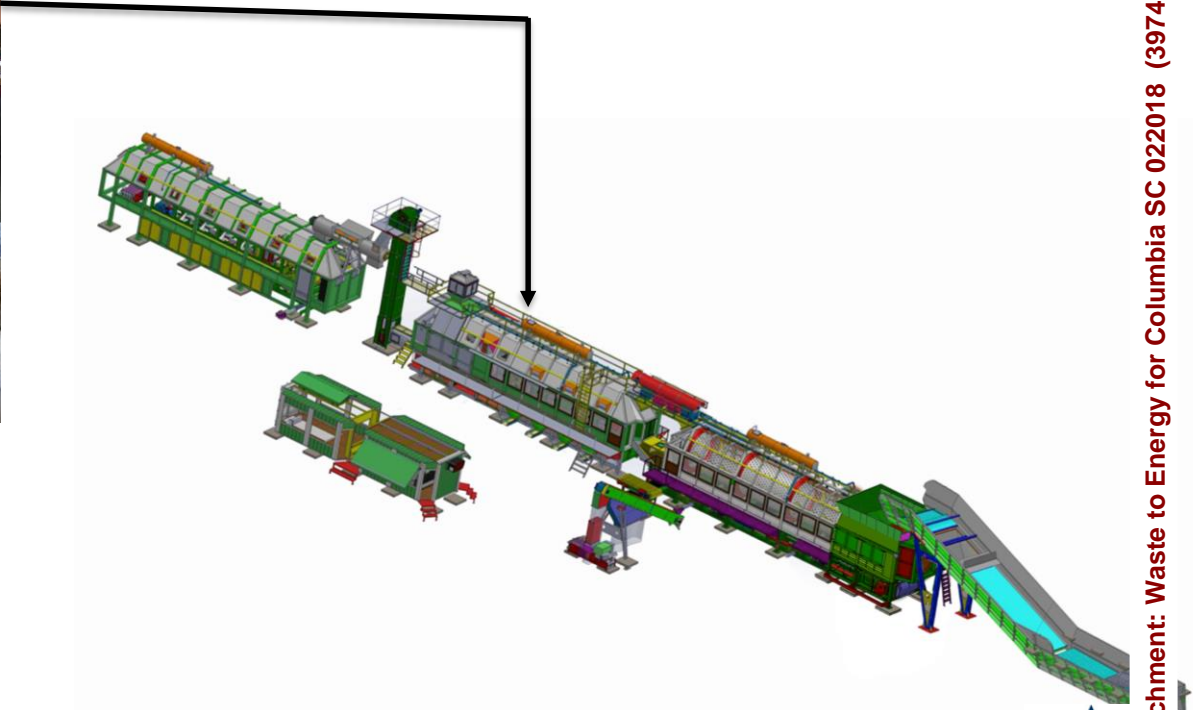
Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



# MSW to Non-Waste Fuel



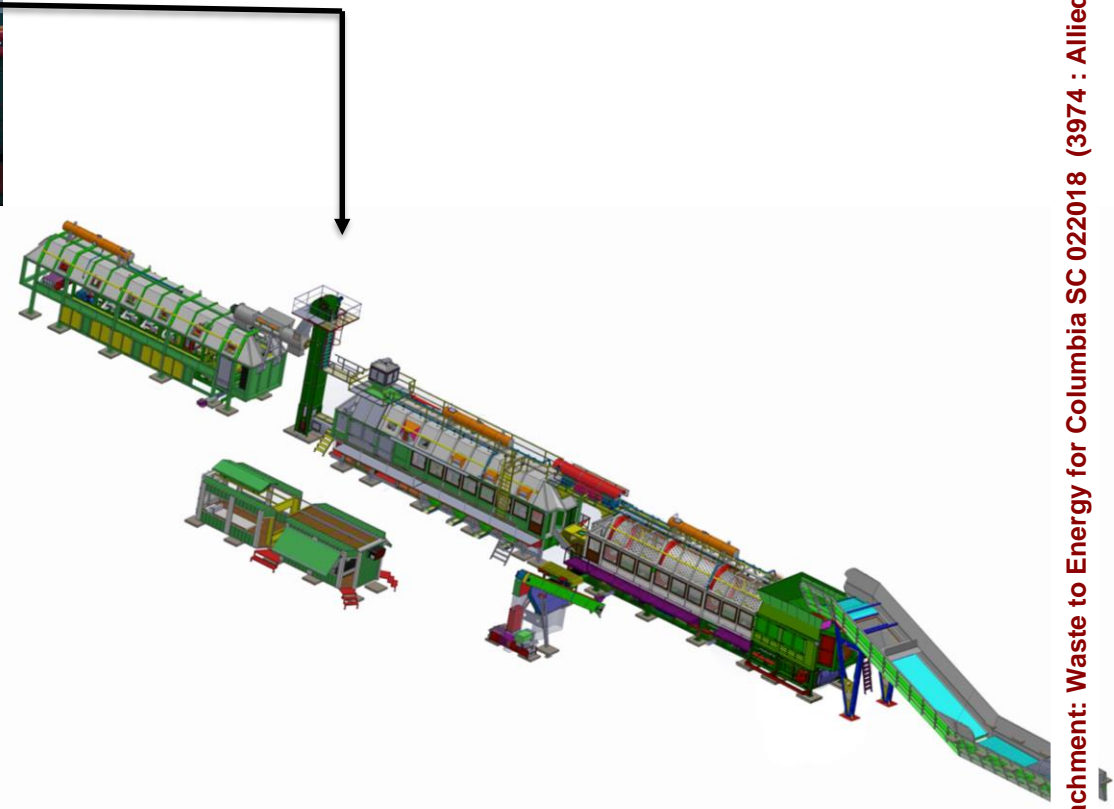
# MSW to Non-Waste Fuel



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# MSW to Non-Waste Fuel



# MSW to Non-Waste Fuel



Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)



# Non-Waste Fuel to Diesel

- RDF Pellet to Diesel Fuel System
  - Not a standard catalytic pyrolysis technology
  - Relatively low temperature process
    - MSW pellets with high plastics can be processed
    - This translates to high energy value fuel
  - No catalysts needed
    - No system shutdown to replace catalysts in reactor
  - High conversion rate
    - 60% MSW - pellet conversion
    - 45% by weight of diesel fuel produced with MSW pellets
  - 2 Modules plus Control Room



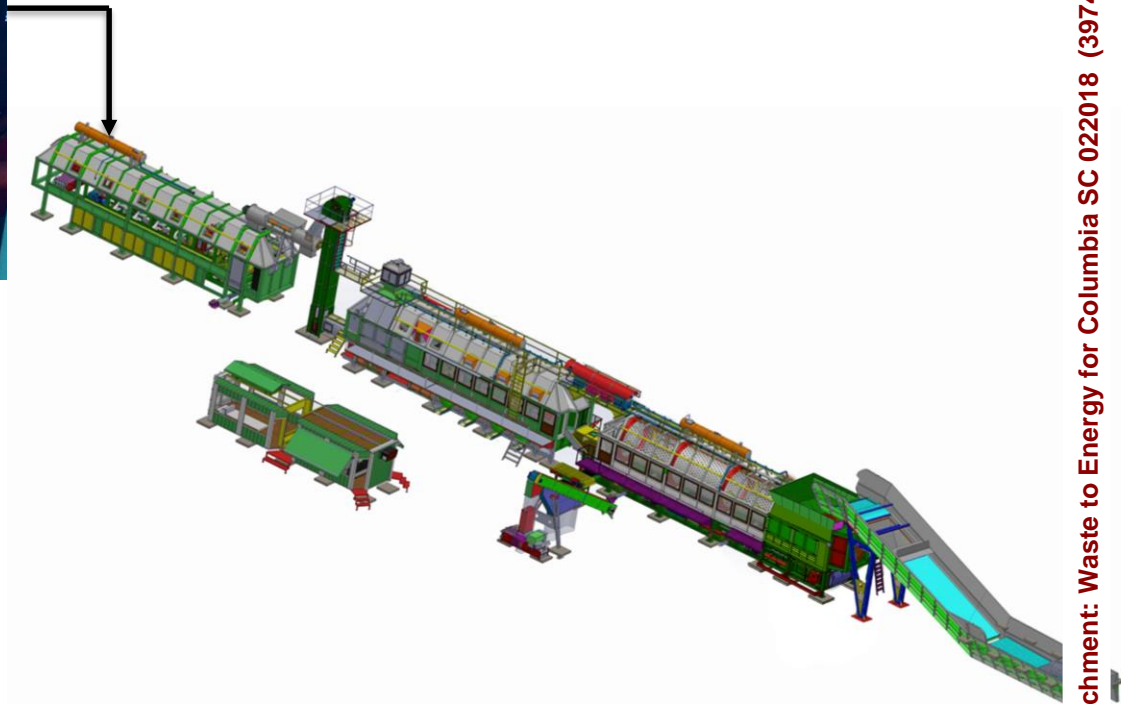
# Non-Waste Fuel to Wood Products

The “KNOSSOS” System is a mobile Unit, which utilizes the generated RDF material derived from the innovative Mobile MSW Treatment Systems “AEOLUS” of SOUKOS ROBOTS.

The system’s capacity is maximum 10 ton/hr of incoming RDF materials



# Non-Waste Fuel to Diesel



# Non-Waste Fuel to Diesel



# Non-Waste Fuel to Diesel



# Non-Waste Fuel to Diesel



# Soukos Aeolus & Archimedes MSW to Diesel Fuel (Bulgarian Operation)



Attachment: Waste to Energy for Columbia SC 022018 (3974 : Allied Energy Services)

# Project Benefits

- **Jobs (65 to 100 full time jobs)**
- **Environmental**
- **Environmental Services Operation**
- **Sustainability Objectives**
- **Education**
- **Economic**
- **Financial**



# Executive Summary

## Project Summary

- **Proposed Approach**

- 131,400 to 175,000 Wet Tons of MSW
  - Diesel Fuel: **9,926,673 Gallons/Year**
  - Char: **16,704 Tons/Year**
  - **Wood Products**

- **Lease**

- 10 acres
- 25 years



# Questions?



Information is Personal and Confidential -  
AES

