

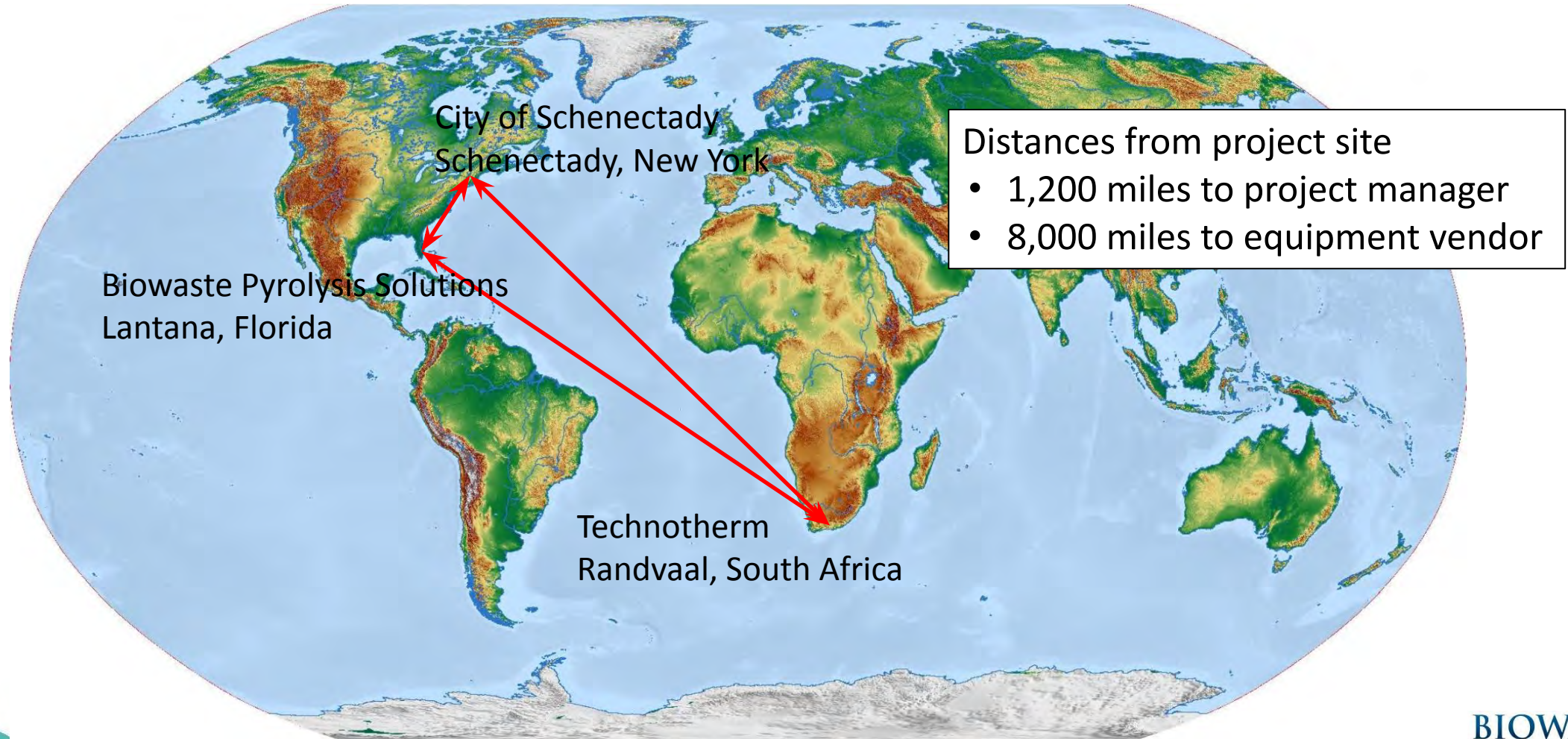


## Lessons Learned from Starting a Biosolids Pyrolysis Project During a Pandemic

Presented by: Raymond Porter, Porter Odor Science  
Sam Sylvetsky and Dave Pratt, Biowaste Pyrolysis Solutions

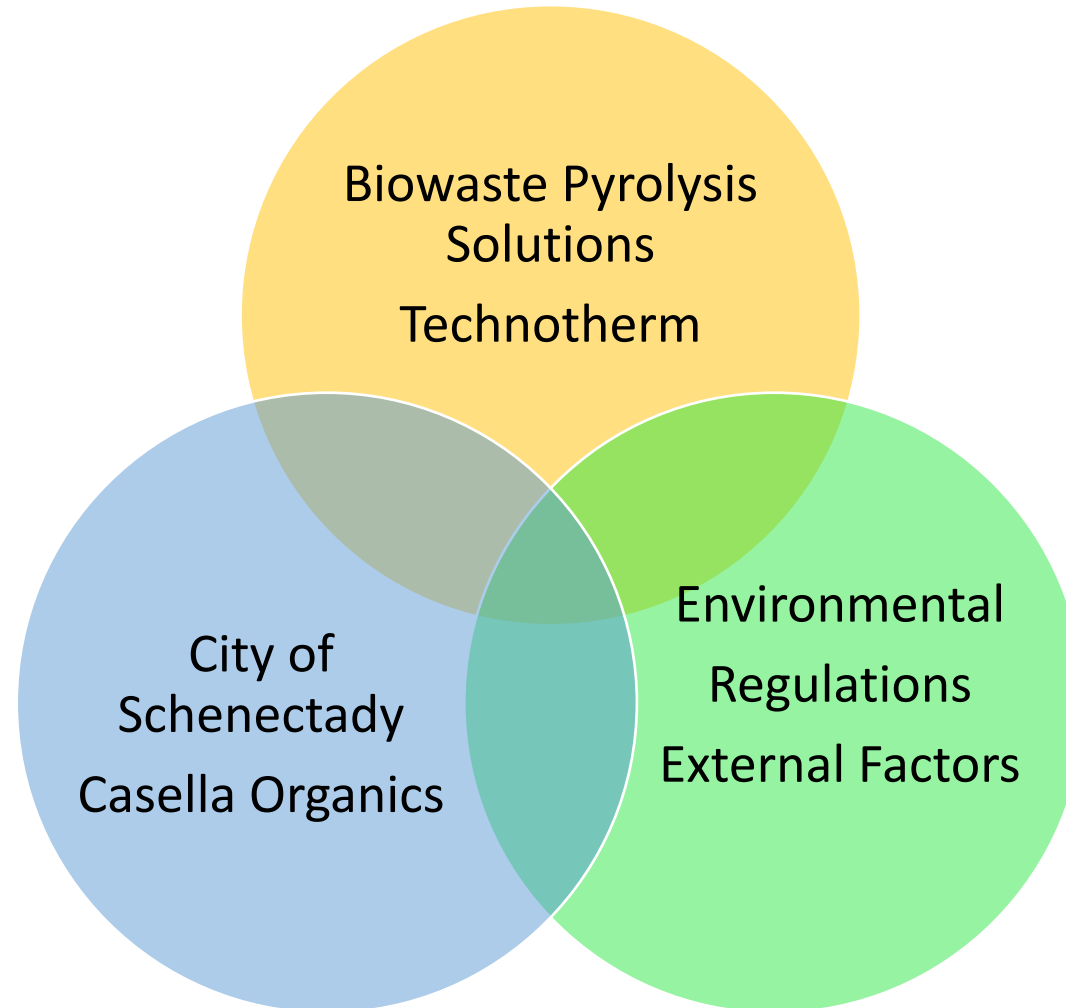
Presented to: NEWEA Annual Conference & Exhibition 2022  
Session 16: Energy, Strategic Energy Management  
Date: Tuesday, January 25, 2022

# Key Project Partnerships



What could possibly go wrong?

# Components of the Partnership



# Partnership Benefits Schenectady

- Money Savings of Sludge Disposal
- Predictable Future Cost of Remediation
- Site Investment with Little Cost
- Cutting Edge Technology with Little Cost
- Potential for Large Environmental Savings



# Schenectady Requirements

- No Odor
- No Cash up Front
- No Risk to the City



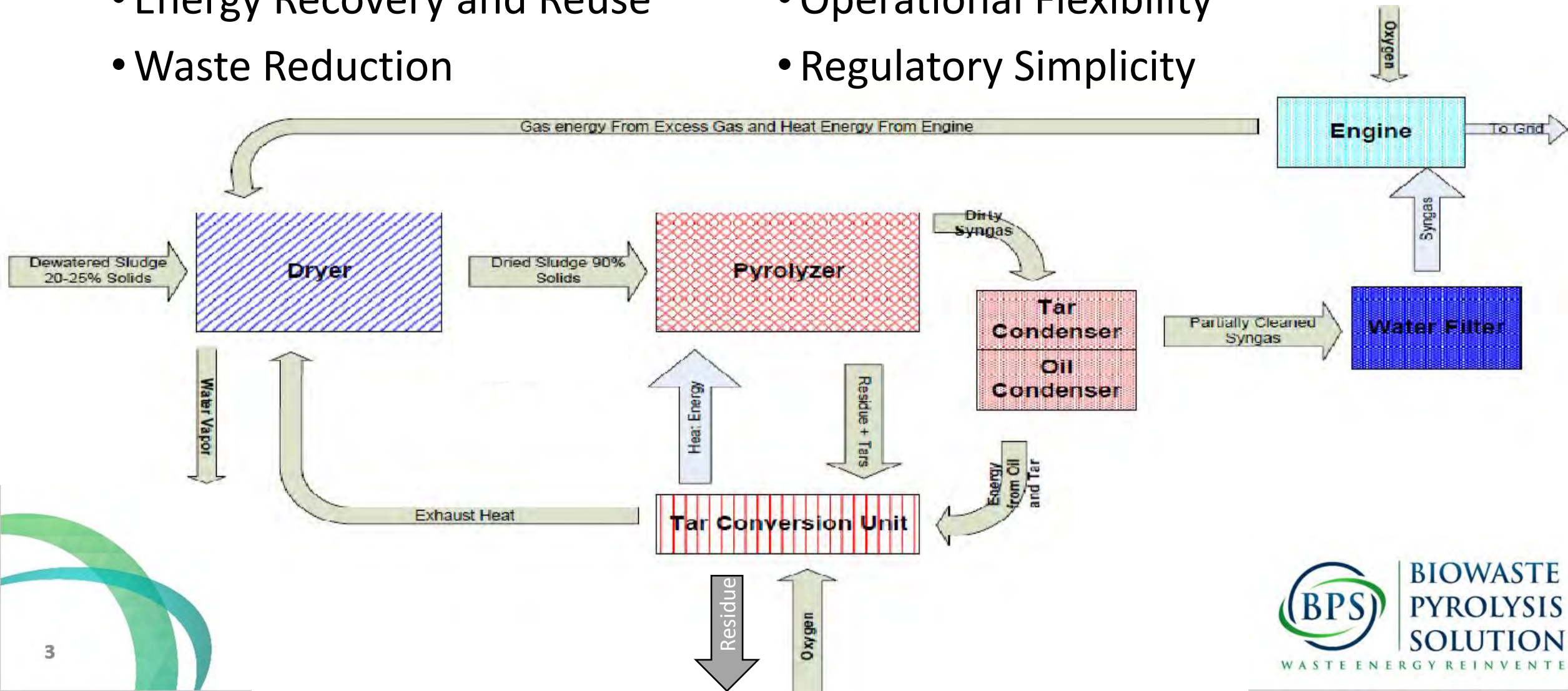
# Partnership Benefits for BPS

- Access to Wastewater Infrastructure
- Community Benefit/Support
- Use of Existing Building +/-
- Leverage with Operations



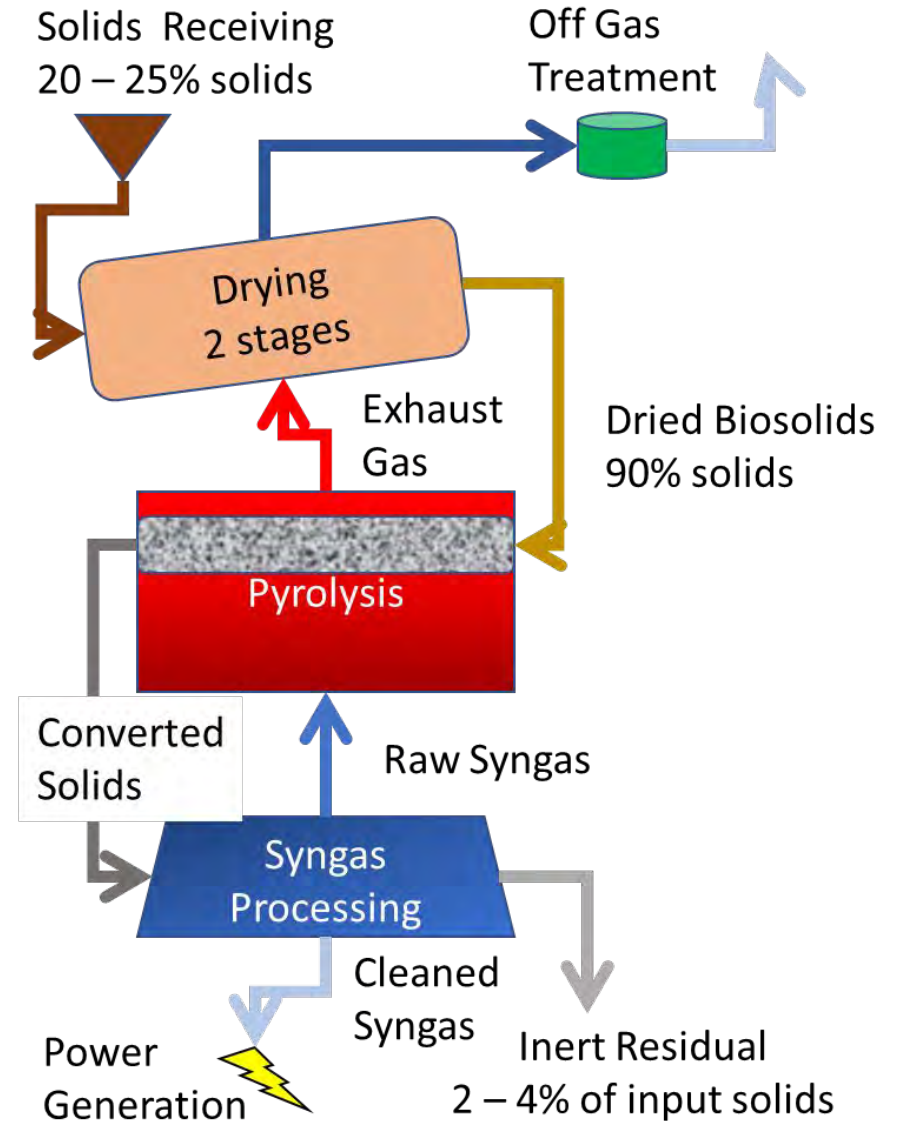
# Advantages of Pyrolysis Process

- Energy Recovery and Reuse
- Waste Reduction
- Operational Flexibility
- Regulatory Simplicity



# Process Design Parameters

- Design Throughput
  - 1 dry ton per hour or 25 dry tons per day
  - 20 to 25% solids
- Source Material
  - Conventional primary and secondary solids
  - Multiple WRRFs
  - Trace metal testing, prerequisite
- Process Outputs
  - 0.5 to 1 dry inert solids per day to landfill
  - Condensed water vapor to Schenectady WRRF
  - Exhaust gas to common stack discharge
  - Electrical power generation





# Pre-COVID-19 Efforts Completed

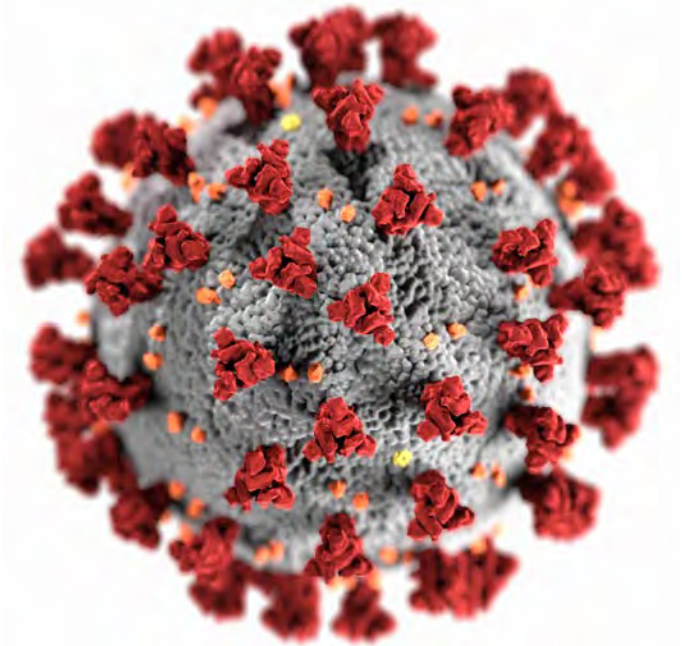
- Identified appropriate pyrolysis technology (Technotherm)
- Identified suitable municipal partner (City of Schenectady)
- Removed internal equipment from Solids Processing Building
- Conducted environmental permitting (Porter Odor Science)
- Shipped 44 containers with pyrolysis processing equipment

**Then COVID restrictions started on March 2020**

# Post-COVID-19 Impacts

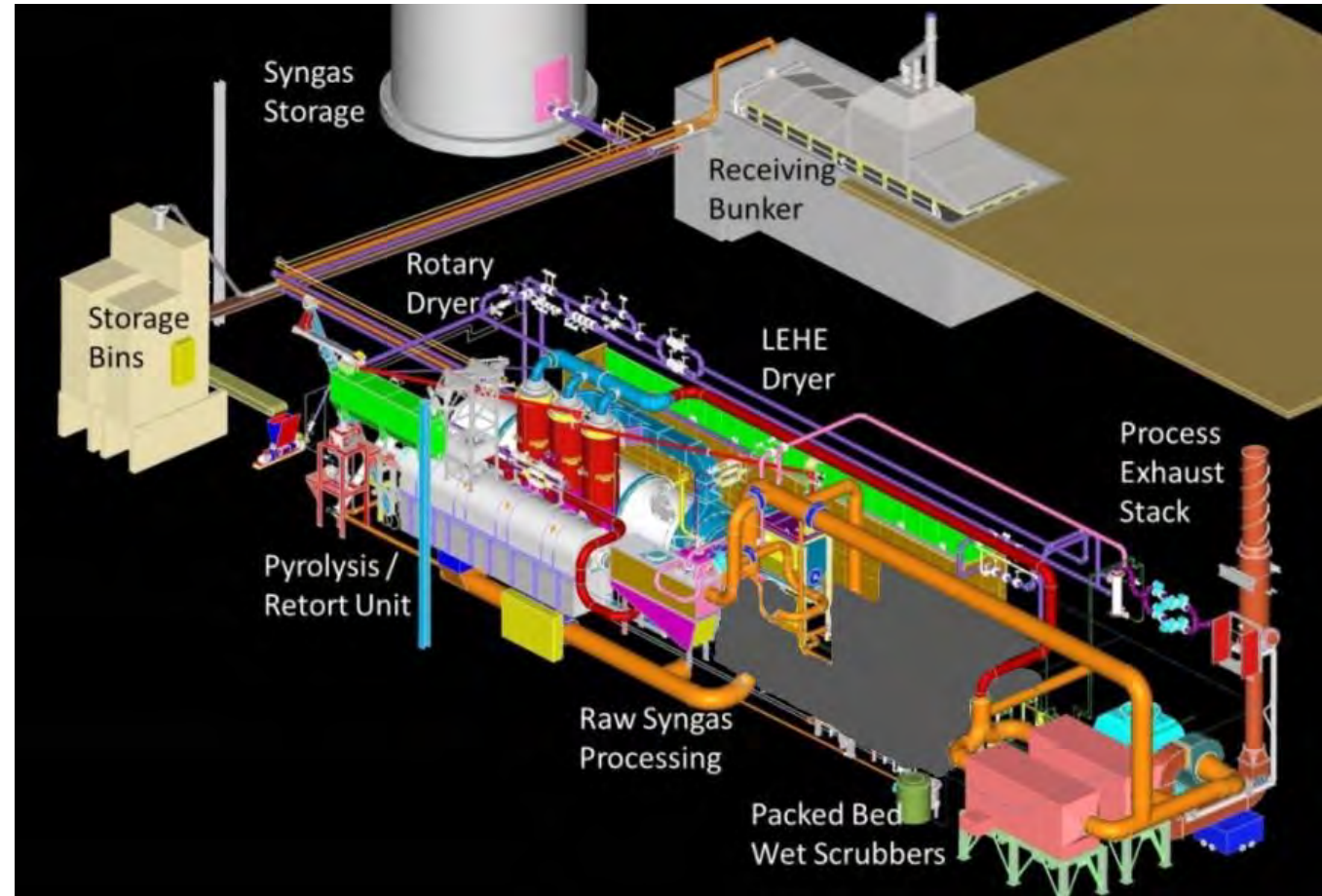
## Not All COVID-19 Impacts were Negative

- Wastewater Treatment is an Essential Service
- South Africa was Closed to Travel
  - Access to senior technical resources limited
  - Field technicians stayed on site
- Local Labor Force Limited
  - Trades people limited (welders, electricians)
  - Increased labor costs
- Delayed Commissioning of Process
  - 10-Day quarantine in Mexico before coming to plant

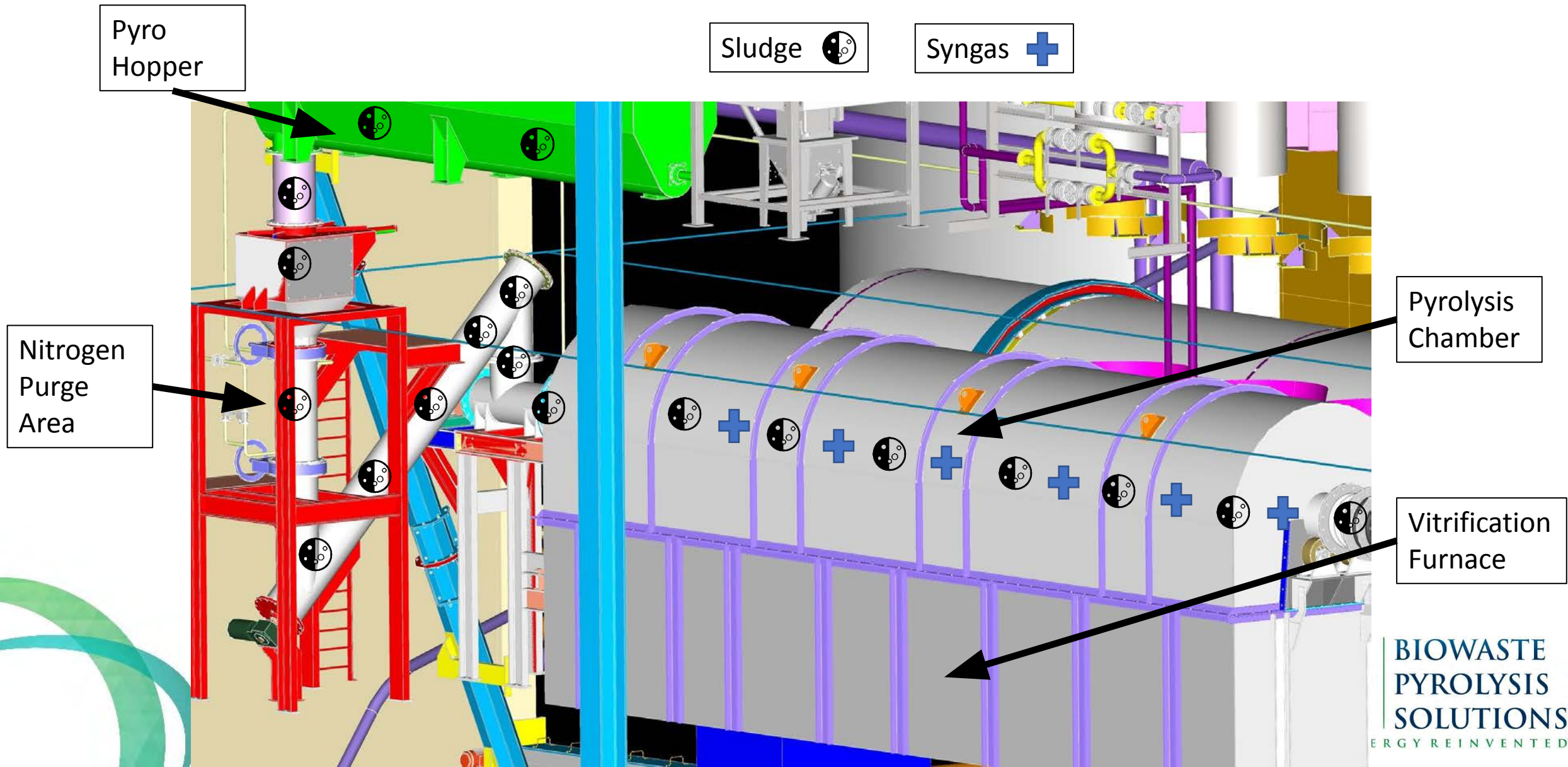


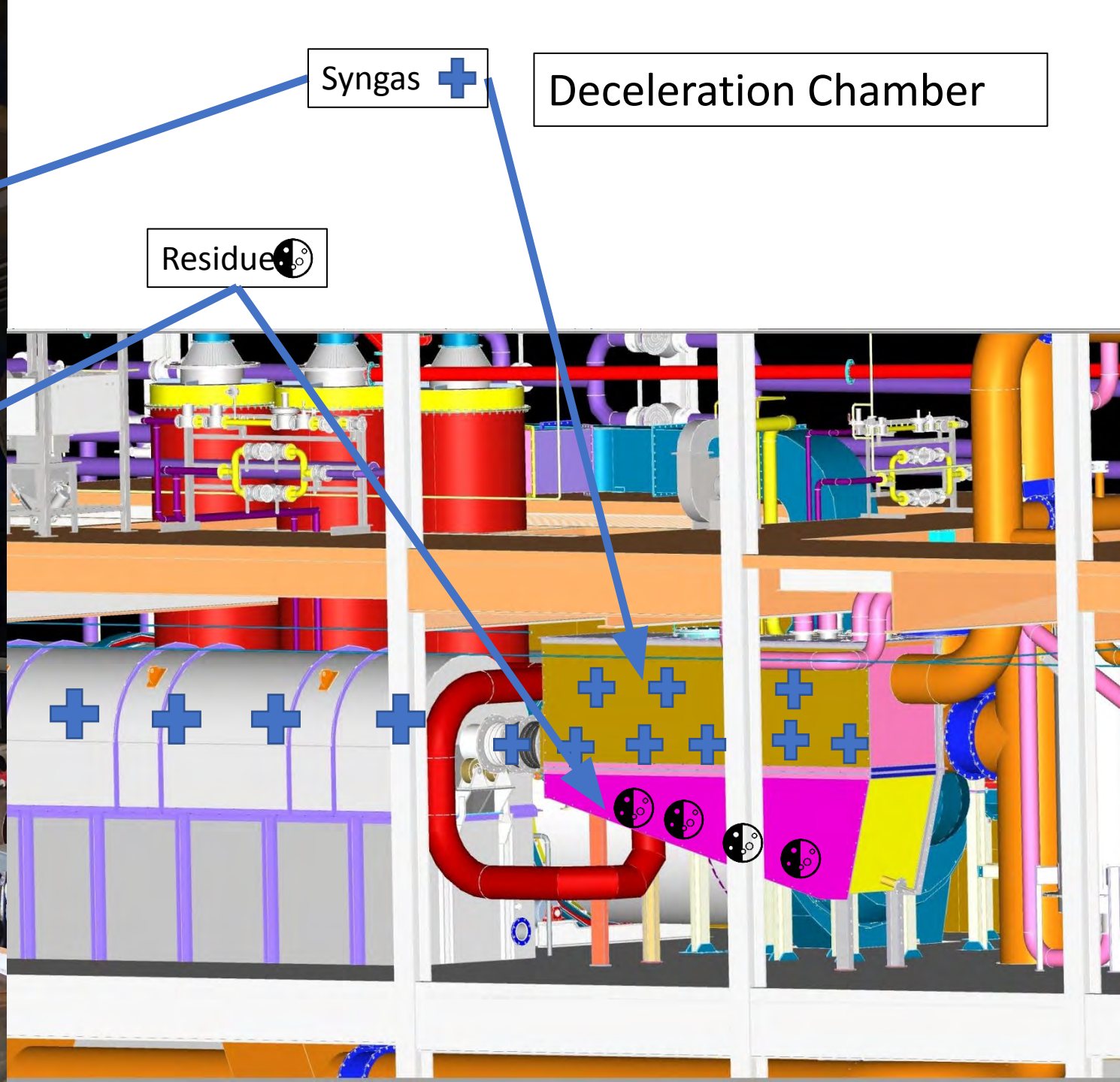
# Pyrolysis Technology

- Material Handling and Storage – Plant Specific
- Drying – Patent Pending Two Stage Using Waste Heat
- Pyrolysis and Gas Cleaning
- Water Recovery and Residue
- Generating Power with Surplus Energy

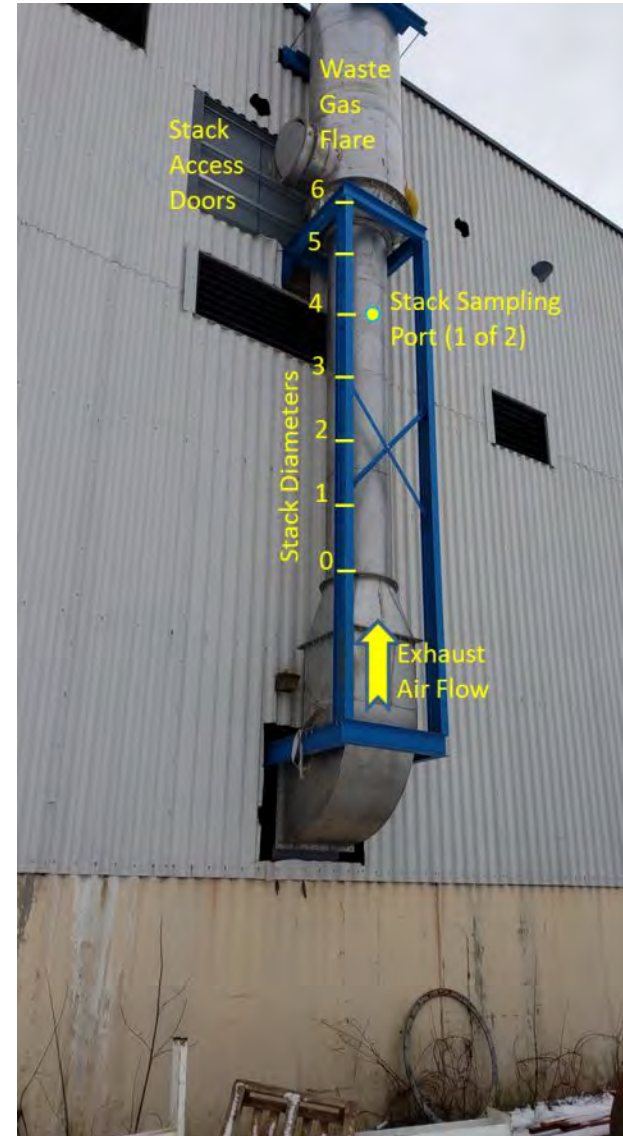


# Pyrolysis Sludge Movement





# Process Exhaust Stack



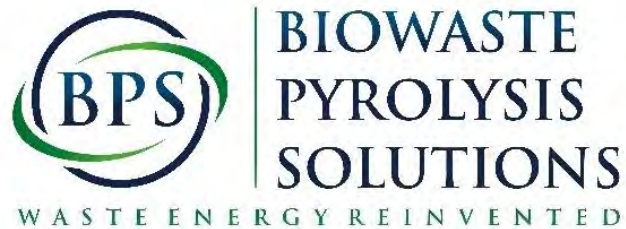
# Next Steps:

- Finish Build Out and Commissioning
- WRF Study – PFAS and Other Topics
- Optimize System Parameters and Collect Data
- Seek Net Positive Energy Balance



# Thank You

It's time to rethink what's possible and see the potential in converting wastewater sludge to clean power...that's waste energy reinvented!



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