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# *PenWin Industries*

*Focusing on the future by learning from the past*

# Who Is PenWin Industries?

- Michigan Based LLC
- Alternative Energy Focused
- Multi project approach

# What is the Problem?

- Waste
  - What is Recyclable?
    - Human Nature and the triangles
  - What is Recycled?
    - 25 to 30%
  - What goes to the landfill?
    - K&W sees 400 TPD
  - Then What?
    - Toxic Soup?

# The Solution?

## PLASMA GASIFICATION

# How is this better?

- Not Incineration
  - Burn MSW to create steam to create power
    - Emission concerns at point of ignition
    - One end product
    - 60% reduction in land fill volume
- Near Zero Emissions
- Zero Waste
- Multiple end products

# Local Value?

- Rural Development
- Job creation
- Infrastructure development
- Long project life
- Community partner
- Regional impact

# What Now?

- County Support
  - Resolutions from counties
    - Letters of support for development
- Political Support
  - Letters of support
- EGEL involvement

# The Why?

- Landfills are only a temporary solution
- Minimal competition
- The U.P. can set the gold standard in Green Energy



# Next Steps

- Continued County support
  - Resolutions
    - Letters of support
- Political Support
  - Legislation?
  - State funding identification?

# 100% Recycling

It is achievable



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# 200 TPD



# Minimal Waste Preparation, High Fuel Flexibility



**Plasco Trail Road, Ottawa, Canada  
2007-2015**

*135 tonne per day commercial  
demonstration facility converting MSW  
to electricity*

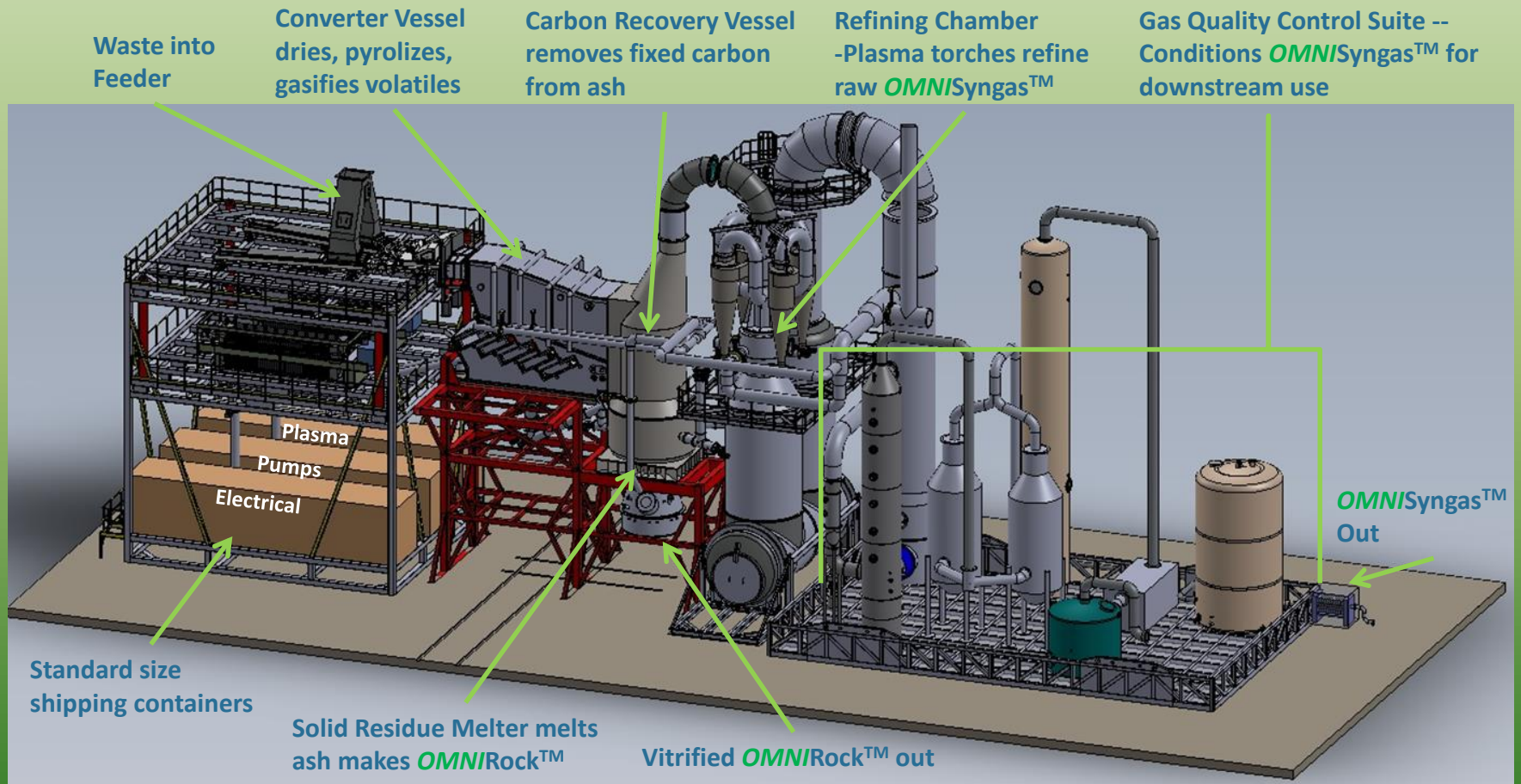


**Minimally prepared "black bag" waste  
on GPRS™ input conveyor in Ottawa**

*No sorting, one stage of shredding to  
100mm-, one magnet, no rejects*



# OMNI CT Gasification & Plasma Refining System (GPRS™)



Preassembled modular delivery in 200 tpd units Reduced project risk, cost. Improved quality, certainty of time.

# OMNI GPRS™ Lowers Project Cost and Risk

- Integrated feeding, gasification, vitrification, gas refining, cleanup.
- 200 tpd standard modules can be paralleled for any size plant with no further scale up risk.
- Modular delivery minimizes cost and schedule risk
- High availability – up to 92%
- Heat recuperator shutdowns from fouling eliminated with patented online cleaning system
- No need for EPC wrap for OMNI portion of plant:
  - Guarantee supported by performance insurance
  - Available equity participation to share risk
- Remote monitoring, parts service, and field service