



***Leading Plasma Gasification Solutions***

Converting Waste into  
Clean Renewable Fuel

Presented  
at  
TechRealization

August 27<sup>th</sup>, 2008

# Outline

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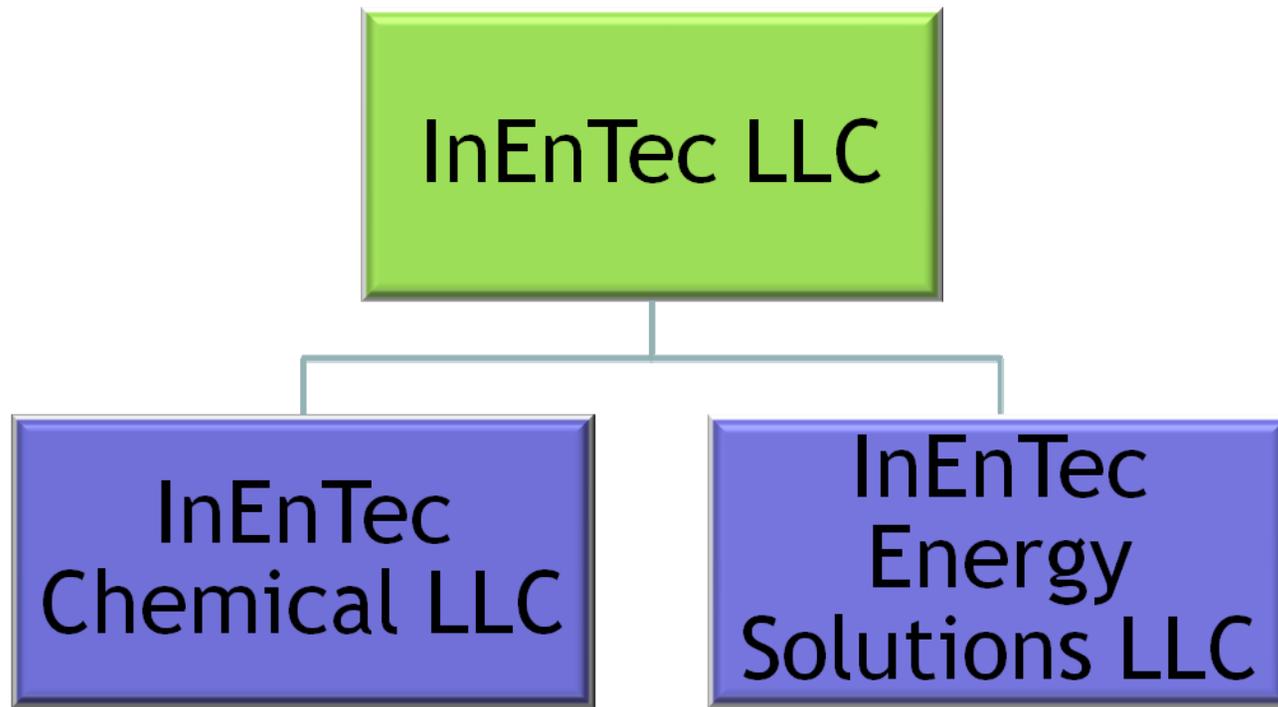
- Introduction to InEnTec
- InEnTec's Waste-to-Fuels Technology
- Richland Project

# InEnTec, LLC

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- Founded in 1995, formerly (IET) or Integrated Environmental Technologies LLC
- Engineering and development located in Richland, WA
- Executive team headquartered in Bend, OR
- Exclusive license for Plasma Enhanced Melter™ (PEM™) technology with over 42 patents on PEM™ related technology
- Proven Technology - installed seven commercial PEM™ systems
- Joint marketing agreements with Kawasaki Heavy Industries & Hitachi (Japan)

# InEnTec Company Structure



# InEnTec Progress

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- **InEnTec Chemical**
  - Executed \$60 million contract with Dow Corning Corp. - construction initiated on \$25 million facility located at Dow Corning facility in Midland, Michigan
- **InEnTec Energy Solutions**
  - Recently executed contract worth \$750 million over 10 years for 50 PEM™ plants
  - InEnTec is adding new technical staff with significant growth anticipated over next few years in Richland

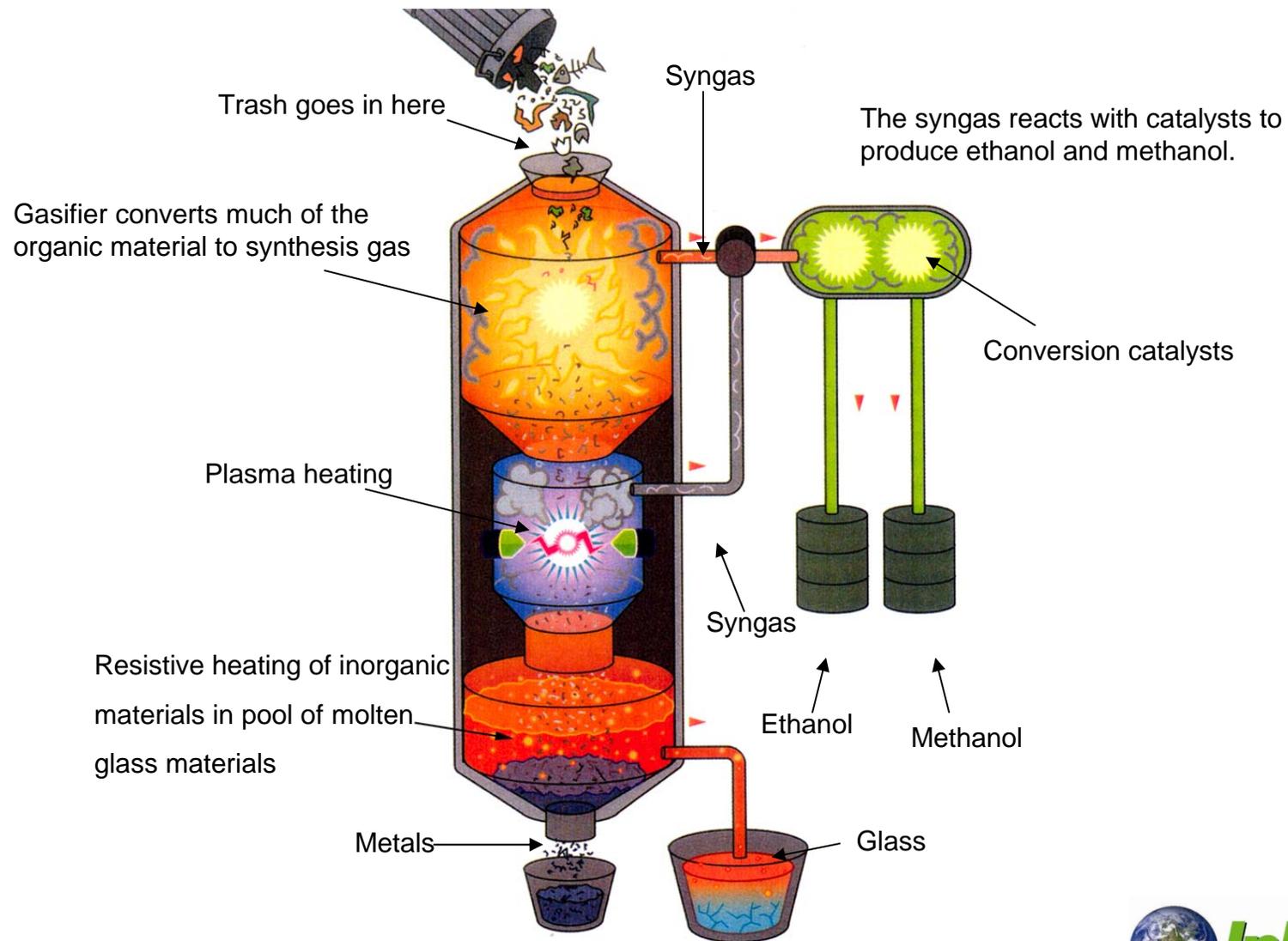
# InEnTec / PNNL Established HCTF



InEnTec/Battelle partnership established in 2006 to conduct joint research of gasification and gas-to-liquids technologies.

- InEnTec Research Activities
  - Waste and biomass gasification
  - Standard cleaning of synthesis gas
  - Ultra-deep cleaning of synthesis gas
  - Gas to liquids conversion (alcohol and FT)
- Battelle
  - Coal gasification
  - In-situ Gasification Diagnostics
  - Gas-to-liquids catalyst development
  - High heat transfer catalytic reactor development

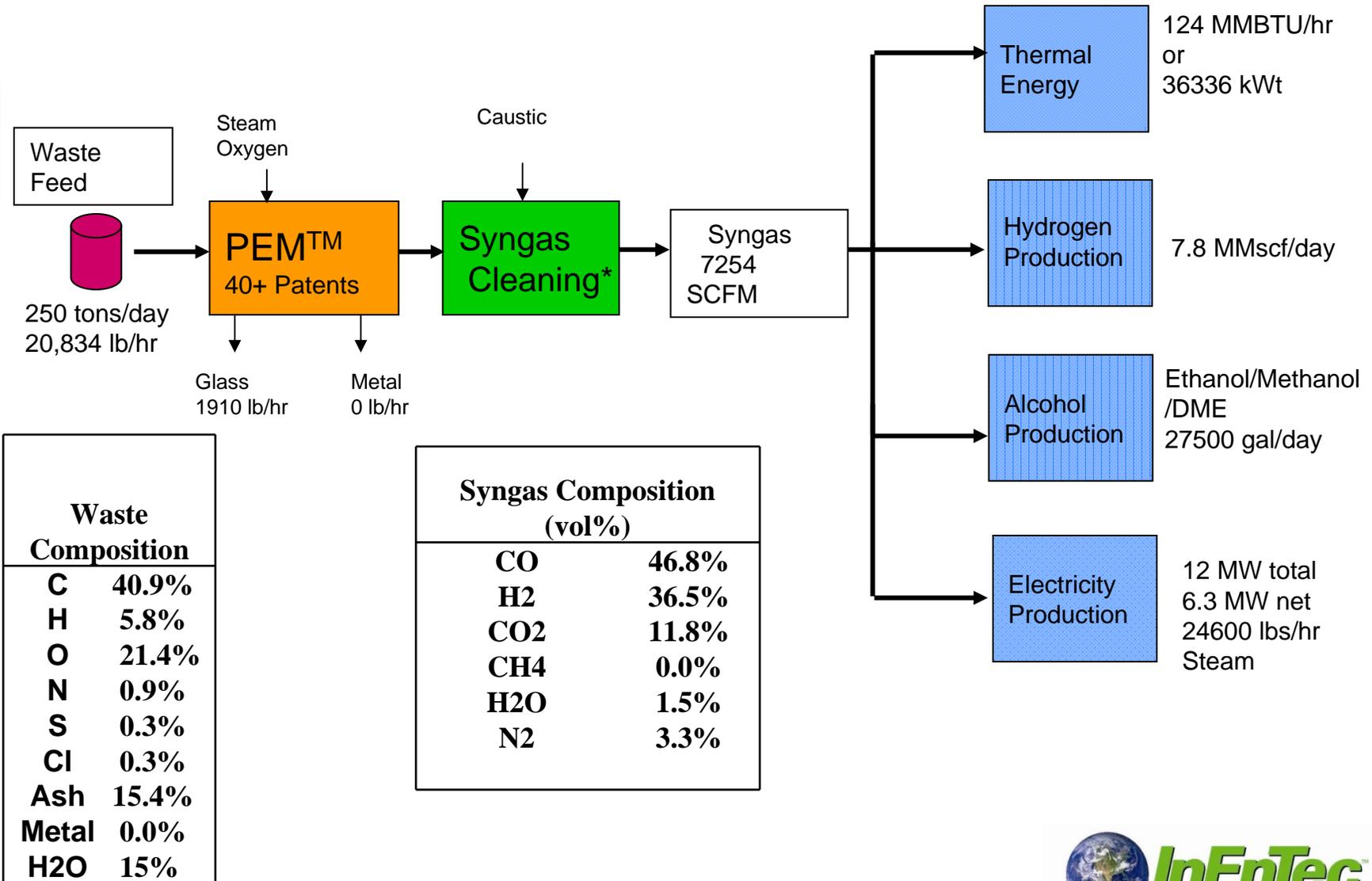
# InEnTec's Plasma Enhanced Melter™ Process



# Semi-trailer mounted PEM™ system



# Generic Mass Balance



# InEnTec Nevada Plant



# InEnTec - Diversified Options

- InEnTec Energy Solutions energy conversion options
  - Conversion of waste into clean transportation fuels (i.e. ethanol, methanol, DME, etc.)
  - Conversion of waste into hydrogen for large hydrogen consumers (i.e. refining industry)
  - Conversion of waste into clean syngas fuel
  - High efficiency electrical production
  - Efficient energy storage at power plants
  - Mixed fuels facilities (i.e. coal, biomass, MSW)
  - Distributed conversion of stranded electrical production (i.e. wind energy into liquid fuel)

## New Waste-to-Fuels Facility in Richland, WA

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- InEnTec is deploying PEM<sup>TM</sup> system at City of Richland landfill capable of processing 25 tons of waste per day
- New facility has capability to process all waste to be generated in TCRD and produce over 1 million gallons of liquid fuel
- Facility is modular and could be located in TCRD or remain at City landfill

# Fifth Scale Demonstration PDU (Richland, WA)



# Fifth Scale Status (Richland, WA)



## Fifth Scale Status PDU (Richland, WA)

- Waste Preparation System - City of Richland, WA



# Fifth Scale Demonstration PDU (Richland, WA)



END