Gasification Technologies Council

Gasification:
A Problem Solving Technology
GTC’s Mission

• To educate the public and government about the economic and environmental benefits of gasification
  – Brochures
  – Videos
  – Workshops for regulators and policy makers
  – Annual conference
  – Website
  – Gasification database
  – Reciprocal memberships
THE GASIFICATION PROCESS

MSW

AIR/OXYGEN

GASIFIER

ASH/SLAG
BY-PRODUCT

GAS CLEAN-UP

SULFUR
BY-PRODUCT

CLEAN SYNGAS

TO POWER

TO PRODUCTS
Major Types of Above-Ground Gasifiers
Plasma Gasification

- Ionized gas formed when an electrical discharges passes through the gas
- Plasma torches and arcs convert electricity into intense thermal energy- temperatures above 10,000 degrees
- Used in gasification to initiate and supplement gasification reactions
- Handles hazardous, commercial and MSW
Air Products/Alter NRG: Tees Valley

- Will be largest advanced gasification plant in the world-online 2014
- Feedstock: 350,000 tons municipal, industrial and commercial waste to produce 50MW of power
Compact Gasifiers

- Waste and biomass gasification
  - Cities, DOD
  - Villages off the grid
- Compact, modular gasifiers
- Non-plasma
Underground Coal Gasification
GASIFICATION PRODUCTS

MSW

STEAM
POWER
TRANSPORTATION FUELS
SYNGAS
FERTILIZERS
CHEMICALS
SUBSTITUTE NATURAL GAS
CONSUMER PRODUCTS
HYDROGEN FOR OIL REFINING
Above Ground Gasification Map
Cumulative Worldwide Gasification Capacity

- Planned (2015)
- Construction (2014)
- Operating (2011)

Source: Hig Database, 2012
End Use Applications of Syngas

MW th Synthesis Gas

- **Chemicals**
  - Planned (2015)
  - Construction (2014)
  - Operating (2011)

- **Liquid fuels**
  - Planned (2015)
  - Construction (2014)
  - Operating (2011)

- **Power**
  - Planned (2015)
  - Construction (2014)
  - Operating (2011)

- **Gaseous fuels**
  - Planned (2015)
  - Construction (2014)
  - Operating (2011)

Source: Higman Consulting, 2012
Challenges

• U.S.
  ▪ Abundant natural gas and low prices
  ▪ Anti-coal campaign
  ▪ No CO2 regulatory scheme
  ▪ Electricity demand is down
  ▪ Confused with incineration

• Asia
  ▪ Coal supply
  ▪ Lack of intellectual property protection
  ▪ Project development time
  ▪ Government bureaucracy
Conclusion

• Technology providers and developers working to overcome challenges
• Problem-solving technology
• Provides optionality
  ▪ Scale
  ▪ Feedstock
  ▪ Products
Contact Information

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