LFG Fueled Microturbines Are Here !

by:

George Wiltsee
Capstone

Paul Wintheiser
EMCON/OWT

Capstone Microturbines Are Ready for LFG

- Adapt proven LFG Technology to Microturbines
- Adapt new tech to microturbines

Capstone Fuel Requirements

- Heat Value: > 350 Btu/scf HHV
- Heat Rate for 30 kW: 436,000 Btu/hr
- Water Vapor Content: Dew Pt + 10 ^{O}C
- Siloxane Content: < 5 ppb_v
- Hydrogen Sulfide Content: < 70,000 ppm_v
- Particulate Content: < 20 ppm
- Pressure: 55 to 80 psig

Two Different Approaches

1. Proven LFG Technology

   Lopez Canyon Landfill, California
2. Adapt New Products to LFG

   Burbank Landfill No. 3, California

1. Proven LFG Technology

- Condensate Knock out / Demister
- Compressor
- After cooler /Moisture separator
- Refrigerated LFG Dryer
- Siloxane Reduction
- Coalescing Filter
- Capstone Microturbines

Proven LFG Technology

LADWP Lopez Canyon

- World's Largest Microturbine System
- Runs on LFG
- 50 Capstone 30 kW Microturbines
- AC Rotary Sliding Vane Compressors
- Dry & Clean LFG on Discharge Side

LADWP Lopez Canyon

2. Adapt New Tech to LFG

- Condensate Knock out / Demister
- Deliquescent LFG Dryer
- Siloxane Reduction
- Copeland Scroll Compressors
- Moisture Separator
- Deliquescent LFG Dryer
- Coalescing Filter
- Capstone Microturbines

Adapt New Tech to LFG

Burbank Landfill No. 3

- One of World's First Commercial LFG Fueled Microturbine Systems
- 10 Capstone 30 kW Microturbines
- 10 Copeland Scroll Compressors
- Dry & Clean LFG on Inlet & Outlet

Burbank, California

Landfill Uses of Microturbines

- Power to Utility Grid
- Heat & Power for On-site Use
- Offset High Retail Electric Rates
- Meet Strict Air Emission Regulations
- Poor Quality LFG (> 35% CH_4)
- Small Quantity LFG (> 12 scfm)
- Innovative / Renewable Tech Funding