



# BIOGAS & BIOMETHANE SOLUTIONS FOR LANDFILLS

**Koch Engineered Solutions, LLC (KES)** can deliver proprietary equipment, engineering, procurement and construction for a broad range of biogas and biomethane applications.



## Equipment & Process

- ▶ **John Zink Hamworthy Combustion**
  - Full package systems
  - Specialty biogas flare systems
  - Gas cooling & compression packages
  - Amine systems (CO<sub>2</sub>/H<sub>2</sub>S removal)
  - Glycol dehydration systems (H<sub>2</sub>O removal)
- ▶ **Koch Separation Solutions**  
BgPur™ hydrogen sulfide removal product



## Installation & Construction

- ▶ **Koch Specialty Plant Services**  
World-class installation and construction services  
  
Project management, lump sum turnkey engineering, procurement and construction can deliver a complete solution



## Commercialization

- ▶ **Finance for Off-take Agreements**  
Through Koch Minerals & Trading (KM&T), a Koch affiliate company, we have the opportunity to finance and invest in projects
- ▶ **Complete trade management of the carbon**  
  
Independent of financing, KM&T also offers additional trade management of the Carbon Credit and RINs for end user

## Partner of Choice

### GLOBAL SCALE

KES is an affiliate of Koch Industries that has \$100+ billion<sup>1</sup> in revenues, global presence and investment grade credit

<sup>1</sup> As estimated by Forbes

### DECISIVE ACTION

Unrivaled ability to marshal resources to move decisively and with certainty when the right opportunities present themselves

### PRIVATE

KES' status as a private company and management philosophy allows partners to focus on capturing long-term opportunities

### MUTUAL BENEFIT

True partnership mentality. Expectation that KES will work to make partnerships as successful as possible

### KOCH LABS

**Experts:** Engage KES' internal subject matter experts to help better understand market and customer opportunities as well as solving technical challenges

**Develop:** Use KES and Koch-affiliate facilities and businesses as a test bed for product development and proof of concept, allowing for quicker time to market and product design cycles

**Engage:** Opportunity to engage KES and Koch affiliates as a partner, customer and supplier

# KES One Source Solution

for Key Gas Treatment & Purification Equipment and World-Class Installation

Equipment + Turnkey Installation + EPC Services = **RNG PLANT**

**JOHN ZINK  
HAMWORTHY  
COMBUSTION**

Specialty biogas flare systems • Gas cooling & compression packages • Amine systems (CO<sub>2</sub>/H<sub>2</sub>S removal)  
Glycol dehydration systems (H<sub>2</sub>O removal)

**KOCH SEPARATION  
SOLUTIONS**

Gas-to-liquid contactors (H<sub>2</sub>S and PM removal)

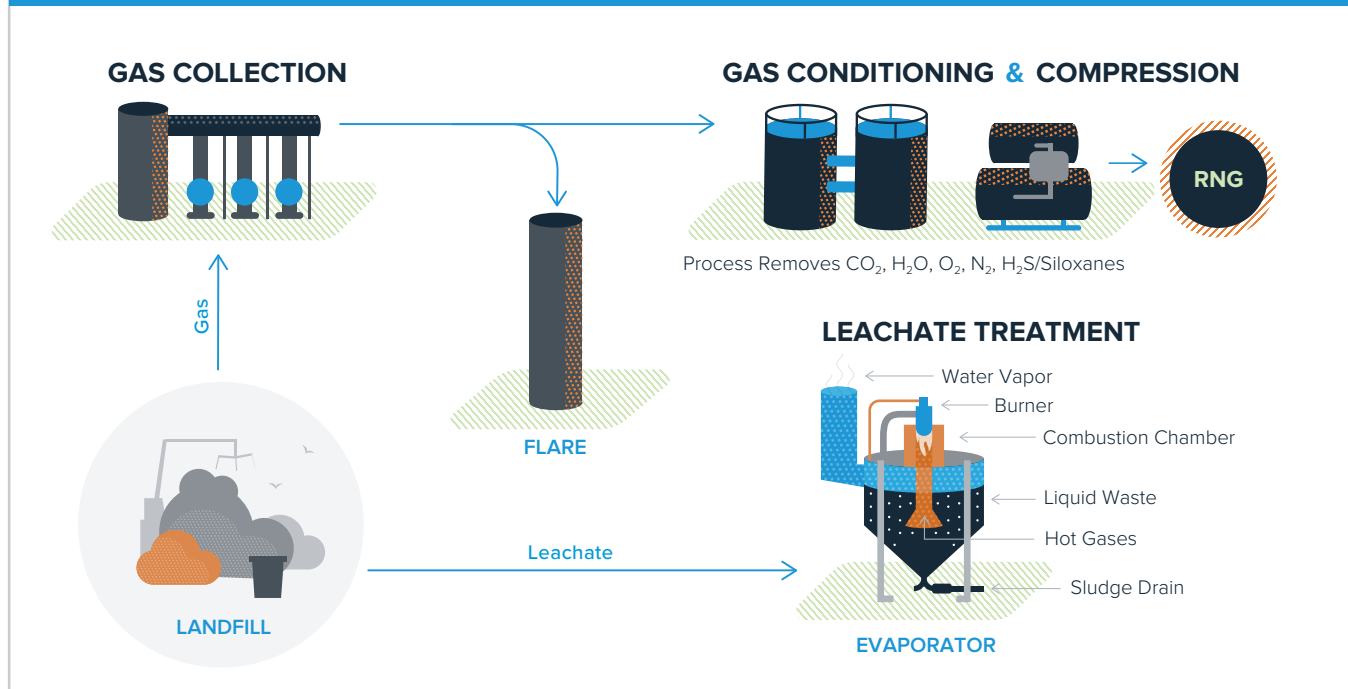
**KOCH GLITSCH**

Mass transfer • Mist elimination • Phase separation equipment

**KOCH SPECIALTY  
PLANT SERVICES**

World-class installation and construction services • Unique product expertise from professionals

## LEACHATE TREATMENT, BIOGAS TREATMENT & END USES



### Identify Potential RNG Source

- Municipal solid waste
- Sewage
- Yard & crop wastes
- Food wastes
- Agriculture (manure)

### Waste Conversion to Biogas

- Non-Pipeline Spec. Gas**
- 40-60% Methane
  - 30-60% CO<sub>2</sub>
  - 2-5% Nitrogen
  - Impurities
  - Other gases

### Conditioning & Compression RNG

- Pipeline Spec. Gas**
- RNG = 96-98% CH<sub>4</sub>
  - Designed for your pipeline quality specs

### Off-take & Utilization of RNG

- RNG is a drop-in replacement for traditional natural gas