Anaerobic Digestion + Thermal Hydrolysis

The safe and economical way to manage animal mortalities & disposal

www.PlanET-Biogas.com
PlanET Biogas is a subsidiary of the PlanET Biogas Group, one of the world’s leading biogas plant suppliers. Founded in 1998, the company’s service portfolio covers all fields of biogas technology and component distribution: from planning and plant construction, to service and biological support.

While PlanET’s reach may be global, we have always taken great strides to maintain our focus on local markets and see ourselves as long term partners with each one of our customers.

Our proven and reliable technology offers high gas yields coupled with low energy consumption, while still maintaining a cost effective approach to the market. As a result, PlanET has designed and constructed more than 400 successful biogas plants worldwide, and has an expert workforce of over 200 employees focused on engineering, installation, programming, commissioning & service.

At PlanET we promote biogas as a renewable energy source that will deliver business success while protecting the climate. Biogas plants are a solid, long-term investment. We are convinced that biogas plants represent both a reliable energy supply and also the perfect solution for utilization of agricultural and industrial “waste” streams. We do everything to ensure that your investment pays off quickly and reliably.

The modular design allows biogas plant operators and investors to react to new developments in the feedstock and energy market at any time.

What is Biogas?

Anaerobic Digestion, referred to as AD, is a biological process in which microorganisms break down biodegradable material in the absence of oxygen. Most anaerobic digestion technologies convert livestock manure and other organic materials into a mixture of gases, primarily composed of methane and carbon dioxide (biogas), which is then either combusted to generate electricity and heat or upgraded to natural gas standards to be injected into the local gas grid. Separated digested solids can be used for dairy bedding or converted into other products. Nutrients in the liquid stream are used on the farm as a highly valuable, low odor fertilizer.
It is imperative to properly manage animal carcasses on your farm or production facility. Following best management practices (BMPs) will prevent the spread of infectious diseases, while protecting air & water. Standard methods of carcass disposal include burning, incineration, burial, landfill, rendering, and composting.

Innovative technology providers are developing next generation treatment & methods of disposal. PlanET has implemented the BioRefinex Thermal Hydrolysis process to safely treat up to 30,000 MT of Specified Risk Material (SRM) per year.

This process not only safely offers complete pathogen kill, it also produces megawatts of renewable energy every day.

Thermal Hydrolysis (THD) uses a combination of high temperature (356°F) and high pressure (174 psi) to break tissue molecules down to their original small molecular building blocks (40 minutes processing).

THD results in a dramatic reduction in viscosity, the destruction of all infectious agents (including prion diseases, e.g. BSE) and the increase of biodegradability.

The BioRefinex THD process operating parameters are approved by the Canadian Food Inspection Agency (CFIA) for SRM prion destruction.

The World Organization for Animal Health (OIE) adopted the BioRefinex technology as a recommended process for the destruction of all transmissible spongiform encephalopathy and microbiological disease agents in May 2010. The OIE formally approved the technology for incorporation into the 2010 Terrestrial Animal Health Code.

THD, in combination with anaerobic digestion, meets the requirements for Class A fertilizer production, according to the EPA 503 for processing biosolids.

**THD Benefits at a Glance**

- Complete pathogen destruction in less than 2 hours
- No groundwater contamination risk from diseases
- Create clean, renewable biogas which can be converted to electricity or natural gas
- Proven technology with minimal material handling
PlanET partnered with ECB Enviro North America in 2011 to build a multi-megawatt anaerobic digestion facility in Southern Alberta, Canada. Funding was available to help and with a total project value of over $35M, a grant was provided from the Climate Change and Emissions Management Corporation (CCEMC) of $8.2M.

The area around Lethbridge, Alberta has the largest density of Intensive Livestock Operations (ILOs) in Canada, offering a wide variety of substrates to feed into the biogas plant. Currently the plant is processing dairy, hog & poultry manure, cheese whey, DAF /peptone from hog and poultry processing, residues from the processing of potatoes and grain, as well as mixed organic food waste.

The plant uses much of PlanET’s patented technology to process their substrates and achieve optimal biogas production.

Of the electricity produced at Lethbridge Biogas, 5-10% is used for the parasitic load of the plant, with the balance feeding directly into the Alberta electrical grid.

The Lethbridge project is registered in the Alberta Offset System, and has the potential to reduce GHG emissions up to 225,000t of CO₂ by 2021.

Lethbridge Biogas was commissioned in late 2013, followed by an expansion in 2017 which comprised of a feedstock crusher and thermal hydrolysis unit. This equipment is able to safely process up to 30,000 tonnes annually of animal-by-products including deadstock.

The ultimate build-out of this plant will include additional digesters, a fertilizer processing unit and renewable natural gas injection.
Lethbridge Biogas: Plant Layout

1. Organics Receiving Hall
2. Thermal Hydrolysis Hall
3. Administration Office & Biofilter Building
4. 2x 300,000 gal. Organics Holding Tanks
5. 83,000 gal. ABP Buffer Tank
6. 3x 1,000,000 gal. Digesters
7. Process Pump Room

The Biogas Plant At A Glance

Location: Lethbridge, Alberta, Canada
- Commissioning: December 2013
- Input material: Dairy, hog, poultry manure, cheese whey, residues from potato, mixed food waste, SRM, slaughterhouse wastes, deadstock
- Solids charging system: PlanET Vario, PlanET eco® flow
- Pre-Storage Tanks: 2 x 300,000 gal.
- Digester: 3x tanks 1,000,000 gal. each. Wall & floor heating, submersible agitators, double membrane roof
- Gas-tight effluent storage tank: 1,493,893 gal. gross volume, submersible agitators, eco cover+
- CHP: 2 x 2G 1.425 MW engines
- Capacity of up to 30,000 MT/yr (3 shifts)
- CFIA permit issued April 2017
- THD commissioned in Q2 2017
- Approximately 2,500 tonnes of SRM processed in Q3/Q4 2017; mainly deadstock
- Significantly increased biogas production at smaller feeding rates
THD: Construction & Installation

THD Process Vessel Transport

Collection Tank

THD Process Vessel Offloading

THD Process Vessel Piping

THD Process Vessel

Hot Oil Piping
THD: Process Overview

Organics Delivery

Hopper

Crusher

Hopper / Crusher / Pump

THD Process Vessel

Thermal Oil Heater & Distribution

www.PlanET-Biogas.com
Safely Handle Your Animal Mortalities

Ask us how.

United States
5937 State Route 11
Homer, NY, 13077
T: + 1-877-266-0994
contact-usa@planet-biogas.com

Canada
56-113 Cushman Road
St. Catharines, ON L2M 6S9
T: + 1-905-935-1969
info@planet-biogas.ca

www.PlanET-Biogas.com