



BIOGAS SYSTEMS AND PROJECTS

- 20 Biogas plants in NC, MO and ID are ready for construction in 2019 and 20 more projects are under development
- Recycle per plant of approximately 270,000 tons of organic agricultural waste: swine, dairy manure and green crop residues
- Each plant produces 550,000 MMBtu of renewable natural gas that is equivalent of 5,5 MW of electricity

POTENTIAL OF BIOGAS INDUSTRY IN THE U.S.

- Over 8,241 dairy and swine farms are ready for development today
- Europe has over 10,000 operating digesters
- Currently the U.S. has over 2,200 sites producing biogas in all 50 states, out of which 250 anaerobic digesters on farms
- GESS' 40 projects will facilitate almost 20% growth in this sector alone



WHY BIOGAS?

Environmental benefits:

- Dramatic odor reduction
- Reduced greenhouse gas emissions
 - Dairy 75,887 MTCO₂e/yr or 2,048,949 ft³
 - Swine 55,902 MTCO₂e/yr or 1,509,354 ft³
- Platform for reducing nutrient runoff
- Increased crop yield

Energy benefits:

- Multiple existing biogas end-use applications, including:
 - heat-only
 - electric-only
 - combined heat and power
 - pipeline quality biomethane
 - transportation fuel

Waste treatment benefits:

- Natural waste treatment process
- Mature technology
- Complete biogas capture
- Nutrient recovery and recycling

Economic benefits:

- \$800 million in investment funds
- GESS employed 35 people during last year
- 100 Construction jobs per project
- 16 permanent jobs per project
- Turns cost items into revenue-generating
- Additional cash flow opportunities for farmers

SHOW ME THE MONEY!

SWINE MANURE REVENUES

(from own farm)

Number of Hogs	18,000
Annual Manure per hog	4.4 tons @ 5.0%DM (min. DM from source)
Price per ton	\$3.00 @ 5.0%DM (4,000 of DM)
Total Tons:	80,000 tons @ 5.0%DM
Total:	\$240,000.00⁽¹⁾

*DM = DRY MATTER

DAIRY MANURE REVENUES

(from own farm)

Number of Indoor Cattle	1,600
Annual Manure per animal	7.3 tons @ 20.0%DM (min. DM from source)
Total tons	11,680 tons @ 20.0%DM (2,336 of DM)
Price per ton	\$4.00 @ 20.0%DM
Total:	\$46,720.00⁽²⁾

*DM = DRY MATTER

INDOOR CATTLE MANURE REVENUES

(from procurement)

Total Plant Needs	30,000 tons @ 20.0%DM (min. DM from source)
Annual Manure from own farm	11,680 tons @ 20.0%DM (min. DM from source)
Total tons still needed	18,320 tons @ 20.0%DM (3,664 of DM)
Price per ton from Procured	\$3.00 @ 20.0%DM
Difference from Price per ton	\$1.00 (\$4.00 - \$3.00)
Total from Procurement:	\$18,320.00^(2a)

*DM = DRY MATTER

TOTALS

Total Revenues from Manure: \$398,040.00
 Annual Land Lease/Rental Revenue (from Plant):
 Annual Rent/Lease: \$15,000.00
Total Revenues (before Investment Returns): \$413,040.00

SWINE MANURE REVENUES

(from procurement)

Total Plant Needs	100,000 tons @ 5.00%DM
Annual Manure from own farm	80,000 tons @ 5.00%DM
Total tons still needed	20,000 tons @ 5.00%DM
Price per ton from Procured	\$2.00 @ 5.00%DM
Difference from Price per ton	\$1.00 (\$3.00 - \$2.00)
Total from Procurement:	\$20,000.00^(1a)

DAIRY MANURE REVENUES

(from own farm)

Number of Indoor Cattle	5,000
Annual Manure per animal	4.8 tons @ 50.0%DM (min. DM from source)
Total tons	24,000 tons @ 50.0%DM (12,000 of DM)
Price per ton	\$3.00 @ 50.0%DM
Total:	\$72,000.00⁽¹⁾

(THERE IS SIGNIFICANT WASTE & DRYING IN OUTSIDE MANURE)

OUTSIDE CATTLE MANURE REVENUES

(from procurement)

Total Plant Needs	25,000 tons @ 50.00%DM
Annual Manure from own farm	24,000 tons @ 50.00%DM
Total tons still needed	1,000 tons @ 50.00%DM (500 of DM)
Price per ton from Procured	\$2.00 @ 50.00%DM
Difference from Price per ton	\$1.00 (\$3.00 - \$2.00)
Total from Procurement:	\$1,000.00^(1a) (min. DM from source)

REVENUE STREAM SUMMARY

REVENUE SOURCE	SALES	EBIT RATE*	REVENUE STREAM
Green Biomass Sales	\$4,500,000	8%	\$360,000
Brown Biomass			\$398,040
Land Lease			\$15,000
Average Annual Cashflow (first 7yrs, as of 2020)			\$484,000
Annual Income to owner			\$1,257,040



LET'S USE BIOGAS TO POWER THE FUTURE!



- Support and promote growing RNG Biogas industry
- Increase number of users in transportation market
- Reduce carbon footprint of the IndyCar series by converting team transporters and support vehicles to use RNG