

Preliminary Feasibility Study of a Farm-scale Anaerobic Digester



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ONTARIO'S WEST COAST
HURON COUNTY





County Rationale

- A project of the Huron County Water Protection Steering Committee
- #1 Reason: Water Protection
 - pathogen reduction
 - nitrogen conversion
- Co-benefits:
 - odour reduction
 - renewable energy
 - farm viability
 - GHG reduction

Thanks to Canada-Ontario Agreement funding assistance.

Producer Rationale

- Decisions guided by Farm Strategy – in keeping with values, vision and mission
- Learning and adopting better methods
- Optimize technology
- Environmental stewardship
- Enhance viability
- Partnership with Huron County, OMAFRA, local citizens

Farm Facts



2000 sows farrow to ½ finish

Byproduct feeding for over 20 years

Computerized liquid feeding since 1986

Gest. Sows, Finishers and Weaners on liquid feed

AD at 3,000 head finishing barn

24t/d liquid manure

Add separated solids from main farm



Findings

- Biogas yield of 10 m³/t (considered low)
- Due to lower TS, OTS/VS, BOD/COD
- Trace copper / medication / disinfectant may inhibit digestion
- 2500 m³/d biogas needed for 250 kWe generator
- 250 m³/d biogas from manure (10%)
- More organic matter required (separated solids, area by-products, silage, etc.)

Feasibility - 250 kWe

Price Paid for Power (\$/kW.h)	Biomass Cost Delivered (\$/tonne)	Capital Cost and Grant % (\$000's)	10 Year IRR After Tax* (%)
0.116	25	912	6
0.128 (+ 10%)	25	912	10
0.139 (+ 20%)	25	912	13
0.116	15	912	12
0.116	5	912	17
0.116	-5	912	22
0.116	25	730 (- 20%)	10
0.116	25	547 (- 40%)	17

* Before financing

Next Steps

- Finalize recipe for digester
- Review conceptual digester options
- Seek capital funding
- Decision to proceed
- Engineering and construction