



Getting started with biogas

Tips for biogas system success

There is a lot to consider as you plan your biogas operation – from goal setting and building a team, to thinking through feedstock and off-take options. This checklist will help you in the research and planning phase and prepare you for biogas system success:

1. Setting goals

What are you hoping to achieve by adding a biogas plant to your farm? It's important to clearly define your farm management objectives. Be sure to answer these questions:

- What are your financial goals?
- What are your environmental goals?
- How does biogas production fit with the future plans of the farm?

2. Building a team

An experienced and qualified team is a key element to your success. Your team should include:

- Biogas consultant*
- Technology vendor(s)
- Equipment provider(s)
- Investors/lender(s)
- Feedstock supplier(s)
- Utility partner
- Also define what role you and other farm employees will play on the team

*A technology vendor may also provide biogas consultant services

3. Sourcing feedstock

Determining the quantity and composition of your feedstock as well as the reliability and frequency of supply is a critical step as it dictates your biogas plant's technology and size. During the planning phase, identify all suitable feedstocks:

- Manure and crop residue from your own farm
- Agricultural feedstock from neighbouring farms
- Non-agricultural feedstock (e.g., organic material produced by non-farm sources, including food and beverage processing, grocery stores, restaurants, hotels, abattoirs)

4. Choosing anaerobic digester (AD) technology

AD technology is not one-size-fits-all. Consider these factors when evaluating systems for your farm's unique situation:

- Type and amount of feedstock expected to be processed
- Siting constraints, preferences
- Process flow
- Proximity to interconnected systems (inputs, energy networks)
- System efficiency
- Preventative maintenance regime and scheduled down-time
- Operating and maintenance costs for each part of the system
- Monitoring and control features (automation, notifications)
- Equipment life expectancy
- Warrantees on equipment
- Availability of equipment and parts (available locally or sourced internationally)
- Chemical usage and handling/disposal costs

5. Determining your biogas use plan

Biogas has multiple end uses both on and off of the farm. Determine how your biogas will be used by considering the most common pathways:

- On-farm use of thermal and/or electrical energy
- Off-farm sale of thermal and/or electrical energy
- Off-farm sale of renewable natural gas (RNG)

6. Developing a digestate management plan

Typically, one tonne of feedstock will yield 0.9 tonnes of digestate. Proper management of this digestate is vital to the success of your biogas operation. Factors to consider in your plan:

- ❑ On-farm use of digestate as fertilizer
- ❑ On-farm use of digestate as bedding
- ❑ Off-farm market for digestate products (e.g., fertilizer, bedding, compost)
- ❑ Requirement for further treatment (e.g., dewatering, solids separation)
- ❑ Adequate storage design/capacity to store your digestate until it is either applied to your land or transported off your farm
- ❑ Partner agreements in place to receive digestate

7. Optimizing operations

Optimum operation of your AD/biogas system depends on having the right skill sets, training and resources. Continuous monitoring and management are required to ensure biological processes and mechanical equipment work properly. In some cases, trained farm staff can carry out operational maintenance while third-party suppliers will be needed in other areas. Ensure you have reliable access to:

- ❑ Parts/equipment support
- ❑ Microbiology services
- ❑ Mechanical engineering
- ❑ Electrical services
- ❑ Safety equipment, monitors and related training
- ❑ Testing and analysis
- ❑ Continuing education on biogas industry developments

The Canadian Biogas Association is the source to connect you with information and expertise to get your farm started with biogas.



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8. Communicating with community

Outreach and education are essential to manage community relations and to build public trust. Plan to be proactive in communicating about:

- ❑ Environmental benefits and sustainability
- ❑ Community benefits
- ❑ Safety
- ❑ Odour control
- ❑ Waste handling
- ❑ Noise
- ❑ Truck traffic
- ❑ Emissions
- ❑ Pathogens

Sources

If you're ready to go beyond this checklist, access these resources:

Canadian Biogas Association:

Canadian Anaerobic Digestion Guideline

Current Status and Future Potential of Biogas Production from Canada's Agriculture and Agri-Food Sector

Farm to Fuel – Developers' Guide to Biomethane

B.C. Ministry of Agriculture, Food and Fisheries:

On-Farm Biogas Development Handbook

US Environmental Protection Agency:

AgSTAR Handbook



For more information visit:
farmingbiogas.ca