TECHNOLOGY PROVIDER
TECHNOLOGY INFORMATION REQUEST

Technology/Service:	Digester Project Development, including pre-project studies, feasibility and finance		
Information by:	Angela McEliece	**Date:**	October 2, 2017

COMPANY INFORMATION

Company:	Martin Construction Resource		
Phone:	510-834-4568	**Web Site:**	http://www.martinconstructionresource.com/
Address:	155 Filbert St. Suite 245	**City:**	CA
State:	Oakland	**Zip Code:**	94607

TECHNICAL CONTACT

Name:	Please contact our office
Phone:	510-834-4568
Email:	Please contact our office
Address:	155 Filbert St. Suite 245
City:	Oakland
State:	California
Zip Code:	94604

DEMONSTRATION SITE CONTACT

Site Name:	Various
Contact:	Please contact our office
Title:	
Phone:	510-834-4568
Email:	Please contact our office
Address:	155 Filbert St. Suite 245
City:	Oakland
State:	California
Zip Code:	94607

INITIAL TECHNOLOGY OVERVIEW

This information is to guide in the development of a more specific and detailed Technology Information Request.
Please answer the following questions for each Technology or Service Provided.

What is the name of the technology or service you provide?

Martin Construction Resource provides turnkey general contracting services to carry out all construction and subcontracting for anaerobic digestion systems and packaged biogas engine/generator sets.

Describe how this technology is used in a larger Nutrient Management System. *Please be as detailed as possible.*

How many systems do you have installed on dairy farms or other livestock operations?

SYSTEMS	NUMBER OF SITES	SIZE OF INSTALLATIONS
Dairy	27	14,000 to 146,000 cu ft/day biogas
Pork	5	50,000 to 1.8 million cu ft/day biogas
Poultry	1	50,000 cu ft/day biogas

Do you have a preferred region or area for the location of projects?

North America

Location of farm(s)

AZ, CA, CT, IA, IL, MN, NY, OH, PA, VT, Australia, Mexico, Ecuador, Chile

What's the smallest and largest farm using your system?

Dairy farms range from 150 to 10,000 cows; and Pig Farms ranging from 1600 finishers (equivalent) up to 200,000+ finishers

Input and output of your unit/system – do you have a mass balance analysis?
If a mass balance is available, please include below or attach as a separate document.

A mass balance can be prepared, as needed for a project. The information is client confidential.

Input material description and characteristics:
For example: raw manure, digestate, screened digestate, suitable non-farm feedstocks, other.

The input to digester systems is the full manure stream including cleaning water from barns or the milking parlor and can be mixed with food waste and other organics.

Does the technology treat the full manure stream for a farm or a fraction of the stream?

The digester can be designed to treat the full manure stream for a dairy including flush water from the milking parlor.

Do you consider this a mature system or ongoing farm development?

The digester can be designed to treat the full manure stream for a dairy including flush water from the milking parlor.

Any weather constraints? **Yes** ☐ **No** ☑ *If so, please describe.*

Any bedding constraints? **Yes** ☑ **No** ☐ *If so, please describe.*

Sand separation is necessary to ensure proper operation of the digester

Output material description and characteristics:
Please include the % of the total stream for each material, i.e. 10% fiber and 90% screened liquid by weight.

8% - 10% solids and fiber and 90% - 92% liquids for lagoon storage and field application

Do the Outputs of the process have a resale market identified? **Yes** ☐ **No** ☐
If so, under what brand name or who is the contract with?

The digester products include biogas that can be used to generate electricity or Renewable Natural Gas and sold to utility companies or other buyers. Environmental attributes, such as carbon credits, RINs and RECs can be marketed. The digestate solids, fiber and liquids can sold as compost of field applied as fertilizer.

Is this process scalable and to what extent (top and bottom limits)? **Yes** ☑ **No** ☐ *If so, please describe.*

The digester system can be sized for the herd size with no upper limit because the system is modular.

Do you have a known scaling factor? **Yes** ☐ **No** ☑ *If so, please describe.*

Sizing and scaling factors are not a matter of technology but of economics.

Does this technology require any air input? **Yes** ☑ **No** ☐

Ambient air

What is the preferred air connection? *For example: psi, fitting size, air quality.*
If not distributed by the system, please list each connected device.

Outside air without treatment for the engine-generator.

Does this technology require any water input? **Yes** ☑ **No** ☐ *If so, please describe.*

In addition to the liquids in the manure stream, some water is needed for cleaning

What is the preferred water connection? *For example: psi, fitting size, water quality, gpm.*
If not distributed by the system, please list each connected device.

Standard connections

Does this technology require any electrical input? **Yes** ☑ **No** ☐ *If so, please describe.*

The digester system requires electrical input for controls, pumps and other equipment.

What is the preferred electrical connection? *For example: phase #, voltage, full load amps.*
If not distributed by the system, please list each connected device.

Standard three phase

Does this technology require any mechanical input? **Yes** ☐ **No** ☑ *If so, please describe.*

What is the preferred mechanical connection? *For example: horsepower, connection, rpms.*
If not distributed by the system, please list each connected device.

Does this system require any special plumbing? **Yes** ☐ **No** ☑ *If so, please describe what is required.*

Does this system require any special foundations or pads? **Yes** ☑ **No** ☐ *If so, please describe.*

The digester and the engine/mechanical building have standard concrete foundations

Do you consider this technology part of a larger system that you provide? **Yes** ☑ **No** ☐ *If so, please describe.*

The digester can be designed as a stand-alone system or can incorporate solids separation and nutrient extraction systems

Does your system require any other components that you do not provide or are not included in your proposal? **Yes** ☐ **No** ☐
If so, please describe.

Additional components can be included such as receiving tanks, solid separators, nutrient recovery technologies, biogas scrubbers, gas compression or pipeline injection.

How is the system delivered to the site? *For example: skid mounted, assembled on site, constructed on site.*

The digester system is assembled on site

Is this system portable or configured in such a way that it could be easily transported for use in several locations?
Yes ☐ **No** ☑ *If so, please describe.*

The current systems are not portable.

Has your technology been accepted by the NRCS and is it included into a practice standard? **Yes** ☑ **No** ☐
If so, please describe if necessary.

Are there any unusable or hazardous byproducts of this process? **Yes** ☐ **No** ☑
If so, please describe the product and recommended means of disposal.

What spare parts and redundant components are included with the system?

Spare parts are industry standard and available.

How is the system controlled and what are the components and capabilities of the control system?

The system is automated for 24/7 operation using on-line SCADA and PLC systems.

What is the usable life of the system?

With proper O/M the system should operate 20-30 years

What is the salvage value at the end of the usable life?

Main mechanical components such as the gen-set, blowers, valves, meters, etc. have salvage value

What is the educational and technical level of competence for the operation of the system?

Trained labor should be able to operate the system. Outsourced O/M contractors are available

What level of maintenance is required for the system?
Please indicate if rebuilds or major components must be replaced and what the frequency is for these components.

Component parts require maintenance and replacement per maintenance schedule. Daily walk through inspections and periodic response to system upsets are required.

Are consumables used in the process? Yes ☐ No ☑
Please provide the nature and purchase relationship for these consumables. For example: proprietary, special contract, generally available.

No consumables other than oil for the engines

Which of these NRCS codes would your technology be classified under? *Check all that apply. Add if necessary.*

CODE	NRCS DESCRIPTION	CHECK ALL THAT APPLY
472	Access Control	☐
560	Access Road	☑
309	Agrichemical Handling	☑
371	Air Filtration and Scrubbing	☑
591	Amendments for the Treatment of Agricultural Waste	☐
366	Anaerobic Digester	☑
672	Building Envelope Improvement	☐
372	Combustion System Improvement	☑
317	Composting Facility	☐
554	Drainage Water Management	☐
375	Dust Control from Animal Activity on Open Lot Surfaces	☐
373	Dust Control on Unpaved Roads and Surfaces	☐
374	Farmstead Energy Improvement	☐
512	Forage and Biomass Planting	☐
561	Heavy Use Area Protection	☐
516	Livestock Pipeline	☑
590	Nutrient Management	☑

521A	Pond Sealing or Lining, Flexible Membrane	☐
533	Pumping Plant	☑
588	Roof Runoff Structure	☐
367	Roofs and Covers	☐
318	Short-Term Storage of Animal Waste and By-Products	☐
570	Stormwater Runoff Control	☐
606	Subsurface Drain	☐
635	Vegetated Treatment Area	☐
601	Vegetative Barrier	☐
360	Waste Facility Closure	☐
632	Waste Separation Facility	☑
313	Waste Storage Facility	☑
634	Waste Transfer	☑
629	Waste Treatment	☐
359	Waste Treatment Lagoon	☑
22132	Sewage Treatment Facilities	☐
		☐
		☐

Can you provide an estimate of the capital required for the installation of this technology?
Please include all components and designate if provided by you or others.

Capital and O/M estimates are available on a project basis

Can you provide an estimate of the operational costs required for this technology?
Please include all costs and designate if provided by you or others.

Estimates available on request

Is there financing available for this system? **Yes** ☑ **No** ☐ *If so, what are the conditions for this financing?*

Financing and grant options can be discussed on a project by project basis

Is the system available for lease? **Yes** ☐ **No** ☑ *If so, please describe.*

The system is not available for lease. However, third party build, own, operate business models can be considered

What sort of warrantee or guarantee do you provide with this technology?
Do you provide any performance guarantees or strictly defects in parts and materials?

Warranty discussion on a project by project basis.

Explain how this system is unique or transformative and how does it improve upon or go beyond other technologies that are currently available.

Martin Construction Resource has designed and built over one hundred agricultural digesters, the first being constructed in 1982. Today, MCR routinely provides round, mixed-tank-digester and covered-lagoon-digester designs for bio-gas production from farm and/or food waste. Our parent company, Martin Energy Group (MEG), is our provider for bio-gas generator sets and digester controls. Custom design often results in an MCR project costing less than the competition, while meeting or exceeding the performance of other systems in bio-gas and electricity output.

Would you be willing to provide a location for a site visit by Newtrient? **Yes** ☑ **No** ☐ *If so, please provide location.*

Location to be determined.

TECHNOLOGY REFERENCES

Please provide customers with whom we can discuss this technology and its performance.
Include a company name, location, contact name and contact information.

Reference 1

Company Name:	Reference provide upon request
Company Location:	
Contact Name:	
Contact Information:	

Reference 2

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

Reference 3

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

Reference 4

Company Name:	
Company Location:	
Contact Name:	
Contact Information:	

Are there any other facts about this technology that you feel should be included in this document?