TECHNOLOGY PROVIDER
TECHNOLOGY INFORMATION REQUEST

Technology/Service:	GSR Solutions – Waste to Value System		
Information by:		**Date:**	March 16, 2018

COMPANY INFORMATION

Company:	GSR Solutions LLC		
Phone:	(802)310-1936	**Web Site:**	http://gensysresearch.com/
Address:	125 College Street, 4th Floor	**City:**	Burlington
State:	Vermont	**Zip Code:**	05401

TECHNICAL CONTACT

Name:	Anju D. Krivov, Ph.D.
Phone:	(802)310-1936
Email:	info@gsrsoln.com
Address:	125 College Street, 4th Floor
City:	Burlington
State:	Vermont
Zip Code:	05401

DEMONSTRATION SITE CONTACT

Site Name:	
Contact:	
Title:	
Phone:	
Email:	
Address:	
City:	
State:	
Zip Code:	

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?

GSR-AD-BOLT system is a patent pending, scalable, bolt-on technology to efficiently manage excessive nutrients generated from dairy manure digester operations.

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

GSR's technology is efficient in recovering nitrogen and phosphorus from digested dairy effluent that further reduces the Biochemical Oxygen Demand (BOD) of anaerobically treated effluent, and produces USDA ASTM Bio-preferred® 100% bio based content and USDA Organic certified, value-added fertilizer along with other valued byproducts including soil amendments, feed, and fuel

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

SYSTEMS	NUMBER OF SITES	SIZE OF INSTALLATIONS
Dairy	1	Pilot*
Pork		

Poultry		
		*Ongoing project involves 3 farms

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

The smallest farm is a mid-size farm (over 300 cows). Additionally large farms (1500+ cows) are involved in the ongoing project.

Does this technology have a 12-month record of reliable performance on at least three dairy farms?

GSR's ongoing project involves 3 farms. Technology has been demonstrated at industry standard.

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

Project location can be in any region. Currently we are in the Northeast.

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.

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

Liquid digestate

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

The technology is capable of treating the full manure stream for a farm, however the decision depends on the farm.

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

This is an ongoing farm development close to maturing

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

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

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.

USDA ASTM Bio-preferred® 100% bio based content and USDA Organic certified value-added fertilizer, and other products

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?

Organic fertilizer market

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

From mid-sized farms to community scales

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

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

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

Can capture emissions

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

Yes

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.

Low quality water

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

The turn key system parts, pumps etc.

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

Phase 3 preferred, can work with Phase 1

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

Part of the process

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

Depends on the equipment/part specifications

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

For flow of materials

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

Low cost foundation

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

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.

Some components are available at the host sites

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

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.*

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

Project in progress

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?

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

What is the usable life of the system?

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

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

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.

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.

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	☐
		☐
		☐
		☐

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.

. It depends on the project scale

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.

It depends on the project scale

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

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

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?

. Valued product manufacture

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

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

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:	
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?