



TECHNOLOGY PROVIDER TECHNOLOGY INFORMATION REQUEST

Technology/Service: EPC Construction and Operations/Maintenance

Information by: Craig Frear

Date: 10/28/2016

COMPANY INFORMATION

Company Name: Regenis

Phone: 260-366-9900

Web Site: www.regenis.net

Address: 920 Salashan Parkway A-102 PO Box 2708

State: WA

City: Ferndale

Zip Code: 98248

TECHNICAL CONTACT

Name: Craig Frear

Phone: 360-366-9900

Email: craigf@regenis.net

Address: 920 Salashan Parkway A-102 PO Box 2708

City: Ferndale

State: WA

Zip Code: 98248

DEMONSTRATION SITE CONTACT

Site Name: Edaleen Cow Power

Contact: Eric Powell

Title: Business Development

Phone: 360-366-9900

Email: ericp@regenis.net

Address: 920 Salashan Parkway A-102 PO Box 2708

City: Ferndale

State: WA

Zip Code: 98248

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?

EPC Construction and Operations/Maintenance

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

We provide EPC construction and operations/maintenance for projects involving digestion or other treatment of various organic wastes. We specialize in partnering with project developers and technology providers to produce a systems approach to treatment of organic waste, nutrients and wastewater. We use a variety of technologies and processes to achieve these system goals.

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

	Number of Sites	Size of Installations
Dairy	13	500-15,000 wet cow equivalents
Pork	0	
Poultry	0	
Co-digestion	10	Various degrees of co-digestion at most sites

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

West Coast but available across US or international.

Location of farm(s)?

Washington, Idaho, Oregon, and California

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

500 to 15,000 wet cow equivalents treating 50,000 to 500,000 gallons/day.

Input and output of your unit/system – do you have a mass balance analysis?

If a mass balance is available, please attach or include as a separate document.

Yes we have years of experience, particularly on dairies, regarding mass/energy balances and output productivities/yields. These mass balances are available and of course tailored to each project, with past experience allowing for refinement and excellent correlation with actual flows when project completed.

Input material description/characteristics:

For example: raw manure, digestate, screened digestate, suitable non-farm feedstocks, other.

We are open to working on projects encompassing a variety of organic waste streams, presently we are most experienced with dairy manure, other manures, and food processing, pre-commercial food wastes, industrial wastes, dairy processing wastes and agricultural wastes.

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

Projects treat the full flow.

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

We utilize mature technologies but also do extensive R&D on emerging technologies.

Any weather constraints? ☐ Yes ☒ No *Please describe.*

No

Any bedding constraints? ☒ Yes ☐ No *Please describe.*

No, prefer not to use sand and instead use digested fibrous solids as a bedding. We do though have some projects with sand separation equipment.

Output materials description and characteristics:

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

Our projects and projects with which we would be an excellent project will have various degrees of outputs and co-products. These include biogas, RNG, fibrous solids, centrifuge/flocculent/DAF solids, ammonia sulfate, clean water, permeate concentrates, nitrification/denitrification.

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?

At our O/M facilities for which we are contracted we work with dairies on producing marketable fibrous products beyond bedding, ammonium sulfate sales, with fine solids and clean water permeates now an interest and emerging co-product with potential but immature sales.

Is this process scalable and to what extent (top and bottom limits)? *Please describe.*

Yes, it is dependent not on engineering but Pro Forma business plan with expense/revenue analysis.

Do you have a known scaling factor? *Please describe.*

Yes, project and site dependent. Can discuss upon call.

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.*

Various, some technology installations due, particularly those involving advanced nutrient treatment: ammonia stripping, nitrification/denitrification, etc.

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

At times, water is required, but usually not an important point.

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.*

Project specific.

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

Yes, electrical supply is always required.

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

Usually prefer 3-phase

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

Various, some technologies do require an mechanical input/connection

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

Various.

Does this technology require any special plumbing? ☒ Yes ☐ No *Please describe what is required.*

Yes, we will complete required plumbing though.

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

Yes, but will install pads if required.

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

We provide full system and work with various technologies and partners to provide needed components.

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.*

No

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

Either constructed on site, delivered in parts, or skid mounted, all of the above, depending upon site and project.

Is this system portable or configured in such a way that it could be easily transported for use in several locations?

☒ Yes ☐ No *Please describe.*

Various.

Has your technology been accepted by the NRCS and is it included into a practice standard? ☒ Yes ☐ No
Describe if necessary.

Various

Are there any unusable or hazardous byproducts of this process? ☐ Yes ☒ No

If so, please describe the product and recommended means of disposal.

Usually no as all organic by-products.

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

We would supply O/M with some on-site supplies, others at our general warehouses and others ordered.

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

Systems are connected to panels and SCADA systems with controls via phone, laptop and cellular connections.

What is the usable life of the system?

Various, usually plan system to have a depreciation lasting 20 years although particular mechanical components could be depreciation of 7 years.

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

Various.

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

We prefer to provide operational/maintenance services using our skilled staff.

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.

Various.

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.

Various, but yes there usually are some consumables that are a part of the daily or annual O/M costs.

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

CODE	NRCS DESCRIPTION	APPLIES
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	
558	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.

Various as we provide multiple technologies within a variety of systems.

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.

Various as we provide multiple technologies within a variety of systems.

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

We do not provide financing.

Is the system available for lease? ☐ Yes ☒ No *Please describe.*

No

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?

Guarantees are an open discussion item case by case involving all team members and technology providers.

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

Many of the technologies and resulting systems and projects we have developed and aim to develop in the future are transformative in that they do take organic and manure waste management to new levels, especially on farm environments.

Would you be willing to provide a location for a site visit by Newtrient? ☒ Yes ☐ No

If so, please provide location.

Please work with us on site/demonstration visits, we would welcome the opportunity.

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:	Edaleen Cow Power
Company Location:	Lynden WA
Contact Name:	Mitch Moorlag
Contact Information:	mitchm@edaleendairy.com

Reference 2

Company Name:	George DeRuyter and Sons Dairy
Company Location:	Outlook WA
Contact Name:	Dan DeRuyter
Contact Information:	danderuyter@gmail.com

Reference 3

Company Name:	Promus Energy
Company Location:	Seattle WA
Contact Name:	Dan Evans
Contact Information:	dan@promusenergy.com

Reference 4

Company Name:	FPE Renewables
Company Location:	Lynden WA
Contact Name:	Steve Vander Haak
Contact Information:	sjvanderhaak@yahoo.com

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

We welcome the opportunity to work with project developers on exciting projects involving a host of technologies to provide a unique and workable solution for the specific site and project.