



BIOENERGY SOLUTIONS

Is there a cost effective waste management system that can cut operating costs and improve a community's quality of life?

Energy Northwest BioEnergy Solutions is working on the answer.

We're testing new technology that could potentially cut dairy operations and maintenance costs by reducing clogging of spraypond filters, eliminating cleaning lagoons, and minimizing water waste by using a sustained closed loop system. BioEnergy Solutions would also reduce contaminants in runoff water, decrease undesirable odor in the community, improve air quality, dramatically cut pesticide use, and mitigate global warming. In addition, it provides green power and distributed generation.

Reduce Operating Expense

BioEnergy Solutions uses a digestion process to effectively remove phosphorus, ammonia, and nitrates from wastewater. Stringent enforcement of feedlot effluent guidelines makes it even more important to prevent and reduce contamination of runoff water. BioEnergy Solutions could potentially be a big part of the answer to effluent issues.

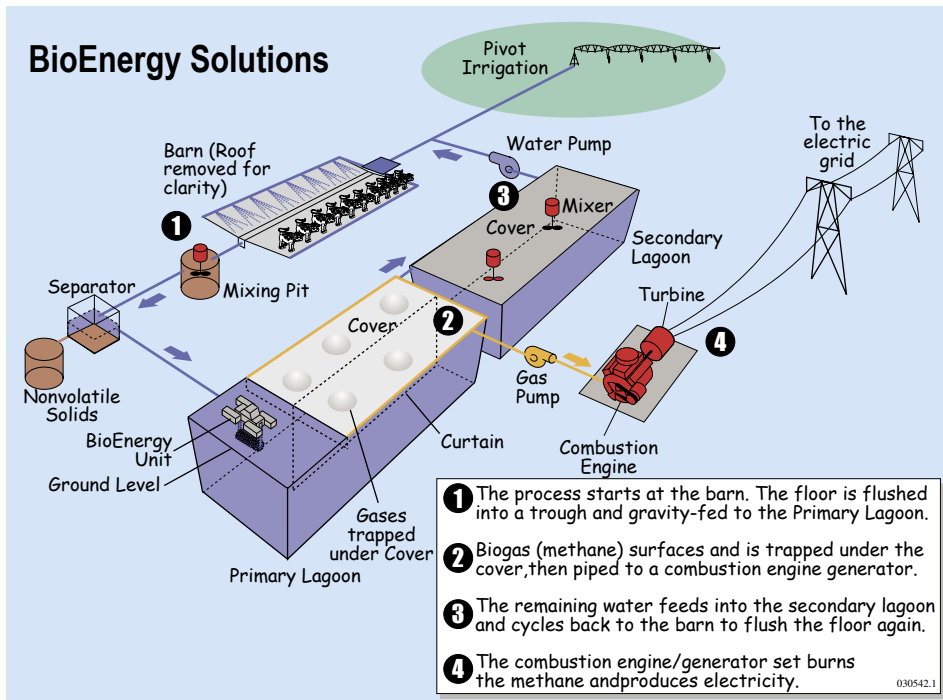
Air quality can be improved using BioEnergy Solutions. Better waste

management can lead to fewer of the wind blown particulates normally associated with exposed manure.

Effective processing of animal waste in a contained environment also decreases the use of pesticides and insecticides. Fewer applications of these chemicals means valuable material and labor cost-savings.

Improve Quality of Life

Odor caused by the decay of manure (release of hydrogen sulfide gas) is a quality of life issue in many communities neighboring dairy farms. BioEnergy Solutions can improve quality of life for the community by eliminating the release of hydrogen sulfide, otherwise known as methane. This is important because methane causes 20 times more damage to the atmosphere than carbon dioxide. Our technology also mitigates global warming by capturing methane rather than releasing it. Any waste methane burned in flares and the engine generator is converted mostly to water vapor, carbon dioxide and carbon monoxide — all less damaging than releasing it into the air.



Comparison of Technologies

	BIOENERGY SOLUTIONS	TRADITIONAL BIOMASS TECHNOLOGY
Hourly Output	3 MW/3000 Dairy Cows (target rate)	1.5 MW/3000 Dairy Cows
Accommodates flush dairies	Yes	Requires added complexity and expense
Construction Time	30-60 days	180 days
Works with existing on-farm structures	Yes	No
Unsubsidized Cost of Power	3.5-4.0 cents/KWe	7.0-8.0 cents/KWe

Revolutionary Technology

Biomass generation technology has existed for over two decades but hasn't been economical. Energy Northwest BioEnergy Solutions is working to become cost-effective and capable of producing large amounts of power, sufficient for utility scale green projects. Our target rate of three megawatts per 3,000 dairy cows is a significant increase over competing technology. Using BioEnergy Solutions, the 540,000 Pacific Northwest dairy cows could contribute up to 648 MWe of green distributed power to the region.

5D Farms Pilot Program

Energy Northwest is testing BioEnergy Solutions in a pilot program at 5D Farms near Pasco, Washington. The program is designed to clearly demonstrate the viability of BioEnergy Solutions and the value it could bring to the dairy industry and the Northwest.

Other Applications

BioEnergy Solutions can be adapted and installed at other facilities, such as sewage treatment plants and food processing plants.

For more information about using Energy Northwest BioEnergy Solutions at your farm or facility, contact:

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Energy Northwest

Energy Northwest has been providing clean, reliable, at-cost power to the Northwest since 1964. In cooperation with our member utilities, we are committed to enhancing the economic viability of our region by efficiently and responsibly managing our business operations.

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