



Biogas: Benefits to the Farm, Rural America, Environment and Economy

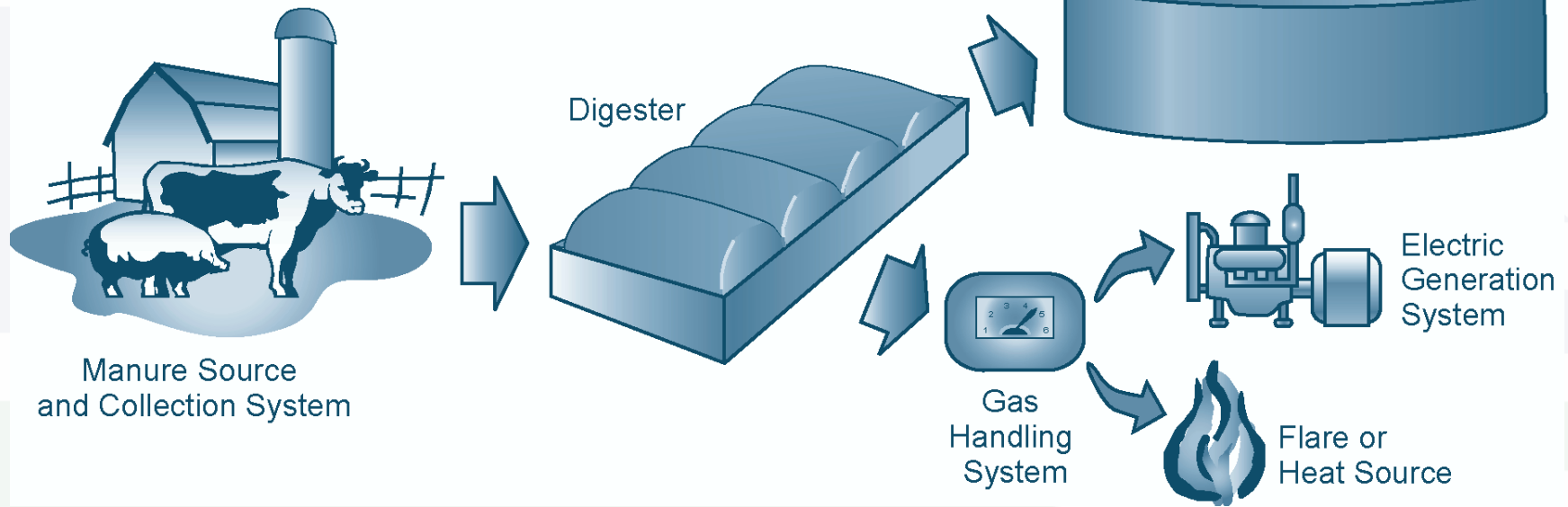
Under Secretary Dallas Tonsager
Rural Development, USDA

National Biomethane Summit
Sacramento, CA
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How Manure Becomes Biogas



USDA Rural Development Programs

Biorefinery Assistance: Loan guarantees for development, construction and retrofitting of commercial scale biorefineries, and grants to help pay for the development and construction costs of demonstration-scale biorefineries.

Bioenergy Program for Advanced Biofuels: Payments to eligible agricultural producers to support and ensure an expanding production of advanced biofuels.

Rural Energy for America Program: Grants and loan guarantees for energy audits, feasibility studies and project development of renewable energy systems and energy efficiency improvements.



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Benefits of Biogas

Farm

- Post-digestion product leftover, both liquid and solid
- Improves quality of life
- Avoided electricity purchases

Rural America

- Electricity for farms and local communities
- Heat from digesters, can be used by generators

Environment

- Eliminates odors and improves air quality
- Prohibits waste from entering groundwater
- Prohibits surface runoff into streams

Economy

- Increases energy independence
- Sell biogas to Utilities
- Carbon credits



Total U.S. Operating Manure-Based Digesters

Dairy Projects

1-500	14
501-1,000	26
1,001-2,000	27
2,001-5,000	29
5,001-10,000	3
10,000+	3

Projects by State

WI-24	IL-4	WY-2
PA-18	TX-4	UT-2
CA-14	IA-3	GA-1
NY-14	OR-3	MT-1
VT-7	WA-3	NE-1
IN-6	CT-2	OK-1
MI-6	FL-2	SD-1
MN-5	ID-2	VA-1
NC-5	MS-2	MD-1

Digesters by Animal Type

Dairy	107
Swine	19
Layers	3
Beef	2
Beef and Poultry	1
Broiler	1



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Source: AgSTAR Database, EPA, June 2009

USDA Awards for Anaerobic Digester Projects

Fiscal Year	Number of projects	Grant Amount	Loan Amount	Leveraging	kWh/year generated	CO ₂ (metric tons)
2003	33	7,518,530		58,034,651	138,934,992	119,484
2004	37	9,508,946	9,830,000	35,651,882	133,553,644	114,856
2005	14	5,018,017	-	19,905,641	51,424,869	44,226
2006	11	2,915,457	1,065,850	8,758,089	34,970,391	30,074
2007	15	5,468,815	3,259,027	19,958,894	34,787,904	29,918
2008	10	10,165,952	4,981,440	21,017,590	55,423,731	46,106
Totals	121	40,595,717	19,136,317	163,326,747	449,095,531	384,664



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Source: USDA Rural Development

USDA Funding for Anaerobic Digesters

Since 2003, there have been **121** anaerobic digester projects awarded under the Rural Energy for America program, for a total investment of **\$59.7** million, leveraging **\$163** million in outside sources.

Out of the 121 digester projects funded under the Rural Energy for America program, **39** are completed and fully operational, generating approximately **145** million kWh on an annual basis.

An additional **24** digester projects are very near completion and are considered to be in the start up and shakedown phase, meaning the equipment installation is complete and final systematic process review is occurring.

Another **40** funded digester projects are considered to be under development - this includes pre-construction, equipment procurement, and equipment installation activities.



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Benefits of USDA Anaerobic Digester Funding From 2003 to 2006

- Generation/Savings: 1960.1 million kWh
- GHG emissions displaced (Carbon): 0.97 Million Metric Tons (MMTC)
- Barrels of oil displaced equivalent: 8.21 million
- Homes Served: 436,580



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Primary Challenges for Installing Digesters

- Electricity
- Negotiations (interconnection requirements and costs, insurance requirements, standby charges)
- Rates (price differential, sales of excess, contract length)
- System upgrades
- Financing
- Limitations of available anaerobic digester technologies

Potential for Cooperatives

A cooperative approach could address challenges to adoption through:

- Improved negotiation strength
- Technical assistance fore digester design
- Installation and operation
- Management and marketing services
- Financial guidance and assistance
- Collective efforts may enhance the economic feasibility of anaerobic digesters.

•Existing dairy cooperative could provide services related to the adoption of anaerobic digester technology as part of its member services

•Similarly-situated dairy famers could form a separate entity to address their specific needs



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Thank You

USDA: www.usda.gov

Rural Development: www.rurdev.usda.gov

AgSTAR: www.epa.gov/agstar



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