We count more than 15,000 new sites ripe for development today: 8,600 dairy, poultry, and swine farms; 4,000 water resource recovery facilities, 2,000 food scrap-only systems, and utilizing the gas at 470 landfills who are flaring their gas. If fully realized, these new biogas systems could produce 103 trillion kilowatt hours of electricity each year and reduce the emissions equivalent of removing 117 million passenger vehicles from the road. These new biogas systems would also catalyze an estimated $45 billion in capital deployment for construction activity which would result in approximately 374,000 short-term construction jobs to build the new systems and 25,000 permanent jobs to operate them. Indirect impacts along supply chains would be even greater.
How Biogas Systems Work

Organic Material

- Manure (e.g., dairy, swine, beef, poultry)
- Wastewater Biosolids (e.g., municipal sewage sludge)
- Food Waste (e.g., household, restaurant, cafeteria, grocery, food production)
- Other Organics (e.g., energy crops, fats, oils, grease, crop residue, winery/brewery waste)

Microbes break down organic material over 2-4 weeks producing biogas and digestate.

Biogas

- Consists mostly of methane and carbon dioxide, plus water vapor, and other trace compounds (e.g., siloxanes)

Bioproduct

- Feedstock
- Bioproduct
- Bioproduct
- Bioproduct
- Bioproduct

Electricity

Renewable Natural Gas

Vehicle Fuel

Heat

Soil Products

Animal Bedding

Other Products (e.g., building material)

Crop Irrigation

Horticulture Products (e.g., soil amendment, peat moss replacement, plant pots)

Digested Material

- May be returned for livestock, agricultural and gardening uses

Renewable Natural Gas

Processed biogas ("biomethane" or "renewable natural gas") is used like fossil natural gas: heat; electricity; vehicle fuel; natural gas pipelines.

Digested Material (Digestate)

- In addition to biogas, digesters produce solid and liquid digestate, containing valuable nutrients (nitrogen, phosphorus & potassium) and organic carbon.

OrganiC Material

- Organic materials are the "input" or "feedstock" for a biogas system. Some organic materials will digest more readily than others.

The Digester

- An anaerobic digester is a system of airtight tanks that can be equipped for mixing and warming organic material.

Adapted from AgSTAR