Fact Sheet

Biogas Opportunities Roadmap: Voluntary Actions to Reduce Methane Emissions, Increase Energy Independence and Grow the Economy

---

President Obama's Climate Action Plan
In his Climate Action Plan, released in June 2013, President Obama directed the Administration to develop a comprehensive, interagency strategy to reduce methane emissions and promote cutting-edge technologies that help farmers, energy companies, and communities convert methane into a renewable energy source and grow America's biogas energy industry.

As part of its "all-of-the-above" energy strategy, the Obama Administration has pursued policies and technologies to diversify the nation's energy portfolio, making America more secure by increasing energy independence.

Strategy to Reduce Methane Emissions
In March, the White House released a Climate Action Plan Strategy to Reduce Methane Emissions and help provide greater incentives to spur the creation of more cost-effective biogas energy technologies. This included a Biogas Roadmap, a **voluntary** strategy created by the U.S. Department of Agriculture, Department of Energy, and the Environmental Protection Agency for the agriculture sector to reduce methane emissions.

Experts agree that any comprehensive plan to confront climate change must address methane as well as carbon emissions. Methane is the second most prevalent greenhouse gas (GHG) emitted in the United States from human activities. Pound for pound, the impact of methane on climate change is over 20 times greater than carbon dioxide.

Biogas typically contains 50-70% methane. As well as being a greenhouse gas, methane can also an energy source. Biogas systems enable the recovery and productive use of methane to generate renewable energy from the decomposition of organic materials, reducing direct emissions into the atmosphere and reducing GHGs by replacing fossil fuels (e.g., coal, natural gas) used for traditional energy generation.

The Biogas Opportunities Roadmap builds on progress made to date to identify voluntary actions that can be taken to reduce methane emissions through the use of biogas systems and outlines strategies to overcome barriers limiting further expansion and development of a robust biogas industry in the United States. Biogas is a proven source of energy used in the United States and around the world for decades. As such, biogas systems can and should be an integral part of America's energy strategy moving forward.

This Roadmap is also a deliverable of a Dairy Industry and USDA partnership which was **requested by the industry** to assist in achieving their 2008 goal of supply chain GHG emission reductions of 25% by 2020. It reflects a commitment by USDA, DOE and EPA to continue

working with industry stakeholders on identifying steps to reduce emissions and expand the biogas industry, including through the development of new technologies.

How Biogas Energy is Used
Many communities, farms and businesses are already capitalizing on new technologies that capture biogas and convert it to power.

Farmers in particular stand to benefit from the advancement of biogas energy technology—as methods for converting farm waste into energy evolve and become more cost-effective, more farmers can use biogas to power their own farms at a reduced cost and sell energy and non-energy products created on their farms to produce additional revenue sources.

There are 239 biogas livestock systems currently operating in the U.S. These projects provide enough renewable energy to power the equivalent of almost 70,000 average American homes. They reduce methane emissions by the equivalent of approximately 2 million metric tons of carbon dioxide. If the full potential was realized, a cost-effective biogas industry could produce energy to power 1 million American homes.

Opportunities for Growth
There is tremendous opportunity for growth in biogas systems. The Roadmap found that with the proper support, more than 11,000 additional biogas systems could be deployed in the United States. If fully realized, these biogas systems could produce enough energy to power more than 3 million American homes and reduce methane emissions equivalent to 4 to 54 million metric tons of greenhouse gas emissions in 2030, the annual emissions of between 800,000 and 11 million passenger vehicles.

With cost-effective technology deployment to utilize biogas, operations can continue that trend of improved efficiency while providing farmers increased revenues, making America more energy independent and reducing emissions that significantly contribute to climate change-offering a "win-win" for farmers, communities, the country and the planet.

Efforts to reduce methane emissions are already producing results in the fight against climate change: Since 1990, methane emissions in the United States have decreased by 11%, even as many activities that can produce methane have increased; emissions intensity of the production of meat and milk in the U.S. is much lower today that it was even a few decades ago because of research that has resulted in improved efficiencies in production; North American production of milk and beef is among the most efficient in the world in terms of the GHG emissions per unit of production.

Federal Support for Advancing Methane Energy Technology
Biogas has proven to be a reliable resource for energy, but is underdeveloped in the U.S. To address this, the Opportunities Roadmap identifies government actions which can help encourage technology deployment.

To accelerate the use of cost-effective methane energy technology, the Opportunities Roadmap details a number of steps USDA, DOE, and EPA will take to help improve return on investment

and expand America's biogas industry. These include:

Promoting Biogas Utilization through Existing Agency Programs: USDA, DOE, and EPA will use their existing programs as a vehicle to enhance the utilization of biogas systems in the U.S by ensuring that existing criteria for technical and financial assistance considers the benefits of biogas systems, leveraging over $10 million in research funding to enhance the economic viability and surrounding benefits of the biogas systems and co-products, and strengthening programs that support the use of biogas for clean energy, transportation fuel, renewable chemicals and biobased products.

Fostering Investment in Biogas Systems: To help overcome financial barriers to the widespread investment in biogas systems, USDA will lead efforts to improve the collection and analysis of industry financial and technical data needed to track the performance of anaerobic digesters, evaluate current loan and grant programs for opportunities to broaden the financing options available for biogas systems, and review Federal procurement guidelines to ensure that products of biogas systems are eligible for and promoted by applicable government procurement programs.

Strengthening markets for biogas systems and system products: To strengthen U.S. markets for renewable energy and value-added non-energy products from biogas systems, USDA, DOE, and EPA will review opportunities to overcome barriers to integrating biogas into electricity and renewable natural gas markets, for example, though modernizing existing Federal incentives provided for renewable energy generation. USDA, EPA, and DOE will also drive the creation of tools to help industry broaden the market development for energy and non-energy biogas systems products.

Improving communication and coordination: In order to implement the strategies laid out in this document and promote strong coordination and messaging across Federal agencies, USDA will establish a Biogas Opportunities Roadmap Working Group that will include participation from DOE and EPA, as well as the dairy and biogas industries. The Working Group will collaborate with industry to publish a progress report in August 2015, which identifies and prioritizes policies and technology opportunities to expand the biogas industry and reduce greenhouse gas emissions.