Biogas Markets and Federal Policy
Patrick Serfass, Executive Director
American Biogas Council: The Voice of the US Biogas Industry

- **The only** U.S. organization representing the biogas and anaerobic digestion industry
- **151 Organizations** in the U.S., Germany, Italy, Canada, Sweden, Denmark, Belgium, Brazil, the Netherlands and the UK
- **All Industry Sectors Represented:**
  - Landowners, waste managers
  - Project developers/owners
  - Manufacturers
  - Fuel refiners
  - Biogas users
  - Financiers
  - EPC firms
  - Wastewater
  - Utilities

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Input:
Any organic waste

Farm

Urban

Wastewater

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Goal: Turn all (non-woody) organic waste into BIOGAS

Benefits:

<table>
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<th>Waste Treatment</th>
<th>Energy</th>
<th>Environmental</th>
<th>Economic</th>
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</table>
| • Biological process  
• Mature technology  
• Small footprint  
• Reduces waste volume  
• Very efficient and complete decomposition  
• Nutrient recovery and recycling | • Net-energy producing  
• Multiple end-uses for biogas:  
  • Heat/electricity/both  
  • Pipeline quality, renewable natural gas  
  • Vehicle fuel  
  • Very reliable  
  • Baseload renewable energy (not intermittent) | • Complete biogas/methane capture  
• Dramatic odor reduction  
• Reduced pathogens  
• Reduced greenhouse gases  
• Addresses nutrient run-off  
• Increased crop yield | • Reduced waste volume, reduces costs  
• Jobs (temporary and permanent)  
• Balance sheet: changes an expense to revenue  
• Works well with composting (biogas first) |
What wastes are BEST for making biogas?

- Fats & Greases: 800 cubic meters of biogas production per ton of substrate
- Bakery Wastes: 700 cubic meters
- Food Scraps: 400 cubic meters
- Corn Silage: 300 cubic meters
- Grass Silage: 200 cubic meters
- Green Clippings: 100 cubic meters
- Brewery Waste: 50 cubic meters
- Chicken Manure: 25 cubic meters
- Potato Waste: 10 cubic meters
- Pig Manure: 5 cubic meters
- Cow Manure: 2 cubic meters

35x manure
25x manure
10x manure

Image source: Basisdaten Biogas Deutschland

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Clover Hill Dairy, Wisconsin
1,250 cows
300kW power
Huckabay Ridge, Texas
+10,000 cows + fats, oils and greases from restaurants
+2.7 million scf/day gas
+650,000 MMBtu/year (the energy equivalent of 4.6+ million gallons of heating oil)
DC Water
+largest advanced wastewater facility in world
+370 MGD wastewater
+$400 million project
+13 MW generated, uses 26 MW
+saves $10M/year in electricity costs + $15M/year in other costs (30 fewer truck trips/day)
+provides all emergency power if major failure
+operational 2015
Anheuser Busch Brewery
+ first 4 digester installed in 1991 in Baldwinsville, NY
+ 1.5 million gal/day of wastewater
+ biogas recovered replaces 15% of brewery’s fuel needs and 60% of electricity
+ electric power reduction from digester use = 9 million kWh/year
EBMUD
+2011: 40 tons/day of post consumer food waste, 240,000 gal/day of food processing waste
+ generates 90% of 5MW needed
+ to ramp up to 120 tons/day of post consumer food in the next 24 months
City of Tulare, California
+11.5 MGD wastewater
+500,000 scf/day gas
+generates 1.2 MW, uses 2.7 MW
+saves $1.2M/year in electricity costs
+provides 94.5% reliable power
2,200+ biogas-producing sites Currently Operational

- 186 Digesters on Farms (100 MW)
- 1,500 Digesters at Wastewater Treatment Plants (only 250 use the biogas they produce)
- 576 landfill-based energy projects

12,000+ sites Available for Development

- Farms: 8,200 (only counting dairy and swine)—1700 MW
- Wastewater Treatment Plants (WWTPs): 3,250—750 MW
  - 2,000 WWTPs > 1 MGD don’t have a digester
  - 1,250 WWTPs producing, but not using biogas
- Landfills: 510
- Private commerical/industrial sites: ?

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Where Companies are Developing Biogas-Electricity Projects

- Total Projects: 324*
- Total Power Capacity: 649 MW*
- Total Industry Investment: $3.5 billion
- Average: $5.74 million/MW
- Average: $12.6 million/project

*As reported by individual companies to the American Biogas Council, Fall 2011
Federal Legislation In Place

- **Farm Bill programs** – 2008 Energy Title, especially REAP (Rural Energy for America Program), as well as conservation and other financing programs
  - REAP: 19+ “new” grants announced this Spring
- **2007 Energy Bill** – Provides incentives for the use of biogas as a transportation fuel (Alt Fuel Excise Tax Credit)
- **Federal Renewable Energy Production Tax Credit (PTC)** - per kilowatt-hour tax credit for electricity generated by qualified energy resources including biogas. Under Recovery Act modification a facility which would qualify for the PTC can elect to take the **Investment Tax Credit** instead, but only if it is an electric generation facility (expires end of 2013)
- **New Market Tax Credit**: credit for projects located in low-income area
- **List recently shrank (1603)**
Federal Policy Watchlist

- **Renewable Energy Tax Credits**
  - Extend **Section 1603** deadlines>>Becoming a **PTC** Focus, short-term extension, new bill introduced ’13?
  - **Production Tax Credit** (Sec 48) and **Investment Tax Credit** (Sec. 45)
  - **Biogas Investment Tax Credit** (for biogas, not electrons)
  - Not generally helpful for municipalities (WWTPs)

- **Other**:
  - Support the **NAT GAS Act** for natural gas vehicles (upgraded biogas = renewable natural gas)
  - **PURPA Plus, HR.66 Waste to Energy** (wastewater or biosolids--not landfills, not agricultural waste)
  - **Clean Energy Standard** featured biogas
  - Price on **carbon**
Federal Policy Watchlist (cont’d)

- **Farm Bill** Energy Title
  - HUGE bill, of which biogas is a small part
  - Expect massive changes (funding reductions)
    - Energy title = 1-2% of bill and still on chopping block
    - ABC filed testimony to Senate and House on many issues
    - ABC is active in Agricultural Energy Coalition
    - Due to all these efforts, there is a slight possibility for continued mandatory funding for REAP (Renewable Energy for America Program)
Federal Agencies

- Agriculture (USDA)—Rural Development, Conservation
- Defense (DOD) – shore power, base energy needs
- Environmental Protection EPA:
  - AgStar
  - Landfill Methane Outreach Program
- Federal Energy Regulatory Commission (DOE)—interstate pipelines
- Energy?
State Spotlight: California (RPS, Biomethane, CEC)

- March 16: CEC proposed wholesale moratorium on biomethane projects
- Biomethane no longer would qualify for RPS; biogas to electricity unaffected
- Reason: CEC wants to stop new non-CA biomethane projects from developing and selling the gas to CA utilities (cheaper than CA biomethane)
- Pros and Cons—but mostly Cons (economic, confusing, negative signal to renewables industry and investors)
- ABC took a strong position against the proposed moratorium citing stoppage of important CA economic activity and the process (legislature should handle, not CEC)
- 65 public comments filed
- Hearing today at 12pm CT: [http://www.energy.ca.gov/webcast/](http://www.energy.ca.gov/webcast/)
- [http://www.energy.ca.gov/portfolio/documents/#03282012](http://www.energy.ca.gov/portfolio/documents/#03282012)
State Spotlight: Connecticut, Setting an Example

- Public Act No. 11-217
- Passed late 2011
- Targets commercial operations generating more than 104 tons of organic waste per year
- Less than 6 months after CT’s 2nd organics recycling facility establishes service, waste generators must source separate
- For waste generators that have a recycling facility within 20 miles, their organics must also be recycled within those 20 miles.

Thank You!

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  • Application online, or contact us

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