The Iowa Digester Experience

Sustainable Communities Conference
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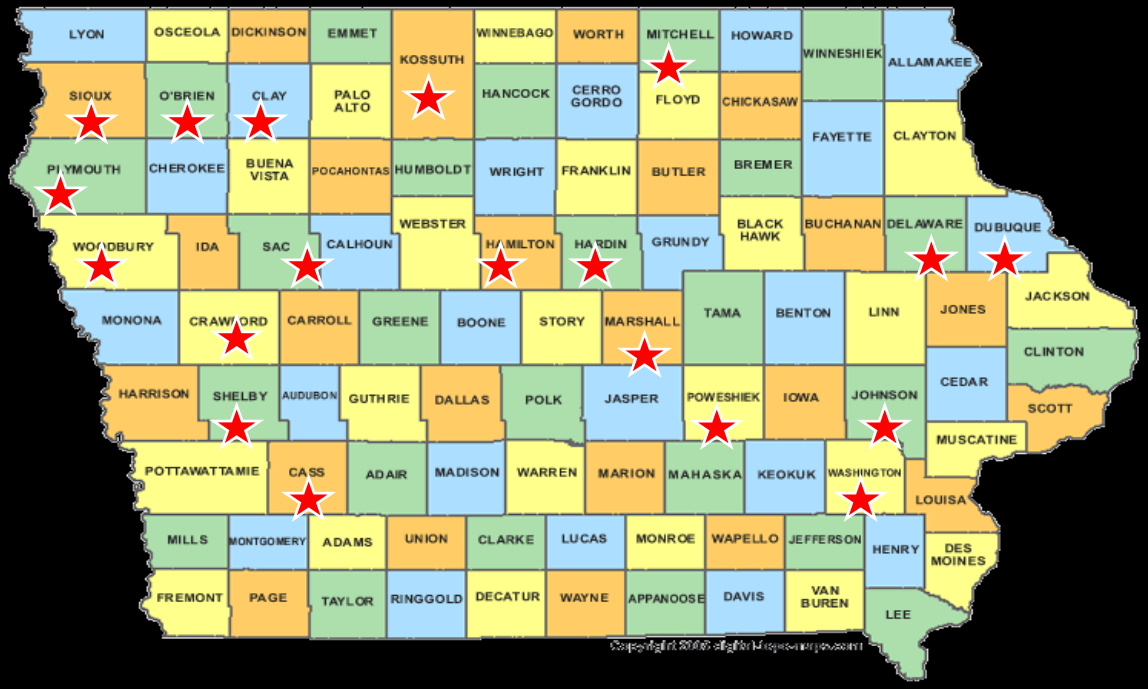
Presentation Outline

- Iowa's outreach efforts regarding anaerobic digesters
- Regulatory Guidance
- The Amana Farms Digester

AD Community Outreach



Iowa AD Asset Mapping

Go to:

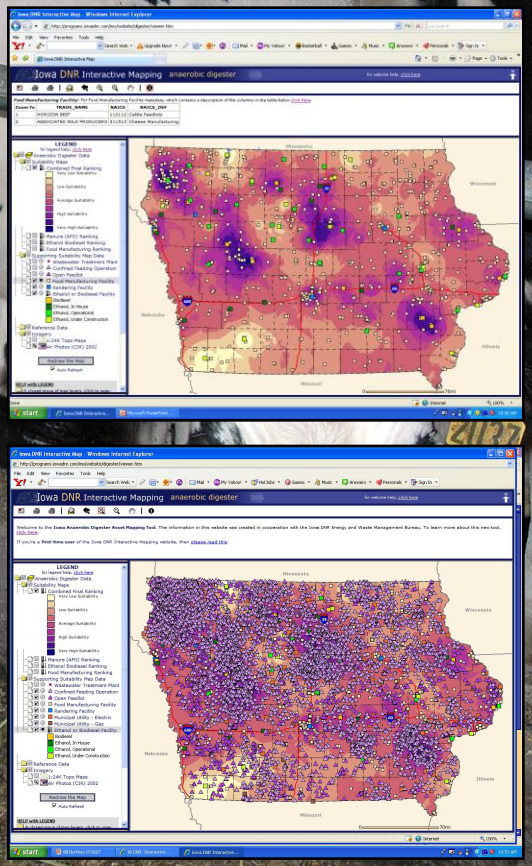
http://www.iowadnr.gov

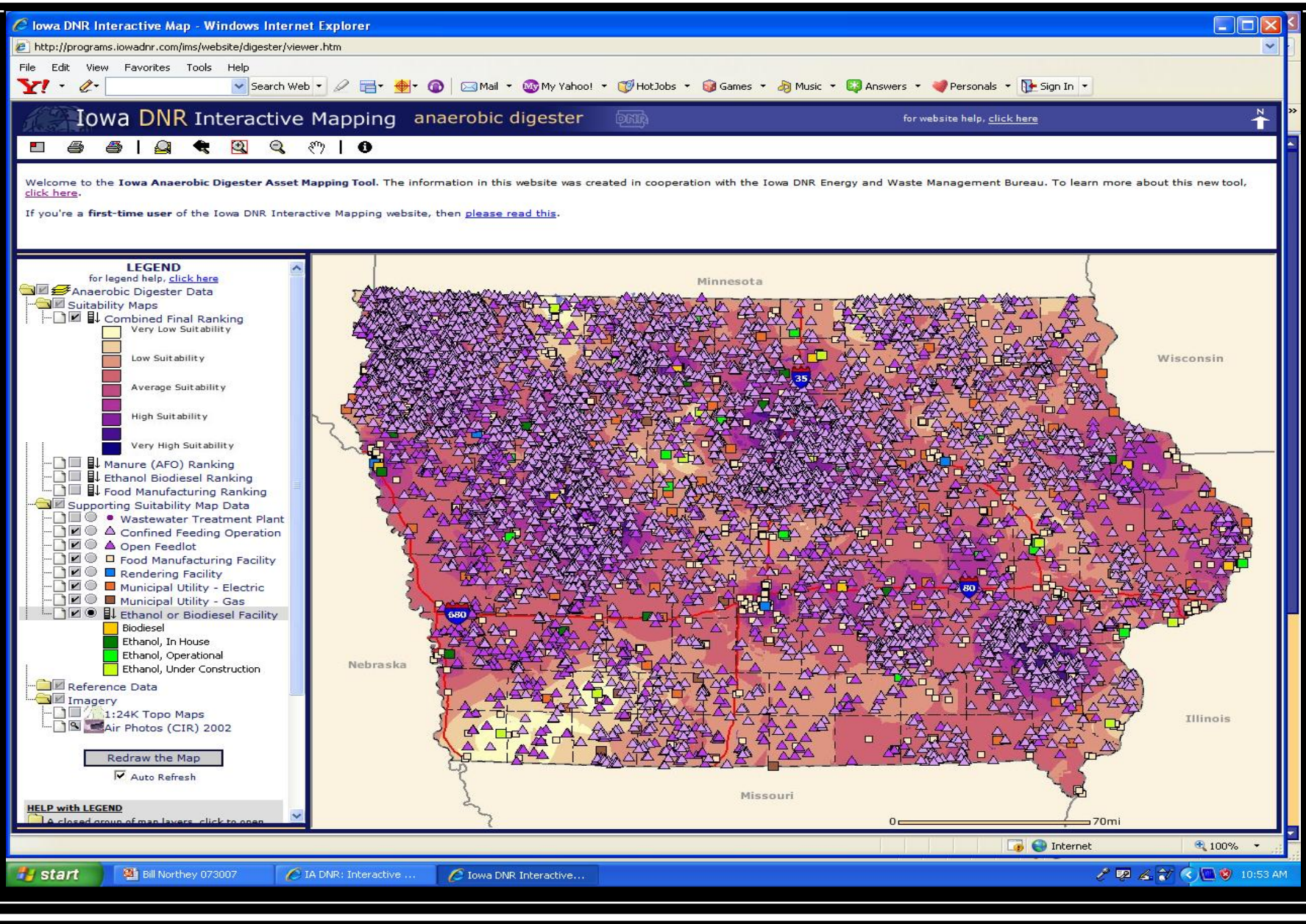
Click on:

'Mapping (GIS Interactive)' link in the left menu

Select:

'Anaerobic Digester Map' link to open the map




Iowa DNR Interactive Map - Windows Internet Explorer
http://programs.iowadnr.com/ims/website/digester/viewer.htm
File Edit View Favorites Tools Help
Search Web
Mail
My Yahoo!
HotJobs
Games
Music
Answers
Personals
Sign In
Iowa DNR Interactive Mapping
anaerobic digester
for website help, click here
Welcome to the Iowa Anaerobic Digester Asset Mapping Tool. The information in this website was created in cooperation with the Iowa DNR Energy and Waste Management Bureau. To learn more about this new tool, click here.
If you're a first-time user of the Iowa DNR Interactive Mapping website, then please read this.
LEGEND
for legend help, click here
Anaerobic Digester Data
Suitability Maps
Combined Final Ranking
Very Low Suitability
Low Suitability
Average Suitability
High Suitability
Very High Suitability
Manure (AFO) Ranking
Ethanol Biodiesel Ranking
Food Manufacturing Ranking
Supporting Suitability Map Data
Wastewater Treatment Plant
Confined Feeding Operation
Open Feedlot
Food Manufacturing Facility
Rendering Facility
Municipal Utility - Electric
Municipal Utility - Gas
Ethanol or Biodiesel Facility
Biodiesel
Ethanol, In House
Ethanol, Operational
Ethanol, Under Construction
Reference Data
Imagery
1:24K Topo Maps
Air Photos (CIR) 2002
Redraw the Map
Auto Refresh
HELP with LEGEND
Minnesota
Wisconsin
Nebraska
Illinois
Missouri
35
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Bill Northey 073007
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Community-Based AD Benefits

- Co-digestion of multiple organic feedstock – better gas production
- Produces large volumes of renewable energy, making that energy more marketable
- Provides rural economic development and investment opportunities

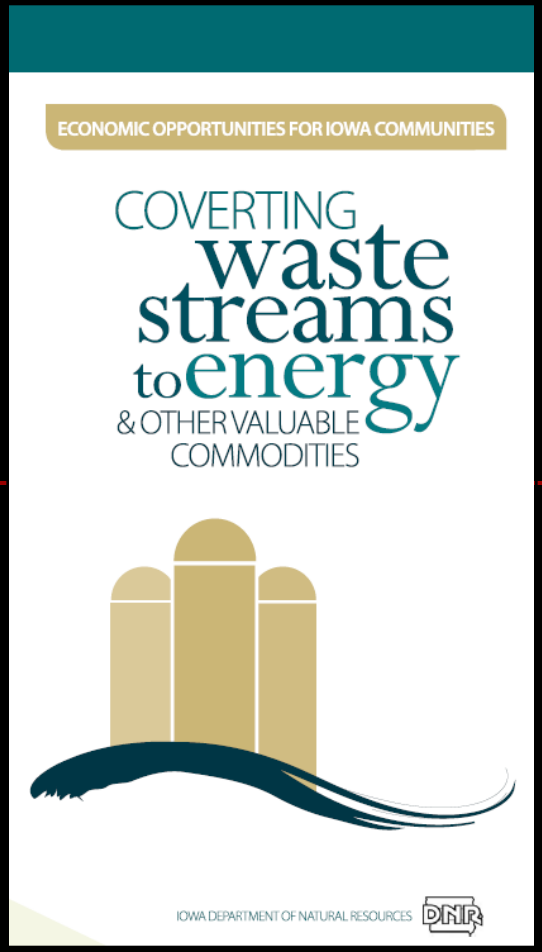
Project Design Models

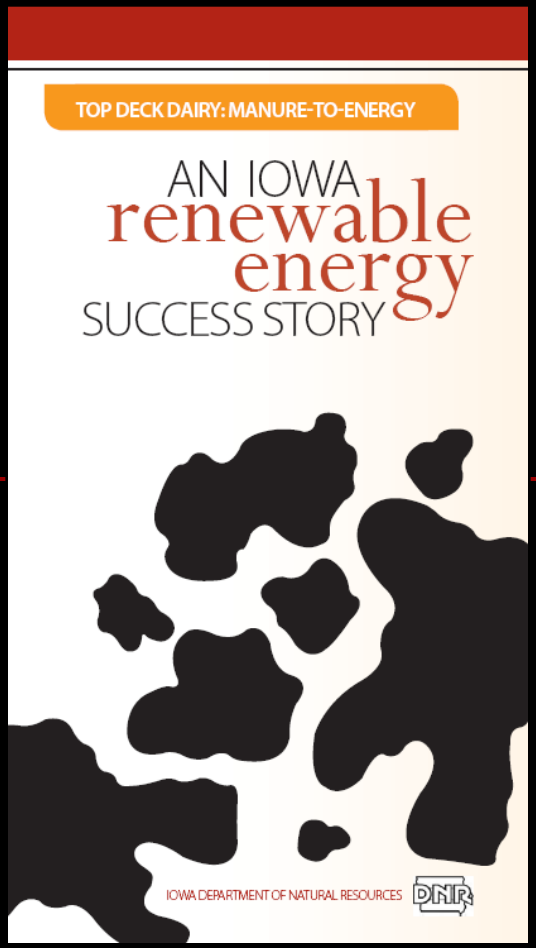
- **Farm scale** – 750 + animal units
- **Closed-looped systems** that integrate livestock production, anaerobic digestion, and ethanol production
- **Community-based**, with centralized organics collection
  - Integration with community wastewater treatment facilities
  - Industrial park model, where industries with problematic waste streams build and use a digester collectively

Digester Outlook for Iowa

- Significant increase in interest
- Investor interest in large-scale, community-based digesters
- Closed loop systems, integrating ethanol and biodiesel, may become a larger part of the market
- On-farm digester use will increase as livestock operations expand
- Carbon credit trading will play a larger role

DNR AD Publications





Regulatory Guidance Meeting

- Meet with the digester owner and consultant and Iowa DNR's Wastewater Permitting Section, Air Quality Permitting Section, Field Services and Compliance Bureau and the Land Quality Bureau.

Recommendations

- Communicate with your regulator.
- Prevent surprises (process water – well or water withdrawal permits, other wastewater issues, storage of biosolids…)

Program Implementation Guidance PIG

- **TOPIC: Regulation of Community-Based Anaerobic Digesters**
- **Procedure Number: 5-b-19 Replaces Number: NA**
- **Effective Date: October 20, 2006 Expiration Date: October 20, 2011**
- **Synopsis of Guidance**: This document provides guidance for determining which permitting and manure management plan (MMP or NMP) requirements apply to waste conversion processes, such as a community-based anaerobic digester and to the animal feeding operations (AFOs) , whether confinements or open lots, that are supplying manure to the facility or receiving post-digester nutrients from the facility.
- **Applicable Iowa Code or IAC provisions: COI 459.312, IAC 65, IAC 22**

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Background

- The DNR is promoting waste conversion processes such as anaerobic digestion
- Planned inputs may include feedlot runoff, manure, grease and oils from food processing, industrial organic sludge and distillers grains
- Process outputs may be methane, electricity and fertilizers

Guidance

- Air construction permits must be obtained for any emission sources venting to the atmosphere
- Flares, electric pumps, emergency generators, and compressors
- However, a digester located at an AFO would be exempt from air construction permitting requirements

Digesters on the farm

- An AFO that installs a digester onsite will be regulated as an AFO
- The digester will be permitted as an AFO structure
- If other organic waste streams are added, special requirements related to volume, nitrogen, and phosphorous content of the biosolids will be placed in the permit and MMP to ensure that the AFO has enough storage & appropriately applies all nutrients.

Guidance

- Digester at a Confinement Feeding Operation site with an MMP
- Digester at an Open Feedlot with an MMP
- Digester at a CFO without a NMP
- Digester at an Open Feedlot w/o an NMP
- Digester at a site with no AFO

Digesters not on the farm

- Will be considered an industrial operation and in Iowa a wastewater construction permit or separation distance requirements are not required
- However, NPDES permit requirements apply to any wastewater treatment of post-digestion liquids
- Must not have common ownership with an AFO
- Manure and other waste must be accepted in closed containers, no organic waste shall be open to the atmosphere

Post-digestion solid material

- The facility must obtain registration approval from Iowa Dept of Agriculture for use as a fertilizer/soil amendment
- If the material is returned to the AFO, it must be land applied according to their MMP

Amana Farms Feedlot

- Four Guascor IC Engine – burning digester gas, Rated at 1057 HP
- GHD Flare for burning digester gas, rated at 45920 cfh

Amana Farms Digester

Amana Farms Digester

For more information, please contact me
Land Quality Bureau of the Iowa Department of Natural Resources

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