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WE ENERGIES
GENERATING COMMERCIAL ELECTRICITY FROM ANIMAL WASTE

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Company Profile

- **We Energies**
  - Formerly Wisconsin Electric - Wisconsin Gas
  - Largest electric and gas utility in Wisconsin
  - Over 2 million electric + gas customer accounts
  - Headquartered in Milwaukee, WI, 5800 employees

- **Electric System**
  - 6000 MW of generation (approx. 140 MW renewable energy)
  - Transmission fully divested as of 2001
  - Few fuel sources from within state

- **Strategy:**  **Power The Future**  [www.powerthefuture.net]
Background

- **We Energies & Renewable Energy**
  - Long-standing and ongoing commitment to innovative environmental and renewable energy leadership
  - Operates or purchases over 140 MW from a variety of sources
  - Experience with hydro, biomass, wind, and solar

- **Environmental Excellence**
  - Multi-Emission Cooperative Agreement
  - EPA Climate Leader
  - Innovative Stewardship Programs
Definition of Renewable Energy

- **What IS Renewable Energy**
  - Wind
  - Solar
  - Biomass
  - Hydroelectric
  - Geothermal
  - Tidal / Ocean Energy

- **What is NOT Renewable Energy**
  - Fuel cell (unless powered by a fuel source listed above)
  - Microturbines (unless powered by a fuel source listed above)
  - Compressed Air (unless powered by a fuel source listed above)
  - Energy Efficiency / Conservation
  - Nuclear Power
Drivers of Renewable Energy Demand

- State or Federal Renewable Portfolio Standard (RPS)
  - RPS requires electric providers to supply renewable energy to customers
  - 13 States have an RPS
  - Wisconsin has an RPS

- Renewable Energy Pricing Programs
  - Some customers are willing to pay a premium to support renewable energy
  - Over 300 IOUs, Munis and Coops in 30 states have GPP
  - Competitive suppliers also offer Renewable Energy
Renewable Energy Sells

- Renewable Energy is Popular
  - Between 1% and 5% of electric customers will pay extra for renewable energy

- Margins are thin
  - Price of Electricity has 3 components - Generation, Transmission and Distribution
  - Average Residential rate in US is about 8.5 cents / kWh
  - What is the cost of generation?

- What do Customers think Renewable Energy Is
  - Wind
  - Solar
Animal Waste Electricity Generation

Technologies - Waste Treatment
- Aerobic - (no Methane)
- Anaerobic - (Methane)

Drivers of animal waste treatment
- Ground water contamination
- Runoff control
- Odor control
- Regulatory compliance
- Use of waste heat
- Solids can be used for bedding
- Income from electricity sales
Anaerobic Digestion

- What drives you to do this? - Remember margins are thin.
- Develop a business plan
- What type of operation do you have?
  - Livestock type
  - Confined
  - Expanding
  - Building new operations buildings
Anaerobic Digestion

- Be friendly with your banker
- Do your homework
- Work closely with your local electricity provider
- Remember even very large animal operations will be small electric generators
- Investigate consolidation of animal waste
What is We Energies Doing

- We Energies 5% Target for Renewable Energy
  - We have committed to target at least 5% of our Wisconsin retail electric sales to come from renewable energy sources by 2011 and, subject to PSCW approval, spend an additional $60 million (Wisconsin jurisdiction) by 2011 to reach this target.
  
- What counts (eligible resources vs. RPS)

- Current projection would require over 1,400,000 megawatt-hours generated or procured in 2011
Biomass - 200 kW Duck Farm

duck, duck, juice.
We Energies Animal Waste Electricity Generation

- Maple Leaf Duck Farm
- Tinedale Farms
- Biomass Request for Proposal
  - Requested up to 25 MW of generation
  - Favor anaerobic digestion
  - Evaluating responses
  - Responses for anaerobic digestion