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*ACEEE Forum on Energy Efficiency in Agriculture
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Renewable Energy/Energy Efficiency

- *FY 2002 Farm Bill – Title IX*
- *Other USDA Programs*



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Farm Bill - Energy Title

Section 9001 – Definitions

Renewable Energy:

Biomass

Geothermal

Hydrogen

Solar

Wind





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Farm Bill - Energy Title

Section 9001 – Definitions Con't

Biomass:

Agricultural Crops

Tree Grown for Energy Production

Plants (including aquatic plants and grasses)

Residues

Fibers

Animal Waste and other Waste Materials

Fats, Oils and Greases





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Farm Bill - Energy Title

Section 9006 – Renewable Energy Systems and Energy Efficiency Improvements Program

- Establishes a grant, loan, and loan guarantee program to assist eligible farmers, ranchers, and rural small businesses in purchasing renewable energy systems and for making energy efficiency improvements.*





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General Provisions

- *Grant amount not to exceed 25% of activity funded.*
- *Combined loan/grant not to exceed 50% of cost of activity funded.*





Energy Efficiency Improvement: Gold Top Farms

Applicant

- Gold Top Farms, a family-owned dairy, located in Knox, Maine
- Awarded \$4,133 in Section 9006 grant funds for an Energy Efficiency Improvement project





Gold Top Farm, con't

Project goals

Improve barn ventilation – in summer, cows bunching up in ventilated areas creating more heat and stress, which directly affected health – in winter, heat from cows coupled with lack of ventilation created damaging condensation on barn ceiling

Technology employed

Three 24-foot Big Ass Fans[®] -- these are very large, high volume, low speed fans that provide greater air circulation and require less electricity than the previous method – these fans can move up to 246,000 cfm of air over an area as large as 20,000 square feet for about a nickel an hour



Gold Top, con't

Savings

Gold Top expects annual savings of:

Energy – 90,000
kWh/yr

Financial -- \$8,000/yr

Financing

Gold Top received a Section 9006 grant in the amount of \$4,133, or 25% of total project cost – the dairy also leveraged an additional \$8,000 of total project costs with state incentives



Renewable Energy System: Castelanelli Bros. Anaerobic Digester

Applicant

- Castelanelli Bros. Dairy, a family-owned, 1600 cow dairy, located in Lodi, California
- Awarded \$166,580 in Section 9006 grant funds for a Renewable Energy System project





Castelanelli Bros. Digester, cont'd

Project goals

Waste management, odor reduction, replacement of electricity produced from fossil fuels

Technology employed

Anaerobic digester, 160 kW engine/generator – bacteria present in digester convert the manure into biogas to produce electricity



Castelanelli Bros. Digester, cont'd

Savings

Castelanelli expects to produce most of the dairy's electrical needs with the digester – expecting to make \$80,000 to \$100,000 annually

Financing

Castelanelli Bros. received a Section 9006 grant in the amount of \$166,580, or %25 of total project cost – the dairy also leveraged additional funds with state incentives



Renewable Energy System: Pope, MN Wind Turbine

- Went online in October 2003 in Pope County, central Minnesota.
- A remanufactured E-15 35 kW machine, from Energy Maintenance Services in Gary, SD.
- One of 4 similar projects to funded in Minnesota.





Pope, MN Wind Turbine, cont'd

- Partners: Farmer Earl Hauge and his former farmhand Minneapolis resident Carl Nelson see wind power as a great opportunity to revitalize rural Minnesota.
- Earl owns the land and enjoys the new income from selling the extra electricity he doesn't need for his farm,
- While Carl earns some extra income and the piece of mind of making pollution free energy.
- A USDA grant covered 25% of the cost (\$17,175).



Neighbors and other interested farmers at the turbine dedication.



Section 9006 Funding Activity FY 03 thru 05



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Renewable Energy

	<i>No.</i>	<i>Amounts</i>	<i>Leveraged Funds</i>
<i>Biomass</i>	119	\$29,757,021	\$197,116,700
<i>Wind</i>	121	27,809,516	446,418,325
<i>Solar</i>	17	1,442,243	3,559,375
<i>Geothermal</i>	4	380,283	1,140,872
<i>Hybrid</i>	9	2,439,832	185,455,600
<i>Totals</i>	<u>270</u>	<u>\$61,828,895</u>	<u>\$833,690,872</u>

Energy Efficiency Improvements: 165 - \$4,927,655

Guaranteed Loans (Biomass): 2 - \$10,100,000 Leveraged Funds \$13,134,000





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Promoting Energy Programs

- *Working Together*
- *Leveraging of Financial Resources*
- *Outreach and Marketing*
- *Technical Assistance*





QUESTIONS

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THE END